

Geography Connection

University of Utah Department of Geography

Volume 12 Spring 2011

www.geog.utah.edu

Spin-off Firms — Cityworks | Azteca Systems

Brian Haslam, President and CEO of Cityworks | Azteca Systems received his MS degree from University of Utah's Department of Geography in 1990 (www.azteca.com). Before launching his business, Brian was the director of Digitally Integrated Geographic Information Technology (DIGIT) Laboratory from 1988 to 1994. Cityworks | Azteca Systems was founded in 1995.

Cityworks | Azteca Systems currently has 75 employees and several million dollars in revenues. Eleven current employees are graduates from the U's Department of Geography.

University of Utah - Department of Geography graduates employed with Cityworks | Azteca Systems



Front Row (left to right)

Wayne Hill

Executive Director, Client & Information Services
BS in Urban Planning & Design emphasis in GIS, 1994

Steve Thomas

Executive Manager, Customer Support
MS in Geography, 1995

Brian Haslam

President/CEO
MS in Geography, 1990
BS in Geography, 1986

George Mastakas

Executive Director, Enterprise Solutions
BS in Geography, 1994

Carl Horton, Ph.D

Executive Director, Software Development
PhD in Geography, 1993

Back row (left to right)

Reed Hayes

Customer Support Representative
BS in Geography, 1991

Jiajun (John) Liu

Chief Software Architect
MS in Geography, 1993

Chris Brussow

Customer Relations Representative
BS in Geography, 2004, and GIS certificate, 2010

Blake Mize

Development Testing
BS in Geography/ Environmental Studies with a GIS certificate, 2010

Jeff Gerke

Software Developer
BS in Geography, 1996

April Dansie

Documentation Writer
BS in Geography, 1993

The roots of Cityworks | Azteca Systems and the development of Brian's ideas go back to the U's Department of Geography and its long term emphasis on geographic information systems development. The company's software is now utilized by over 400 cities, utilities, and counties within the US. In Utah, users of Cityworks | Azteca Systems include Salt Lake City public utilities, Provo water aqueduct, and the cities of St. George, Logan, Sandy, West Valley City, and Herriman. The company also has international distribution partners.



George F. Hepner, Chair, Department of Geography, and Brian Haslam, CEO of Cityworks | Azteca Systems

Since 1995, Cityworks | Azteca Systems has seen steady growth, even through the last recession. They currently offer six software products that use GIS as the core technology for a number of maintenance and operations functions, including, but not limited to, transportation industries, water, wastewater, and storm water utilities, electric and gas agencies, and parks and recreation management. Created for local government, utilities and agencies, it is designed to leverage an organization's investment in GIS technology.

The world is becoming more and more GIS literate, GIS-centric, and the number of uses and applications of GIS are exploding. GIS is becoming one of the core applications for cities, counties, and states across the US. New technologies are enabling more GIS-centric applications and Cityworks | Azteca Systems is well positioned to grow with the technological advancements of the future.

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Letter from the Chair

Making your degree worth more

I have begun my term as chair of the department following the very capable leadership of Harvey Miller. For those of you having a longer history with our department, you may recall that I was chair from 1990-96. At that time, the department was very different in faculty composition and academic focus. The department has gone through a massive reconfiguration since the early 1990's. We have a majority of new faculty members, all of whom are very productive. Our graduate program was reviewed last year in very favorable terms by the external reviewers, internal reviewers and the upper administration. The result is that we are hiring three faculty members this year with two more new hires in the next couple of years. The National Research Council rankings placed our program in the upper third of geography PhD programs in the United States. We were in the lower third when I came here in 1990. As you read about the recent activities of our students, faculty and staff in this newsletter, you will see the great amount of intensive instructional and scholarly activity that is going on in the department in 2011. The increasing reputation of the Department of Geography is matched with increasing prominence of the University of Utah. If one concedes that the enhanced status and reputation of a university and department result in an increase in value of those degrees granted, then your degree from the Department of Geography at the University of Utah is worth more than it was 20, 10 or even 5 years ago. Our focus is to try to make your degrees worth even more in the future.

George Hepner george.hepner@geog.utah.edu

Faculty Activities



Back Row L-R: Rick Forster, Genevieve Atwood, Mitchell Power, George Hepner, Dennis Wei, Tom Kontuly

Front Row L-R: Phil Dennison, Harvey Miller, Andrea Brunelle, Kathleen Nicoll, Larry Coats, Tom Cova

Genevieve Atwood: Genevieve is an Adjunct Assistant Professor in the U of U's Geography Department, a former three-term state legislator, former State Geologist and Director of the Utah Geological Survey. She also is Chief Education Officer of Earth Science Education, a small not-for-profit organization that uses local geology to teach instructors earth science principles, outdoors, and in their students' neighborhoods. Genevieve is a process geomorphologist and her on-going research examines coastal processes and flooding hazards of Great Salt Lake. In Spring 2011 she teaches two U of U courses: Geography of Utah and the field course, Analysis of Utah Landforms. That's quite a course. Students meet every Thursday and review principles of geomorphology. Then

there's eight days of intense field investigations in Utah's three physiographic provinces over Spring Break.

Andrea Brunelle: Andrea is a paleoecologist who is interested in records of environmental change with a focus on past ecosystem disturbances such as fire and bark beetle outbreaks. In 2010 she was an invited speaker at the "International Association of Vegetation Science" meeting in Ensenada, MX. She also gave a talk at the GSA in Denver, CO, in November. She had five new papers come out in 2010, two led by her graduate students. She is currently on sabbatical and besides working on her research; she spent five weeks doing a Spanish language immersion in Ensenada, MX with her family over the winter holidays.

Larry Coats: Larry has lived in each of the states making up the Four Corners! His research includes paleoecology and climate change, especially reconstructing past environments in arid lands using packrat middens as a tool. Currently, he is working on the late Holocene distributions of Adelie penguins along the Victoria Land Coast of Antarctica, and reconstructing the paleoenvironments of Range Creek Canyon to support the archaeological investigations in progress. A new grant will fund one more year in the Ross Sea for more work. Larry will be presenting the results of his high survey of archaeological sites in Range Creek at the Society for American Archaeology Annual Meeting in March.

Tom Cova: Tom's research interests are hazards, transportation and GIS with a particular focus on wildfire. Last year he presented a talk at the 2010 Annual Meeting of the AAG in Washington D.C. on "Mapping wildfire evacuation vul-

nerability in the West” that involved searching a roads database of 10 western states for fire-prone canyon communities that might be difficult to evacuate. The results yielded a host of communities with more than 800 housing units and only 1 exit (mostly in SoCal). Last April he testified before the Bushfire Royal Commission in Melbourne, Australia via satellite link on issues surrounding the 174 fatalities that occurred in Victoria in February 2009. This yielded an invitation to attend a joint U.S.-Australian workshop in Melbourne, Canberra and Sydney in the summer that involved touring some of the most devastated towns. He is planning a trip to a CyberGIS (“GIS in the cloud”) workshop on emergency management in D.C., as well as one to give a talk to the California Fire Academy near Sacramento that will also double as a chance to survey more incident commanders for an NSF-funded project on decision making in wildfires. He is currently teaching a new seminar on Sustainability and Disasters and co-editing a journal special issue on the same topic. Tom has a 5-year old who likes to swim, ski, cook, and practice karate and yoga (oh, and watch TV).

Phil Dennison: Phil has ongoing research on remote sensing of vegetation and wildfires. He collaborated with Andrea Brunelle and recent Master’s recipient Vachel Carter to publish a paper on mapping bark beetle kill using high resolution satellite data. Phil has recently been active in using remote sensing to map defoliation of the invasive species tamarisk by the introduced saltcedar leaf beetle. The combination of these two studies led Phil to give an invited talk at the University of Denver titled “When Beetles Attack: Remote Sensing Insect Impacts on Vegetation” in Spring 2010. Phil and George Hepner received funding from the BLM for a postdoc. The new postdoc, Audrey Wang, will be starting in his lab February 1. Phil will be attending the AAG in Seattle this year, where he and five of his grad students will be presenting. He developed a new course on “Exploring the World Through Google Earth,” and the course will be offered for the first time in Spring 2011. Phil received the grad student mentoring award in April 2010 and is looking forward to starting his sabbatical next academic year. He and his wife went solar in summer 2010, installing a 2.35 kW photovoltaic array on their home in Murray.

Rick Forster: Rick has been conducting research in glaciology and remote sensing, currently in Antarctica, Greenland and Alaska. This past year National Science Foundation has funded a new research project to measure snow accumulation on the Antarctic Ice Sheet. This will involve extracting snow/ice cores from several locations and traversing about 300 km on snowmobiles with ice penetrating radar. A similar NSF project is ongoing for the Greenland Ice Sheet and a team of graduate students from the department will be returning for the second field season in spring 2011. Rick presented research results this year at NASA and the American Geophysical Union conference.

Spike Hampson: Spike is a professor lecturer for the department devoting his professional time to teaching. He has recently presented a paper at the World Universities Forum in Hong Kong. It was on the potentially revolutionary nature of online courses. Last summer, he worked on winterizing a yurt that he had erected on a piece of land in the mountains. Spike has been teaching skiing part-time at Deer Valley for 28 years and has just started writing a book on how to ski.

George Hepner: George is the new chair of the department as of Fall, 2010. He specializes in land use analysis, GIS, and the geography of terrorism. His recent research funding includes a continuation of funding from USEPA for Southwest Consortium for Environmental Research and Policy (SCERP), Bureau of Land Management and British Gas International. He has recent publications and papers in review with former graduate student Richard Medina (now at Oak Ridge National Lab) and Laura Siebeneck on geospatial representation of terrorist social networks and spatial analysis of terrorist attacks. Also, he is involved in Phase VI of the ASPRS Ten Year Forecast of the geospatial industry www.asprs.org/news/forecast/index.html

Harvey Miller: Harvey’s research and teaching interests include GIS, transportation, time geography and mobility science. He is enjoying a leave after serving as department Chair for six years, spending much of the year traveling for conferences, workshops and visiting faculty positions at international universities. Harvey gave invited talks in two workshops at Schloss Dagstuhl – Leibniz Center for Informatics in Wadren, Germany: “Computational Transportation Science” (March 2010) and “Representing, Visualizing and Analyzing Moving Objects” (December 2010). He gave keynote addresses at the Movement Pattern Analysis 2010 workshop at the GIScience 2010 International Conference in Zurich, Switzerland (September 2010) and at the Transportation for Livable Communities Symposium in Washington DC (October 2010). Harvey gave the Fleming Lecture in Transportation Geography at the Association of American Geographers meeting in Washington DC (April 2010) and an invited lecture on time geography and mobility analytics to the Faculty of Geo-Information Science and Earth Observation (ITC) at the University of Twente in Enschede, Netherlands (October 2010). In addition, he presented papers at the Western Regional Science Association meeting in Sedona, AZ (February 2010) and the Spatial Accuracy 2010 conference in Leicester, UK (August 2010), and published papers in the *Journal of Regional Science*, *Journal of Geographical Systems* and *Geographical Analysis*. Harvey also taught a short course on “Mobility Concepts and Analytics” at the Mobility, Data Mining and Privacy (MODAP) summer school for PhD students and young scholars in Rhodos, Greece (August 2010) and a graduate seminar on “Time Geography and Mobility” at the University of Zurich, Switzerland (December 2010). He spent part of the year as a Visiting Professor at the Department of Geography, Gent University, Belgium (September - October 2010) and at the Department of Geomatics at the University of

Melbourne, Australia (March 2011). He co-organized a workshop on “Pervasive Transportation Data” at the 2011 Transportation Research Board annual meeting in Washington DC (January 2011) and a workshop on “GIS for Livability and Sustainability” (May 2011; also in Washington DC). Harvey also finished a six year term as co-Chair of the Geographic Information Science and Applications committee of the Transportation Research Board. When he has spare time, Harvey enjoys biking, skiing, rock climbing and wilderness travel. Finally, Harvey and his wife Susanne celebrated their 25th wedding anniversary in December and he looks forward to the next 25 years.

Elizabeth Dudley-Murphy: Elizabeth was born and raised in Chile, mostly in the Atacama Desert. In late Spring 2009, Elizabeth and colleague Spike Hampson traveled with 18 students to Costa Rica, where they explored present day culture, learned about ecotourism, and geographic writing. Elizabeth is also a faculty representative at the University of Utah for the School for Field Studies, Environmental Field Studies Abroad Program that is based in Salem, Massachusetts. Her research interests include the application of remote sensing and GIS for urban and vegetation analysis - specifically the urban forest. An ongoing project involves using and developing new methods based on high spatial resolution imagery for characterizing the urban forest in the Salt Lake Valley. Beth is preparing a GIS short course to be taught at Isle of Man for the Bahamian Petroleum Company.

Kathleen Nicoll: Kathleen’s research areas are quaternary geology, geomorphology and archaeological geology, with emphasis on arid landscapes. This past year she continued to serve as the Chair-Elect of the Archaeological Geology Division of the Geological Society of America and also served on the Steering Committee for AMQUA (American Quaternary Association), which planned their biennial meeting in Laramie, WY. Last October, while serving on the Scientific Committee of the Geological Society of America for the meeting called “Tectonic Crossroads: Evolving Orogens of Eurasia-Africa-Arabia” held in Ankara, Turkey, she convened a day’s sessions on recent research involving archaeological geology and paleoclimate change in the Near East. In January 2011, Jake Gottfredson, an undergraduate student working with her through the University Research Opportunity Program (UROP), presented a poster at the Utah State Capitol for “Science on the Hill.” Jake’s research project has been selected for presentation at the 2011 National Conferences on Undergraduate Research, at Ithaca College. Jake has been

working with Kathleen and in collaboration with Dr. Diego Fernandex of the Geology & Geophysics Department at the University of Utah. His project has a geochemical focus, and is entitled “Preparation of Fossil-Spring Tufa Deposits for Uranium-Series Dating: A Case Study from Kharga Oasis, Egypt.” Last December, Kathleen was invited to be a speaker for the American Institute of Archaeology, and in this capacity, she presented a public lecture at Willamette University. She was awarded the University of Utah College of Social and Behavioral Sciences Finalist, Superior Teaching Award for 2008-2009 and 2009-2010 as well as the Geological Society of America 2010 Gladys Cole Memorial Research Award.

Mitchell Power: Mitchell is one of our recent departmental additions, working in partnership with the Natural History Museum. His interests include botany, paleoecology, biogeography, fire history, and paleoclimatology. As Curator of the Garrett Herbarium, Mitchell continues to develop the digital database of the museum’s plant collection and will be moving to a new building this summer. This past year he spent the summer conducting plant surveys and collecting sediment cores near the 2007 Milford Flat fire, Utah’s largest fire on record. This BLM-funded research in the eastern Great Basin is exploring the region’s vegetation history and the role of fire. Last August Mitchell co-organized a session at the 2010 American Geophysical Union, the Meeting of the Americas, in Foz do Iguacu, Brazil. This session explored the impact of the “Colombian Encounter,” when Europeans began to settle the New World during the 15th and 16th centuries. Mitchell continues to pursue his international research interests including recent publications on paleofire regimes in Mediterranean ecosystems, in Bolivia, and French Guiana.

Dennis Wei: Dennis co-organized with Justus Liebig University an “International Open Workshop on Transnational Corporations, Knowledge and Networks in China’s Regional Economy” in Giessen, Germany, from June 21-23, 2010. He also published nine referred journal articles, two book chapters, and three book reviews in the last year. He has been editing special issues for *Applied Geography*, *Environment and Planning A*, and *Erdkunde*. He has received the Lincoln Institute China Program International Fellowship from the Lincoln Institute of Land Policy to study urban land expansion in China.

Auxiliary and Associate Instructors

R. Clayton Brough	David Wilkins
Tom Hale	Jason Berry
Ingrid Weinbauer	Pam Perlich
Val John Halford	Ralph Patterson

Emeritus Faculty

Donald R. Currey (Deceased)	Albert L. Fisher
James W. King	Chung-Myun Lee
Roger M. McCoy	Merrill K. Ridd
Leroy H. Wullstein	

New Graduate Students



Back Row L-R: W. Dustin Garrett, Clément Miège, Chris Balzotti, Alex Headman, Calvin Tribby, Lovina Turney, Briant Judkins
Front Row L-R: Yi Qi, Ran Meng, Yoshi Tracy (Maezumi),
Not pictured: Brian Olsen

Chris Balzotti (Ph.D.): Chris is a first year PhD student. His current research consists of developing a predictive habitat model for *Centrocercus urophasianus* (sage grouse) for the State of Utah. He is also a member of the Sierra del Lacandón Regional Archaeology Project. His research combines remote sensing and tropical ecology in identifying vegetation changes (particularly those effects of human impact) in protected tropical regions, specifically the Sierra del Lacandón and Tikal National Parks, located in Petén, Guatemala. Other research projects he has been involved with include endangered plant distributions and conservation issues in southern Utah, plant and animal survey work with the Division of Wildlife in Utah, alkaloid identification and extraction in endangered plant species indigenous to Utah, and soil composition studies in reference to land uses by the ancient Maya in Guatemala and Mexico. Chris holds a BS in Plant Biology and a MS in Environmental Science from Brigham Young University. He also currently teaches UVU scuba classes and spends his free time diving and in the outdoors with his wife and new son.

W. Dustin Garrett (M.S.): Dustin is a first year Master's student interested in palaeoecology, GIS, remote sensing, and sustainable restoration applications. He would like to thank Dr. Hepner for facilitating his RA funding for research on desert wetlands and the department staff and faculty for their warm welcome. Mr. Garrett, a natural born citizen, is awaiting the birth of his second child and first daughter in early May.

Alex Headman (M.S.): Alex is a first year Master's student. He is interested in geomorphology and paleoecology. His background is in history and archaeology, which has sent him to vari-

ous corners of the globe to dig up interesting things. While he has traveled far and wide, he generally calls Salt Lake City, Utah, home. In the little spare time he can find Alex enjoys rock climbing, cycling, road trips and exploring the American west.

Ran Meng (Ph.D.): Ran is from China and is a first year PhD student working with Dr. Phillip Dennison at the Utah Remote Sensing Applications Lab (URSA) as a research assistant. He received his M.S. in Cartography and Geographical Information System from the Institute of Geographical Sciences and Nature Resources Research, Chinese Academy of Sciences, Beijing (IGSNRR). His research interests include land-use/land-cover mapping using remote sensing data, change detection based on time-series remote sensing data, and the application of GIS and remote sensing techniques in the fields of natural resources and environmental sciences. In Ran's spare time, he loves jogging, physical exercise at the gym, travelling, watching movies, photography, reading, and listening to music. He also indulges in playing Sanguosha (a very popular card game in China right now).

Clément Miège (Ph.D.): Clément is a first year PhD student and from Grenoble, France. He received a Master of Science in Earth and Environment Science, specializing in ocean, atmosphere and hydrology at the University Joseph Fourier, Grenoble, France. His B.S. degree is in Geology from Ecole Normale Supérieure de Lyon, France. He is currently working on his PhD as a research assistant for Dr. Rick Forster. Clément is using different radars to look at the snow accumulation variability in South East Greenland and in the Wais Antarctic Ice Sheet. His research interests include snow and ice, remote sensing of the ice-sheet, ground based radar and *in situ* measurements (ice cores and snow pits) on ice sheets. He enjoys traveling and sharing new experiences, skiing Utah's deep powder snow, climbing and other outdoor activities.

Brian Olsen (M.S.): Brian is a first year Master's student and graduate assistant in the DIGIT Lab. His background is in human geography and foreign language from the University of Vermont (2008). At the University of Utah, his research interests have expanded into GIS and remote sensing, with applications for renewable energy and geospatial intelligence. The Minnesota native spent 10 years competing in the sport of biathlon, culminating in the 2006 Winter Olympic Games in Torino, Italy. Now retired, he promotes development of the sport, serving on the Boards of Directors of the U.S. Biathlon Association and Soldier Hollow Legacy Foundation. In September 2010, he commissioned as a Second Lieutenant in the Utah Army National Guard. Recently, he took command of a detachment of the 624th Engineer Company (Vertical) in Price. He's

currently learning Pashto in preparation for deployment to Afghanistan shortly after defending his thesis in spring 2012.

Yi Qi (Ph.D.): Yi is a first year PhD student with Dr. Dennison. His interests are in remote sensing, GIS, human-environment interaction, and sustainable development. He holds a Master's degree in Geography from Northern Illinois University and B.S. in GIS from China University of Geosciences. Before joining the University of Utah he was a GIS analyst with Natural Capital Project at Stanford University. He was born in Huangzhou, China. He likes hiking, swimming, and playing basketball with friends.

Yoshi (Maezumi) Tracy (Ph.D.): Yoshi is a first year PhD student and was born in Hollywood, CA, where she lived with her family at a Zen monastery until she was 3 years of age. She then moved to a little mountain town in the San Jacinto Mountain Range where she spent the remainder of her childhood. Her research interests include paleoecology, biogeography, and paleoclimatology. Yoshi's current research addresses the role of frequent fire return intervals in Mediterranean Hotspots to produce high levels of endemic plant species. Yoshi loves the opportunity to get new students interested in the world they live in and she loves to teach. Last year, while completing her MA at CSU Long Beach, she was awarded a Graduate Research Fellowship and won second place in the student poster competition at the Western Society of Naturalist Conference. She is planning on presenting her preliminary doctoral research on Mediterranean Hotspots at PACLIM in March and at INQUA in July. She is a yoga instructor and teaches at a new

studio that has just opened up in Trolley Square. Yoshi loves to surf, although there is not much of that here in SLC, and she also rock climbs and cycles. She loves to dance salsa and Argentine Tango, and travel whenever possible.

Calvin Tribby (Ph.D.): Calvin is a first year PhD student from New Mexico where he received an MS in Geography and a BS in Applied Mathematics. His advisor is Harvey Miller and he is interested in policy issues and spatial interactions concerning public investment in transportation and their effects on accessibility, equity, and livability. He currently works in the DIGIT lab. Calvin enjoys cycling (both mountain and road), hiking, and camping.

Lovina Turney (M.S.): Lovina is a first year Master's student. She is originally from Diamond City, Alberta, Canada, but has been in Salt Lake City for several years. She is interested in biogeography, paleoenvironmental studies, paleoecology, reconstruction studies, etc. Outside of school she is involved in the Society for Creative Anachronism (SCA), a medieval reenactment group, is a member of the Rising Phoenix Dance Company, and is a falconer. She also enjoys spinning yarn, reading, and doing puzzles. She received a Silver Medal for Superior Service award from the EPA for her work on the National Watershed Boundary Dataset for the US Geological Survey in September 2010. She lives in West Jordan with her husband, Senegal parrot, two chinchillas, two rabbits and two Harris hawks.

Recent Graduates and Alumni

RECENT GRADUATES



Back Row L-R: Ian Housman, Laura Siebeneck, Jamie Turrin, Shizuo Nishizawa, Tetsuo Kobayashi
Front Row L-R: Lina Cao, Vachel Carter, Ying Song

Laura Siebeneck: Laura graduated from the Geography Department at the University of Utah this past summer. Her dissertation was titled, "Examining geographic influences on evacuee risk perception, risk communication, and response during the evacuation and return-entry process." Following graduation, Laura moved to Denton, Texas to work as a visiting lecturer for the Department of Public Administration's Emergency Administration and Planning program at the University of North Texas. While at UNT, she has been instructing courses in emergency management and hazard mitigation and preparedness. Her current research focuses on geographic and temporal dimensions of risk perception, communication, and household behavior during the evacuation and return-entry processes for disaster events.



Laura continues to work closely with her advisor, Tom Cova, and members of the University of Utah's Center for Natural

and Technological Hazards (CNTH) on a variety of projects related to hazards, vulnerability, and emergency management. When Laura is not at work, she enjoys playing basketball, softball, and reading. She especially misses playing 1st and 2nd base for the Geography Department's softball team, Team Awesome.



Richard Medina: Richard graduated from the Geography Department at the University of Utah in August 2009. His dissertation was titled, "Use of Complexity Theory to Understand the Geographical Dynamics of Terrorist Networks." He presently works as a Research Scientist in the Geographic Information Science and Technology group

at Oak Ridge National Laboratory in Oak Ridge, Tennessee, where he continues his research in areas of GISc, terrorism and homeland security, hazards and vulnerabilities, and dynamic population modeling. His present research projects include studies of the integration of geographic and social spaces for the analysis of terrorism and spatiotemporal analysis and data mining of terrorist attacks in Iraq and Nigeria. He is also Co-PI on an internally funded project that focuses on future climate change induced migration for populations in Bangladesh and Sub-Saharan Africa.

Richard lives in Knoxville, Tennessee with his wife, Victoria and 3 year old son, Seth. They make frequent trips to Dollywood when the weather permits and have a new appreciation for fireflies, bluegrass, and Tennessee wines (sans Seth).

Department News

Kathleen Nicoll wins Quaternary Geology and Geomorphology Award from GSA



Kathleen Nicoll was recently awarded the Gladys W. Cole Memorial Research Award at the annual Geological Society of America (GSA) meeting in Denver, Colorado, for her work on the geomorphology of semiarid and arid terrains in the United States and

Mexico. It is awarded annually to a GSA Member who has published one or more significant papers in geomorphology.

The award was established in 1980 by Dr. W. Storrs Cole in memory of his wife. He had been a fellow of GSA for 58 years and was one of the Society's leading benefactors.

Jonathan Williams selected for NGA internship

Jonathan Williams, a junior in Geography and President of the local chapter of the Geography honor society, Gamma Theta Upsilon (GTU), has been selected for a National Geospatial-Intelligence Agency (NGA) internship this summer in their St. Louis, MO office.



NGA develops imagery and map-based intelligence solutions for US national defense, homeland security and safety of navigation. Headquartered in Bethesda, MD, NGA has major facilities in the

Washington, D.C., Northern Virginia and St. Louis, MO areas. This is the second year that one of our U Geography students have been selected for this remarkable opportunity.

Jesse Morris wins Early Scientist Award



Jesse Morris, a graduate student in the Ph.D. program working with Dr. Andrea Brunelle, has been named a winner of the Early Scientist Award. This is a highly competitive recognition in which Jesse was competing with other top Ph.D. students, post-doctoral fel-

lows, and pre-tenure faculty members. He received one of only 15 awards given. Jesse will attend the International Biogeography Society meeting held in Crete in January 2011. Way to go Jesse!

Tom Zumbado announced as winner of \$5000 USGIF Scholarship



Thomas Zumbado, a master's student working with Dr. George Hepner, was a recipient of The United States Geospatial Intelligence Foundation (USGIF) scholarship, which was announced in October 2010. This year, the Foundation awarded \$86,000 to 19 recipients, including four

PhD candidates, six master's students, six undergraduates and three graduating high school seniors. All scholarship recipients were chosen based on their academic and professional excellence in a field related to the geospatial intelligence tradecraft.

USGIF is a non-profit educational foundation dedicated to promoting the geospatial intelligence tradecraft and developing a stronger GEOINT Community with government, industry, academia, professional organizations and individuals who apply geospatial intelligence to address national security challenges.



Brandon Thiel chosen for NGA Stokes Scholarship program

Brandon Thiel, a freshman Geography major from Emmett, Idaho, has been chosen for the National Geospatial Intelligence Agency’s (NGA) highly competitive Stokes

Scholarship Program. Students accepted into this program attend classes during the academic year and work at NGA during the summer. Brandon will spend 10 weeks each summer for the next four years working in the Analysis & Production Directorate in St. Louis, MO until he earns his BS in Geography. Brandon is also pursuing a GIS Certificate for both the Applied GIS and Remote Sensing tracks.

Students accepted into this program receive tuition and required fees (limited to \$18,000 per year) toward a four-year degree at an approved university; an annual salary to cover room and board; full-time summer employment at the NGA; benefits; and a position at NGA after graduation appropriate to their skills and abilities.

The Analysis & Production Directorate provides geospatial intelligence and services to policy makers, military decision makers, warfighters, and tailored support to civilian federal agencies and international organizations. This geospatial intelligence is derived from many sources. The Directorate supports NGA’s goal to ensure a knowledge foundation for planning, decisions, and action.

This is an amazing opportunity for Brandon. We are looking forward to sharing the experience with him. Brandon is the third of our students selected by the NGA to participate in one of their programs during the last two years!

Softball Brings Geographers Together in the Spirit of Awesomeness



Back Row (L-R): Scott Matheson, Sam Stehle, Josh Groeneveld, Erica Fryer, Phil Dennison

Front Row (L-R): Catherine Matheson, Laura Siebeneck, Lisa Clayton, Hao Huang, Greg Fryer

Not Pictured, but still awesome: Phoebe, Tom Cova, Julie Miller, Todd Daines, Jamie Turrin

Last summer, a co-ed team of undergraduate and graduate students, faculty, and staff competed as part of Team Awesome, representing the Geography Department in a SL County softball league. Each week, the team competed against the best that SL County had to offer. Although the goal every week was to win, Team Awesome brought geographers together for fun times on and off the field. Throughout the season the team grew and developed what was already an impressive set of athletic skills. Special thanks go out to Greg Fryer and Sam Stehle who organized and recruited an amazing team. Thanks to those who played on the team as well...you all made the team truly awesome!

Geography Scholarship Winners



Back Row L-R: Calvin Tribby, Sam Stehle, Tom Zumbado, Zach Lundeen
Front Row L-R: Tyler Nelson, Austin Coates, Jonathan Williams, Tim Edgar

Scholarship Recipients

Donald R. Currey - Tim Edgar, Jennifer Watt, Jesse Morris

Vico E. & Patricia A. Henriques - Kevin Leishman

Don & Sue Lewon - Joseph Masini, Calvin Tribby

NASA ESSF Fellowship - Evan Burgess

Merrill K. Ridd - Sam Stehle

U of U Graduate Research Fellowship - Zachary Lundeen

UROP - Austin Coates

USGIF - Tom Zumbado

Continuing Student Awards

Kevin Chase Clyde

Alexander Lee Gilvarry

Tyler James Nelson

Jonathan Williams

Donald R. Currey 2011 Scholarship Recipients:

Evan Burgess – Evan’s project is using offset tracking with synthetic aperture radar (SAR) data to acquire the first regional measurements of glacier flow velocities throughout Alaska. His award will be used for fieldwork which will involve helping conduct altimetry flights over glaciers in the Wrangell-St. Elias Mountains, working alongside the UAF and CRREL groups.

Anthony Macharia – Anthony’s research will be to better understand the response of lake communities to nutrient and sediment fluxes from moisture pulses and fire episodes in the northwestern region of US. He will conduct testing in Utah Lake and Foy Lake. Anthony will use his funding for dating and isotope analysis.

Jesse Morris – Jesse is developing and applying a methodology for detecting spruce beetle outbreaks over the last 12,000 years from lake sediments for spruce/fir ecosystems in the Great Basin and Colorado Plateau regions of Utah. Jesse is using his funds to test whether mobilization of terrestrial plant material during landscape-scale bark beetle disturbances registers in carbon and nitrogen and to pay for radiocarbon dates on his sediment cores.

Yoshi Tracy – Yoshi’s research will include the analysis of sediment cores from five Mediterranean ecosystems. In 2011, she is planning to visit the laboratory of Dr. Anderson at NAU and sample a core he has collected from Laguna de las Trancas, CA. This core will be sampled for fire history analysis and radiocarbon dating. She will be using her award for travel costs and radiocarbon dating.

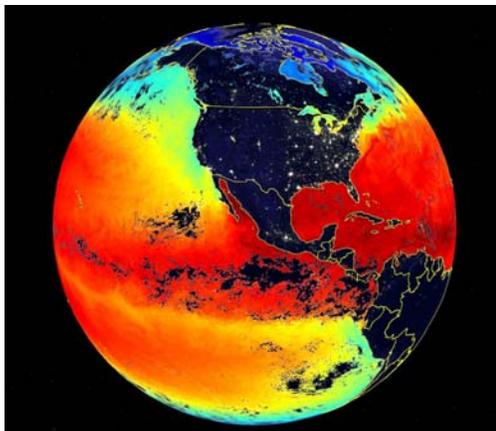
Jennifer Watt – Jenn’s dissertation research: 1) Identify past *Dendroctonus ponderosae* (mountain pine beetle) outbreaks in pine dominated forests using pollen from lake sediment records; 2) construct a Holocene baseline for the frequency and severity of past MPB outbreaks using lake sediment records; and 3) understand how bark beetle elytra (hard wing covering) become deposited in lake sediment. Her award will be used for fieldwork expenses and one radiocarbon date from Trappers Lake, CO.

New Course

SPRING 2011

Exploring the World Through Google Earth GEOG 1100-001

Social and environmental changes are occurring at rates never before witnessed in the history of humanity. Geographic data have revolutionized our view of the physical and human processes causing global change, and [Google Earth](#) has greatly increased our ability to access and visualize these data. This course uses Google Earth to investigate important geographic processes that are responsible for global change phenomena. Some of the topics we will examine during the semester include:



In this visualization created by Google Earth, warmer colors indicate hotter sea surface temperatures and white clusters show areas of high population density.

- Remote sensing
- Earth's energy budget
- Atmospheric and oceanic circulations
- Climates and climate change
- Population
- Urbanization
- Transportation
- Energy resources
- Water resources
- Natural hazards



A view of downtown Salt Lake City, including 3-d buildings rendered by Google Earth.

In lecture we will discuss the science behind these topics. Self-guided labs will use Google Earth to analyze datasets related to each topic. This is a great class for anyone interested in environmental issues, environmental changes at regional and global scales, and interactions between humans and the environment. This class fulfills the physical/life science exploration (SF) requirement.

Center for Natural and Technological Hazards

The mission of the Center for Natural and Technological Hazards (CNTH) is to develop and implement a research, educational and outreach program focused on natural and human-induced hazards. It was founded in 1990 by Fred May from the Utah Division of Comprehensive Emergency Management, then Chair George Hepner, and Don Currey. Tom Cova currently serves as the Director with Phil Dennison as Associate Director, and the Center has collaborators in Psychology, Biology, City and Metropolitan Planning, among other departments.

For the first 10 years the focus of the Center was primarily undergraduate education, and a number of those graduates are now emergency managers in Utah and the Mountain West. One of the most well-known might be Ryan Pietramali who serves as Risk Analysis Branch Chief for FEMA Region VIII and was instrumental in helping to get the U's Disaster Resilient University (DRU) grant awarded, but there are many others. In the last 10 years, CNTH added a significant research component, and its national and international profile has increased both from the publication of journal articles as well as presentations by graduate students at many meetings and workshops. Research funding has been primarily through the National Science Foundation with additional support from the Boulder Natural Hazards Center and the U's DIGIT Lab.

This was a big year for CNTH in terms of graduate education which saw three master's students and two Ph.D. stu-

dents finish their degrees. Jeremy Larsen completed his master's thesis on wildfire evacuation triggers with the 2003 Cedar Fire near San Diego as a case study. This work recently appeared in the Journal of Applied Geography in a special issue on Natural Hazards. Lina Cao finished her dissertation in conjunction with the Biology Department's Dearing Lab on analyzing the dynamics of Sin Nombre Hantavirus (SNV) using GIS, remote sensing, and agent-based modeling. Lina is currently a post-doc at UC Berkeley, and the first paper from this project has been accepted to Global Ecology and Biogeography. Laura Siebeneck finished her dissertation on risk perception in the evacuation and return-entry cycle with the 2008 Cedar Rapids floods as a case study, and while the findings have yet to be published, many were groundbreaking as the journey home following an evacuation is an entirely new topic. Marquessa Van Drimmelen completed her thesis on Family Gathering in the 2007 Angora Fire (near Tahoe) which garnered some attention from researchers at the 2009 Boulder (Colorado) Hazards Workshop where it was presented as a poster. Finally, Kate Smith, a GIS Analyst for the Salt Lake County Unified Fire Authority, finished her thesis on developing emergency preparedness indices for local governments which involved mapping the relationship between fire stations and the populations they serve for Utah counties. The plan is to expand this work to the entire U.S. and identify counties that may be in need of preparedness planning and resources.

DIGIT Lab



DIGIT Lab Display— GIS Day

The Digitally Integrated Geographic Information Technology (DIGIT) Laboratory has been operating as an auxiliary facility to the Geography Department since 1987. Our mis-

sion is to creatively integrate spatial information into existing research and/or technology and provide students with real world practical GIS experience. We have been actively supporting research within the Geography Department and in many departments across campus. The DIGIT Lab also hosts and manages the University of Utah campus map (www.map.utah.edu). In addition to our on-campus work, we collaborate with many government and private organizations off campus. Specifically, we have a long-standing partnership with the National Park Service's National Historic Trails division and continue our relationship with Rockwell Collin, Inc. providing support for a variety of military training applications.

The DIGIT Lab also provides direct support for the Geography Department through GIS curriculum development, graduate research improvement grants, and funding

for colloquium speakers.

If you will be attending the ESRI 2011 User Conference, look for the DIGIT Lab/Geography Department booth in the main exhibit hall.

DIGIT Staff:

Director: Phoebe McNeally, PhD
 Project Manager: W. Adam Naisbitt, MS
 GIS Analyst: Calvin Tribby, MS
 GIS Analyst: Greg Fryer
 GIS Analyst: Brian Olsen
 Staff: Melissa Warner

URSA Lab

Students in the Utah Remote Sensing Applications (URSA) Lab continue to do exciting research on applied remote sensing. Master's student Scott Matheson is investigating modeling wildfire temperature using hyperspectral data. Master's student Greg Fryer is working on modeling fire evacuation triggers for wildland firefighters. Tim Edgar has been researching how shading by trees and structures, derived from lidar data, affects summertime residential energy consumption. Undergraduate Research Opportunities Program award recipient Austin Coates recently wrapped up a one-year research project on tamarisk defoliation. Both Austin and Scott have accepted positions working for the National Geospatial Intelligence Agency (NGA). The URSA lab welcomed two new Ph.D. students in Fall 2010: Chris Balzotti and Ran Meng. Chris is working on modeling sage grouse habitat, while Ran is currently investigating time series remote sensing of tamarisk defoliation.

More information on the URSA lab and descriptions of lab projects can be found at <http://ursa.utah.edu>.

URSA Lab



GPWG Lab

Members of the Power lab at the Garrett Herbarium in the Utah Museum of Natural History and in the Department of Geography have been busy on research projects and preparing for the move in the fall of 2011 to the new state-of-the-art museum facility. The new museum will showcase new galleries for exhibiting its natural history collections and many new research laboratories. The old museum was officially closed to the public on Dec 31, 2010, but students continue to use the labs for their research through this year as we transition into our new labs. The Garrett Herbarium continues its role as a member in the Consortium of Inter-mountain Regional Herbaria, aimed at providing greater information on plant diversity in the western United States. Dr. Power and his students also continue to develop and use the global charcoal database (GCD) as a tool for fire history research. The GCD contains over 800 sedimentary-based fire history records from around the globe and has been a tool for several global and regional investigations.

RED Lab

The RED (Records of Environment and Disturbance) Lab had a great year. We are proud to celebrate the completions of Shizuo Nishizawa (PhD), Shawn Blissett (MS), Stacy Morris (MS) and Vachel Carter (MS). We are excited for all the successes, but will miss our new graduates. We are continuing our research on past environments in desert wetlands, long-term records of bark beetle outbreaks, and the paleoenvironment of Range Creek Canyon among other projects. A lab research focus remains on addressing the utility of paleoenvironmental reconstructions in land management and we maintain excellent collaborations with the Forest Service and BLM.



Colloquia Highlight Cryospheric Research

Dr. David Long:

Professor in the Electrical and Computer Engineering Department at BYU, Director of the BYU Center for Remote Sensing, and head of the Microwave Earth Remote Sensing (MERS) Laboratory. His research is focused on the development of advanced microwave remote sensors and scatterometer applications. His colloquium lecture focused on using the 30 scatterometer climate records to study the glaciated regions of Greenland and Antarctica, and track icebergs, which included the story of finding a lost Rhode Island-sized iceberg from a spacecraft.

Dr. Ted Scambos:

Lead Scientist for the National Snow and Ice Data Center at the University of Colorado. His research focuses on understanding both the unique geophysics of Antarctica, and its place in current climate change. His colloquium lecture was focused on his current expedition (14th) to the 'top of the bottom of the world' and included tracking a newly discovered set of lakes beneath the ice, snow megadunes and windswept 'glaze' regions, and climate trends on the crest of the East Antarctic Plateau.

S.A.C. News

This Fall 2010 semester, Geography Club, GTU, and SAC organized monthly activities for students outside the confines of the OSH building. Events included a day-hike on the Blanche Lake Trail to the base of Sundial Peak in September, a camping excursion to Goblin Valley in October, and, in November, students moved indoors and spent an evening at The Front indoor climbing gym. The clubs also hosted numerous events during the hugely successful International Geography Week including geocaching around the University of Utah campus, a potluck, and movie night featuring Ken Burn's *National Parks*.



The Spring 2011 semester holds several exciting events for students and faculty to get involved with the community and get to know the department. Upcoming social gatherings include snowshoeing, hiking, and evenings at Desert Edge Brew-pub. Geography Club would like to invite everyone to participate in our annual service project with the local Adelante School 1st graders, where students will learn about Utah geography by making salt-dough maps.

For more information regarding the Geography Club and GTU you can visit the Geography Department's main office, located in OSH 270, or join the Department's mailing list for email updates.

GIS Day/Geography Awareness Week

Geography awareness week has been an annual event since 1987 and is an excellent representation of the Department of Geography as well as the University of Utah. It is the Department's annual event to recruit potential U majors and show the career opportunities that exist for geography majors after graduation. It was again a successful event this year and highlighted the essential role geographers play in academia as well as in public and private capacities.

Two hundred plus students, educators, and professionals participated in the week's activities. There were two career-panel discussions consisting of six speakers: Kris Watson (UDFA), Helen Barres (U.S. Air Force), Wayne Hill (Cityworks | Azteca Systems), Barry Napier (Geospatial Service and Technology Center), Nick Kryger (Salt Lake Public Utilities), and Mark Finco (RSAC). Other events included movie night, featuring Ken Burn's documentary "National Parks," and a geo-caching activity.



Dr. Jennifer Miller was our keynote colloquium speaker from the University of Texas at Austin. Dr. Miller is the Director of the GIS Center in the Department of Geography and the Environment. She specializes in GIScience with an emphasis on the integration of GIS and remote sensing in environmental/ecological modeling. Her lecture, titled "Virtual Biogeography: Using simulated data as a species modeling tool," focused on her research interest of using spatial modeling to study aspects of species' distributions and movement. This provided an informative and relevant conclusion to the week's events.

Costa Rica Study Abroad

GEOG 5963: Paleoecology of Costa Rica: Climate, Plants and Fire (3)

Location:

About the size of West Virginia and with a population of almost 4 million, Costa Rica is an exemplar for the conservation of natural resources and economic sustainability. Costa Rica's traditional agricultural export economy (including coffee and bananas) has been supplanted by tourism and high tech exports.

Eco-tourism thrives in Costa Rica's 12 distinct ecological zones that include rainforests, rugged mountains, active volcanoes, and beaches along two oceans. The country has become a model for nations that hope to encourage economic development within a framework of environmental protection and sustainability.



Tucan

Costa Rica has one of the most unique land management policies in the world. Their democratic government decided that the country's amazing natural beauty was its greatest asset. As a result, 11% of the country is set aside as national parks, and fully 33% of the country is protected in some form by land management laws.

Excursions and Activities:

The program will begin at La Selva Biological Research Station before moving onto the coastal preserve of Tortuguero. Participants will then travel to Turrialba, Monteverde, La Fortuna, and Guanacaste. The program will conclude at the coastal town of Manuel Antonio. Along the way students will see an active volcano, banana and coffee plantations, and the cloud and rain forests. Students will have the opportunity to travel at their own expense after the program.

Dates: May 9 - June 2, 2011

Instructor: Dr. Andrea Brunelle is one of the program directors and will be teaching GEOG 5963

Website: www.envst.utah.edu/costarica/index.htm

Gifts to the Department 2010

We wish to thank the following individuals for their generous donations!

Brian and Michelle Haslam
Michael and Patty Brimley
Chung-Myun Lee
Jiajun Liu

Merrill and Codele Ridd
Albert Voegeli
Scott and Daphne White
David and Margie Wilkins

Financial Contributions can be made to the:

Department of Geography Development Fund (Unrestricted Gifts)
Chung Myun Lee Scholarship for Undergraduates
Merrill Ridd Scholarship for Undergraduates
Donald Currey Scholarship Fund for Graduate Students
Roger McCoy Student Assistance Endowment Fund

Please see form provided at the end for your convenience. Thank you!

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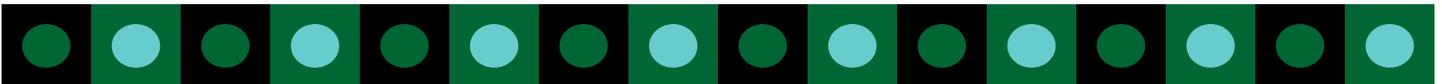
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These are difficult times for a state university.

We need all of our alumni to take a more active role in supporting our department.

- If you have specific knowledge of employment opportunities for our graduates
- If you can use the department or DIGIT lab for funded research/service projects
- If you have ideas and time to devote to improving our department
- If you have a desire to support the department and the students financially
- If you want to support financially and participate in our Fall picnic or Spring awards activity

Contact me george.hepner@geog.utah.edu



We have appreciated your generous donations in the past. Please consider taking this opportunity to donate to our scholarship funds. Be sure to indicate which fund you would like your donation directed to.

All contributions are tax deductible!
We look forward to hearing from you!

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(Check payable to U of U Geography Department)
University of Utah Phone: (801) 581-8218
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