

Geography Connection

University of Utah Department of Geography

Volume 17 Spring 2016

Letter from the Chair

The big news of this year was our move out of Orson Spencer Hall over winter break! Plans for the new building are full steam ahead, with demolition planned for August and the grand opening scheduled for Fall, 2018. We are temporarily housed in the old law school building, now called "Building 73." Space is limited in our temporary digs, so things are pretty cozy but the new building will be worth it. Come by and see us!



The Transformative Excellence Proposals ("Cluster Hires") are still underway. We are thrilled to welcome Dr. Summer Rupper to the Department. She is one of the Society, Water, and Climate (SWC) hires and we are glad to have her here on campus. We will continue to participate in SWC as well as working with the Natural History Museum of Utah on an effort related to biodiversity, outreach and geovisualization.

Thomas Cova received the 2016 College of Social and Behavioral Science Mentor Award. Dr. Cova is a Professor in Geography, the Director of the GIS Certificate Program, and the Director of the Center for Natural and Technological Hazards at the University of Utah. His research and teaching interests are environmental hazards, natural-human systems, transportation, sustainability, and geographic information science. His primary focus is wildfire evacuation analysis. Congratulations Tom!

Tim Edgar received the 2016 College of Social and Behavioral Science Superior Teaching for Career-Line faculty. Tim is an Assistant Professor (Lecturer) and finishing his PhD in Geography with research interests in spatial analysis, energy resources/consumption and pedagogy. Congratulations Tim!

In December, 2015 MaryAnn Golightly, our Academic Coordinator/Advisor, retired. We appreciate her many years of service to the students, faculty, and staff in the Geography Department. While we are sad to see her go, we wish her all the best on this new adventure. We would like to welcome Marli Stevens as the Geography Department's new Academic Coordinator/Advisor. Marli is finishing up her BS in Geography this spring and has been learning the ropes and advising students. We are very happy that Marli has joined our Geography family.

We are also sad to announce the retirement of Genevieve Atwood and Spike Hampson this July. Genevieve taught our Field Seminar course on Utah Landforms, a humanities course: The Power of Place, and Geography of Utah. Spike taught online courses on the Geography of the Middle East, Geography of North America, and Historical Geography of the United States. Both have been long members of the Geography team and we greatly appreciate their years spent in the department. We wish them a happy new adventure and many exciting years ahead.

We have a strong, productive and enthusiastic department that continues to grow and improve! Check in with us (www.geog.utah.edu), we'd love to hear how everyone is doing and what everyone is up to. Thanks for your continued support!

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Faculty Bios

Robert Argenbright: Robert earned a Ph.D. in Geography from the University of California, Berkeley in 1990. Before coming to Utah, he was Associate Professor of Geography at UNC-Wilmington where he taught a broad range of human geography courses. At the U, Robert has taught World Regional, Human Geography, Geography of North America, Russia, Urban Geography, as well as History of the Soviet Union. In August 2015 he presented “New Moscow Tomorrow: Cutting-Edge Mega-Region or Sprawl?” at the International Geographic Union Regional Conference in Moscow. He is nearing completion of his book project, *Moscow under Construction: City-Building, Place-Based Protest, and Civil Society* (in press, Lexington Books).



Simon Brewer: Simon is an Assistant Professor in the Geography Department. He works with records of climate change and ecosystem response over broad time and spatial scales. He has a particular interest in integrating observations of ecological change with models. He teaches a mixture of classes including advanced statistical analysis, spatial modeling and the impacts of climate change.



Andrea Brunelle: Andrea is serving her third year as chair of the Geography Department. She is a paleoecologist who studies environmental change with a focus on climate and past ecosystem disturbances such as fire and bark beetle outbreaks. Much of her work has land management implications. Her geographical areas of interest include the Intermountain West and the American Southwest (including northern Mexico). Her most recent project is investigating the paleoenvironment of the west desert in collaboration with archaeologists from the Dugway Proving Ground. Andrea taught a climate change course in the business school last fall and is teaching climate change in the department this spring. Both classes enrolled over 80 students and she is grateful to have the chance to explain and discuss the science and implications of climate change with student from all over campus.



Larry Coats: has been a life-long resident of the Colorado Plateau, spending decades in each of the Four Corners states (New Mexico 1956-1973; Colorado 1973-1975, 1983-1994; Arizona 1975-1983, 1994-2004; and now Utah 2004-2015).



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 reconstructing the paleoenvironments of Range Creek Canyon to support the archaeological investigations that are in progress by University of Utah archaeologists, using alluvial sediments and packrat middens, and assisting students using dendroclimatology and bog sediment cores. He has also worked on the late Holocene distributions of Adelie penguins along the Victoria Land Coast of Antarctica, another very arid environment. Over the past two university breaks, Larry has been exploring the western Grand Canyon in the search for enigmatic polychrome rock art. Along with collaborators Steve Emslie and Tammy Rittenour, Larry recently published two new papers: Packrat middens and Holocene paleohistory of Colorado pinon (*Pinus edulis*) in western Colorado, *Journal of Biogeography* 2015 42, 565-574, and Investigation of late and post-Fremont alluvial stratigraphy of Range Creek, east-central Utah: use of OSL when radiocarbon fails, *Quaternary International* 2015 362, 63-76.

Tom Cova: Tom's research interests are environmental hazards, transportation and GIS with a particular focus on wildfire evacuation. Last year he presented a talk at the 2015 Annual Meeting of the AAG in Chicago on “Mapping spatial uncertainty in object-fields: the case of site suitability”



drawn from research he did as a visiting scholar at San Diego State University. He is planning a trip to Montreal this fall to attend the International Conference on Geographic Information Science (GIScience 2016), as well as one to San Francisco for the Annual Meeting of the Association of American Geographers (AAG). He continues to teach Introduction to GIS in the fall semester along with GIS & Python, which is part of the curriculum for the Department's Masters of Science in GIS, and he is currently teaching a course on the Geography of Disasters & Emergency Management and a Seminar on Hazards Geography. In the last year he served as an advisor to an NSF program to mentor the next generation of Hazards Geographers.

Phil Dennison: Phil and his grad students work on projects involving remote sensing, vegetation, and wildfire. Last year, Phil put a lot of effort into co-editing a special issue on a proposed NASA satellite mission for Remote Sensing of Environment. The Hyperspectral Infrared Imager (HyspIRI) mission would open up many new remote sensing applications, and articles in the special issue covered a wide range of research, including atmospheric correction, mapping plant species and photosynthesis, and measuring kelp and plankton blooms. Phil and his students have been using a variety of data and methods to examine wide-



spread, severe impacts of the California drought on vegetation, and he also collaborated with other researchers on two wildfire science white papers. However, Phil is most excited about a new addition to his family – his daughter Juniper was born in September.

Elizabeth Dudley-Murphy: Elizabeth is Adjunct Associate Professor in the Geography Dept., originally from the Atacama Desert in northern Chile. She received her PhD from the Geography Dept. in 1996 and worked with the Energy & Geoscience Institute (EGI) through 2014. She has been teaching GIS in the Civil and Environmental Engineering Department for several years as well as teaching our Intro to GIS Online class (3140-90). As of this year, Beth has added two more online GIS courses to her list: Geog 6139 – GIS Fundamentals and Intro to GIS in City and Metropolitan Planning. Besides GIS, Elizabeth also teaches three other online classes for the Geography Department and is the faculty representative at the University of Utah for the School for Field Studies, Environmental Field Studies Abroad Program, based in Salem, Massachusetts. Elizabeth is taking a break from research, but her research interests include the application of remote sensing and GIS for urban and vegetation analysis - specifically the urban forest. In the past she worked with colleagues to develop new methods based on high spatial resolution imagery for characterizing the urban forest in the Salt Lake Valley.



Rick Forster: Rick is Associate Dean for Research of the College of Social and Behavior Science. He is a glaciologist using remote sensing satellite and airborne data along with field measurements to study climate change effects on glaciers and seasonal snow. Rick's current NSF and NASA funded research is focused on the Greenland ice sheet where his team discovered an aquifer of water stored year-round in the upper part of the ice sheet within the buried snow. He will be traveling with the team to Greenland this summer to make more measurements on the aquifer. Rick was invited to a workshop in China this year to initiate research on Himalayan Glaciers.



George Hepner: George is the Director of Undergraduate Studies, with responsibilities for undergraduate programs and emphasis areas, funding undergraduate students and programs, and outreach to prospective students on and off campus. He is Director of the U of U initiative for a US Geospatial Intelligence Foundation (<http://usgif.org/>) certificate in GEOINT. Along with his course on the Geography of International Terrorism, George is teaching a newly developed course "Project Management" GEOG 6162 to prepare MSGIS and



others for project management responsibilities, primarily in the information technology arena. Also, George is coordinating the departmental development effort. If you would like to financially support, provide internships and mentoring for students, or assist with funding student areas, labs and programs in the new building; contact him.

Andrew M. Linke: Andrew is a new faculty member in the Geography Department. Andrew's research investigates violent conflict, political geography, and Kenyan environmental change effects using GIS analysis, large population surveys, and fieldwork. Andrew finished his PhD in Geography at the University of Colorado Boulder (UCB) in 2013 and was a Postdoctoral Research Associate at UCB's Institute of Behavioral Science before moving to Salt Lake. Recently his articles have been published in *Global Environmental Change*, *Political Geography*, *International Interactions*, *International Studies Review*, and other peer-reviewed academic journals. His work has been awarded research funding by the National Science Foundation and the Social Science Research Council. He teaches and advises students in the areas of conflict and political violence in addition to human and political geography.



Zach Lundeen: Zach is a Research Assistant Professor in Geography and Director of the Rio Mesa Center, a University owned field station located 40 miles northeast of Moab. The field station is a multi-disciplinary research and education center that highlights ecology and human-environment interactions on the Colorado Plateau, past and present. Zach's primary research is paleoenvironmental reconstruction using stable isotopes, pollen, and macrofossils from lake/ocean sediments and cave deposits. His latest paper, "A 14,000-year record of fire, climate, and vegetation from the Bear River Range, southeast Idaho, USA", coauthored by Andrea Brunelle, is in press in the journal *The Holocene*. Zach will be teaching the Ocean Environments course in Summer 2016.



Phoebe McNeally: Phoebe is a Research Associate Professor and Director of the DIGIT Lab at the University of Utah. This past year has been very exciting in the DIGIT Lab. The DIGIT Lab continues to support geospatial research across campus as well as provide GIS support to a very diverse



Emeritus Faculty

Donald R. Currey (*Deceased*)
James W. King
Chung-Myun Lee
Merrill K. Ridd

Albert L. Fisher
Thomas Kontuly
Roger M. McCoy
Leroy H. Wullstein

group of outside clients. A few notable projects include supporting the Escalante River Watershed Partnership’s invasive species mapping and mitigation efforts in southern Utah and supporting the management of the national historic trails for the National Park Service - National Trails Intermountain Region. Phoebe also serves as chair on the Utah Geographic Information Council and is actively involved the Utah professional GIS community. Phoebe’s research interests include geographic information science, geographic visualization, spatial decision support systems (SDSS), and snow science.

Richard M. Medina: Rich is a human geographer with research interests in terrorism and extremism, crime, and other anthropogenic/environmental hazards. His current projects focus on terrorism patterns in Afghanistan, terrorist responses to drone attacks, conflict in the Sahel, Crime in Salt Lake City, and traffic accidents in Salt Lake County. He teaches courses on human geography, GIS, and geospatial intelligence. On the weekends he enjoys, playing music, golfing, and spending time with his family.



Kathleen Nicoll: Kathleen continues work on archaeology and geomorphology projects in deserts of the Middle East and the American Southwest. Among her most recent publications: one about river dynamics, hydroclimatic change and human settlement in the Nile Valley, and another on the chronology of geomorphic evolution of the Stockton Bar in the Lake Bonneville Basin. She is still contributing to the debate in PNAS about the "Clovis extinction" allegedly caused by a Younger Dryas Impact (note: she does not agree that there was an extinction, nor was there any impacts!). Over the past couple of years, Kathleen has been involved in organizing several International conferences and meeting sessions, including the 2015 International Limnogeology Conference (Reno, NV) and the International Union for Quaternary Research Congress (Nagoya, Japan). Back in Utah, she has been presenting to local community groups, developers, and city planners about geomorphic hazards, including landslides and air quality concerns along the Wasatch Front. Kathleen coordinates outreach via social media for the Geological Society of America's Archaeological Geology Division and two other international organizations. For more information about Kathleen, and the things she is thinking about -- "like" her Facebook Page "Geomorphology Rules."



Kenneth Petersen: Ken’s specialties are palynology and environmental archaeology. He joined the Geography Department and the RED Lab as an Adjunct Assistant Professor in the summer of 2009. His earliest exposure to studies of the interaction of climate and humankind occurred in the mid 1960s while working on high elevation game drive systems and Holocene cirque glaciation in the



Colorado Front, above Boulder, Colorado. He completed his Bachelor of Arts degree in anthropology at the University of Utah (where he T.A.ed a pollen analysis class in the Stewart School building in 1970) and went on to get his Master of Arts and Ph.D. degrees in anthropology at Washington State University - all using pollen studies in the western United States. He completed a post doc with field work in Egypt doing pollen studies on Nile flood history. He has lived in Utah, Colorado and Washington as he pursued careers associated with archaeological salvage ahead of dam construction, nuclear waste cleanup, college outreach, and as adjunct faculty at a number of colleges and universities. Since joining the department in 2009 he has led the GEOG 6430 PERG Reading Group each semester and taught GEOG 5420/6420 Pollen Analysis. He and his wife like to visit their grandchildren and take walks together. Ken is also an avid Amazon Kindle reader.

Mitchell Power: This past year, Mitchell continued with several international trips including fieldwork in Ethiopia and the Caribbean and workshops at the Royal Society in London, in Cornwall, UK, and a workshop for the Global Paleofire Working Group at Harvard Forest. Mitchell spent a month doing research in Ethiopia on the Tigray Plateau exploring the ultimate causes for the collapse of the Aksum and D’Mt empires. He also continues to conduct his research exploring natural disturbances in the Bolivian Seasonally Dry Tropical Forest with a new publication coming out this May in the Philosophical Transactions of the Royal Society. Through his joint appointment with Geography and the Natural History Museum he continues to provide University of Utah students with experience working at the museum. His research on spring flowering time through interrogating the Garrett Herbarium has gained momentum, with members of the Utah Native Plant Society providing thousands of photographic images that capture the timing of spring flowering in the Wasatch Mountains. The photographic evidence, combined with the museum’s historic plant collection provides opportunities to explore impacts of climate change on the seasonal timing of flowering and seed development. Mitchell also convened a special session on fire at the International Quaternary Association (INQUA) conference in Japan, and is now working on a special volume as guest editor from the session. More plans for fieldwork in the Uinta Mountains and regional workshops exploring potential prehistoric impacts on vegetation by people in the western U.S. and Amazonia will make this another exciting year.



Summer Rupper: Summer recently joined the Geography Department as part of the “Society, Water, and Climate” cluster. Summer and her students use and develop a variety of field-based, numerical modeling, and remote sensing tools to quantify glacier and climate change and the associated impacts on society. She is currently funded by an NSF grant focused



on reconstructing changes in Himalayan glaciers and quantifying the downstream impacts on water resources. She was also recently awarded two NASA grants in 2016. One project will be focused on climate change in High Mountain Asia and the other will quantify trends and variability in Antarctic surface mass balance and impacts on sea-level rise. Summer, with her students and collaborators, published seven peer-reviewed papers since joining the Geography faculty. She is excited to collaborate with students and faculty across campus on these projects and many more.

Neng Wan: Neng is a health geographer interested in using GIScience methods to understand the complex interactions between society, environment, and population health. He is also the founding director of the Utah Geo-Health Lab. His current research topics include using mobile technologies to solve problems related with aging and physical inactivity, modeling human exposure to environmental pollutants such as agricultural pesticides and PM2.5, modeling spatial access to healthcare services, and understanding disparities in health and healthcare. His work has been supported by grants from the National Institutes of Health, the Chinese National Science Foundation, and the University of Utah.

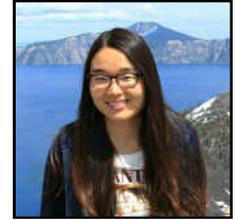


Dennis Wei: Dennis Wei has received a grant from Ford Foundation to study urbanization and spatial inequality in China and a CSBS pilot grant to study amenity, neighborhood and spatial inequality in Salt Lake County. He is busy with editing special issues, including one just published (*Spatial Inequality. Applied Geography* 61: 1-116, 2015), one partially published (*Urban Land and Sustainable Development. Sustainability* 8: 16, 41, 65, 2016; 7: 4260-4279, 10281-10307, 11632-11656, 11727-11755, 15718-15753, 16783-16800, 16849-16865, 2015), and two in progress (*Spatial Inequality in Asia. Geographical Review*; *Urban Expansion, Sprawl and Inequality. Landscape and Urban Planning*). He published more than a dozen articles in 2015, with a dozen more articles in press or under review, including three papers on U.S. cities (e.g., *Does Urban Sprawl Hold down Upward Mobility? Landscape and Urban Planning* 148: 80-88, 2015) and three papers on Salt Lake County (e.g., *Walkability, Land Use and Physical Activity. Sustainability* 8: 65, 2016, doi:10.3390/su8010065). The other two papers on Salt Lake County analyze the effects of amenity and pollution on housing prices and the role of family and neighborhood in educational inequality. Dennis also gave a dozen presentations in 2015 and organized "International Conference on Inequality and Sustainability in China and Asia" at University of Utah, September 18-20, 2015.



Ran Wei: is currently an assistant professor in the Department of Geography at the University of Utah. Wei received her PhD in Geography from the Arizona State University in 2013.

Her research has focused on GISciences, spatial analysis and optimization, with applications to important urban and environmental problems, such as land use planning, transportation and energy infrastructure, public health and crime issues. Her work has been published in a number of peer-reviewed journals including *Geographical Analysis*, *International Journal of Geographic Information Science*, the *Professional Geographer*, *Journal of Geographical Systems*, *Environment and Planning B*, *Transactions in GIS*, and *Annals of the Association of American Geographers*. In addition, she was the recipient of 2012 Benjamin Stevens Fellowship from the Regional Science Association International, Best Student Paper awards from the Spatial Analysis and Modeling specialty group of the American Association of Geographers and the University Consortium for Geographic Information Science.



Auxiliary and Associate Instructors

Genevieve Atwood	Evan Burgess	Jordan Clayton
Tim Edgar	Steven Farber	Tom Hale
Val John Halford	Jack Hamilton	Arthur Hampson
Harvey Miller	Jesse Morris	Ola Opara
Ralph Patterson	Pam Perlich	Vincent Salomonson
Jennifer Shah	Jennifer Watt	Ingrid Weinbauer
	Bing Xu	

New Graduate Students



Back L-R: Tom Brussel, Aaron Pulver, Erika Wenrich, Maria Groves, Andrea Davis, Elizabeth Looby, Alexander McComb, Tim Berggren, Claire Weber, Adam Clark
Front L-R: Yangyi Wu, Jewell Lund, Vanessa Bailey, Alyssa Hynes, Kaylee Barket, Victoria Simmons, Rebecca Richards Steed, Clarice Bidez

Vanessa Bailey: Vanessa grew up in rural Wisconsin. She attended the University of Wisconsin-Oshkosh where she majored in Geography and minored in German, graduating in

Spring 2015. During her undergraduate career, she did research on the timing and spatial extent of fire-inferred drought conditions in the western Great Lakes region. Leaving the Midwest behind, she moved to Utah to pursue her Master's degree. Here at the University of Utah, she received the Global Change and Sustainability Center Fellowship, which is an opportunity to actively participate in interdisciplinary projects related to sustainability. Her primary interests are climate change and ecosystem response, and her research now focuses on modeling vegetation changes in the American Southwest.

Kaylee Barket: Kaylee moved from North Carolina to Utah in August 2015. She has a BS in Geology from Appalachian State University and a MS in Geosciences from the University of North Carolina Wilmington. She is a first year PhD student working with Andrea Brunelle and she is a graduate Research Assistant in the RED Lab (Record of Environment and Disturbance). Kaylee's dissertation research focuses on paleoecology of the Bonneville Basin. She is working in collaboration with the Department of Defense and has study sites on Dugway Proving Ground and BLM land near the Fish Springs Wildlife Preserve. Kaylee also has a GIS internship with the Division of Water Rights in the Department of Natural Resources and is working on a statewide canal inventory project. This semester Kaylee is also advising an undergraduate student working on a UROP. In her spare time, Kaylee enjoys skiing at Snowbird and taking her two dogs, Mollie and Rufus, to the dog park.

Clarice Bidez: Clair is a native of Minturn, CO and grew up recreating in the mountains. She earned her B.S. in Environmental Science with a minor in Applied Mathematics from Westminster College in Salt Lake City in 2015, and began the MS Geography program at the U the same year. She is interested in studying how climate change will affect species on a landscape to continental scale as well as applied management and conservation strategies. Currently, she is developing a model to understand the suitability of land for agriculture in the American Southwest, and how the suitability may have been different for ancient peoples in the region as well as how it will change in the future. Outside of school and research, Clair is still happiest recreating in the mountains on a snowboard, mountain bike, or climbing very tall rocks.

Thomas Brussel: Tom is a first-year PhD student working with Dr. Simon Brewer on projects exploring diversity gradients of functional traits. He grew up in Levittown, New York. While attending the State University of New York at Binghamton, he was about to graduate with a B.A. in Psychology but had the great experience of working with Dr. Richard Andrus. The conversations they had changed his life, and they agreed he would benefit most by staying another year to get a B.A. in Environmental Sciences, which he did. Thanks, Dick. After a couple of years of working for the New Jersey Department of Environmental Protection and moonlighting as a waiter, he pursued and obtained a M.A. in Geography at the University of Wyoming. Thanks, Tom. Home will always be Long Island in some weird way, but he found that bettering his education has the additional benefit of creating new experiences. Since beginning to work with Dr. Brewer in 2015, he has been engaged in exciting, new research that links plant functional traits to paleoecological

records. On top of that, he has been able to share his new experiences with Clare (his partner) and Rufio (their pup). You should meet them...they are pretty cool.

Adam Clark: Adam is a new Master's student in the URSA lab as of Fall 2015. He received a BA in Geography from the University of Utah in 2014 where he focused on GIS and Remote Sensing techniques. He currently works with the Forest Service at the Remote Sensing Applications Center. His Master's research will focus on vegetation mapping and Photogrammetry using Remote Sensing and GIS. When not in school or work he is with his wife climbing, hiking, and camping in the Rocky Mountains or sailing the Great Salt Lake.

Andrea Davis: Andrea was born and raised in Utah and could never see herself living far from the mountains. She currently lives in Ogden with her husband, Mason, two-year-old daughter, Millie, and two Australian Shepard's, August and Von. Besides school, she works as a long lens photographer for chariot and flat track horse racing. She is always looking for better ways to become involved in the community. One of the ways she does this is by integrating her understanding of health and her passion for geography by volunteering with various organizations. However, she is currently using these skills to complete her MS focusing on medical geography.

Maria Groves: Maria is completing a PhD in Geography with a focus on Paleoecology and Paleoclimatology. She has a Bachelors degree in Earth Science from Penn State University. After completing a Masters in Science and Technology from California State University, she completed a GIS certification through Penn State while teaching as an adjunct at UVU. Her research focuses on the Paleoenvironmental changes during the Holocene particularly within the Fremont Period on the Colorado Plateau. When not doing research she enjoys traveling and spending time skiing or hiking or taking Zumba classes.

Alyssa Hynes: Alyssa was born and raised in New York, as you can tell if you've ever heard her say "coffee" or "orange". She completed a BS in Geology at SUNY Geneseo, then moved to Salt Lake to pursue a Master's degree. The focus of her research is a sediment core collected from the Bonneville Basin. In order to reconstruct the vegetation and fire history of the basin, she is subjecting the core to multiple analyses, including charcoal and pollen. When she is not in the RED lab, she enjoys channeling her energy into hiking, camping, skiing, stargazing, and amassing a plant collection.

Eric Johnson: Eric was born and raised in southern California before moving to Utah in 2008 to attend Brigham Young University. There he completed his undergraduate degree in Geology, and started working towards a Master's degree. After completing one year of his Master's, he transferred to the University of Utah's Geography program to complete his Master's degree. His research focuses on modeling glaciers in and around the Himalayas in an attempt to

better understand how glaciers in different parts of the Himalayas will respond to climate change. When he is not modeling glaciers, Eric enjoys being active and spending time in the desert rock climbing, canyoneering, and dirt biking.

Elizabeth Looby: Liz grew up in upstate New York and moved to Salt Lake City in 2008 to pursue her Olympic dream in speedskating. While here training, she completed her undergraduate degree in Environmental and Sustainability Studies and volunteered in the Power Paleoecology Lab at the U. Once she had graduated and retired from speedskating, she started her Master's in Geography with Mitch Power. Her research focuses on the affects and changes of climate during the Holocene in the highlands of northern Ethiopia. Liz wants to be an astronaut when she grows up and likes to decorate cakes in her free time.

Michelle Meadows: Michelle is a second year master's student, but in her first year at the University of Utah. Originally from Wilmington, North Carolina, she moved to Utah to attend Brigham Young University where she earned her B.S. in Geology. As an undergraduate, she researched isotopic variability in Antarctic ice cores, instilling interests in glaciology, climatology, and geochemistry. She began her M.S. at BYU in 2014 working with Dr. Summer Rupper and transferred to the U with her in Fall 2015. She is currently studying variability in melt-water patterns on four glaciers in the Swiss Alps using melt models, isotopes, and geomorphology, and hopes to continue studying glaciers' contributions to water resources around the world. In her spare time, she enjoys hiking, anything on the water, and baking.

Matthew Olson: Matt is a first year master's student originally from Santaquin, Utah. He earned his B.S. in Geology from Brigham Young University (BYU). During his undergraduate, Matt assisted the school's hydrologist studying groundwater recharge and contaminant transport of heavy metals in snow-pack, where he developed an interest in environmental geology. He was selected as a NAGT/USGS Intern in Reston, VA researching the biogeochemistry of contaminated watersheds related to unconventional oil and gas exploration. Also during his undergraduate, Matt worked as a wilderness therapy mentor and substitute teacher for at-risk youth. This led him to begin teaching geology and music at a small charter school upon graduating. As a graduate student working with Dr. Summer Rupper, Matt researches the effects of aerosols (dust, black carbon) deposited on Himalayan glaciers. With increasing global emissions, properly understanding the impact of anthropogenic aerosols on glacier albedo and energy mass balance is essential to determine water resources for surrounding communities and the rate of sea-level rise. When Matt is not trying to save the cryosphere, he enjoys rock-climbing, skiing, and canyoneering.

Aaron Pulver: Aaron was born and raised in the beautiful Finger Lakes Region of Western New York. Growing up he spent a lot of time hiking, camping, skiing, biking, and kayaking with his family. He took a special interest in hiking, and in true peak bagger fashion became an Adirondack 46-er, and successfully thru-hiked the Appalachian Trail. He obtained his B.S. in Computer Engineering at the Rochester Institute of Technology in 2014. It was during the final semesters of his

undergraduate education he developed a passion for GIS since it allowed him to combine his programming expertise, his desire to solve problems, his love of maps, and his passion for the outdoors. This is ultimately what led him to pursue a Master's Degree in Geography at the University of Utah. Aaron works in the DIGIT Lab performing a range of tasks from editing geospatial data to building custom web applications. His main research uses GIS and location modeling to explore the feasibility of medical drones. Forever cultivating his taste for adventure, Aaron, along with his fiancé and their dog, enjoy exploring everything Utah's wilderness has to offer.

Rebecca Richards Steed: Rebecca is a medical geographer studying trans-generational environmental pollution exposures and childhood cancer; she uses GIS, epidemiology, and family geographic life-space to try to better understand cancer in families. It is her desire to add to the field of cancer research with the use of computational geography, by identifying key geographies and environmental pollutants that impact human health with cancer. She has a Bachelor's of Science degree of Anthropology, a Bachelor's of Science degree in Geography, and a Master's degree of Geographic Information Sciences in Sustainability.

Claire Weber: Claire is a Master's student originally from Leonardtown, MD. Claire graduated with a dual Bachelors' degree in Geography and Ecology from the University of Maryland with a minor in Global Terrorism Studies. Claire previously worked as a GIS Analyst in the GIS Division of the National Consortium for the Study of Terrorism and Responses to Terrorism (START), a Department of Homeland Security Center of Excellence led by the University of Maryland. Her research interests include terrorism, GIS, Pakistan, homeland security, and open source intelligence. Claire's master's research uses quantitative statistics to analyze how terrorist attacks in Nigeria vary with group ideology. In her spare time, Claire enjoys cooking spicy food, writing letters, and travelling.

Erika Wenrich: Erika hails from the grungy, yet artful city of Richmond, Virginia. Unsatisfied with modern life in suburbia, Erika attended the College of William & Mary for a glimpse into our Nation's Colonial past in Historic Williamsburg. It was there she obtained her B.S. in Geology while regularly listening to the distant sounds of cannon fire and the steady hum of old-time fifes and drummers. Her studies there were punctuated with backpacking trips in Appalachia and frequent geologic excursions to the American Southwest where she fell in love with the ruggedness of the high-desert landscape. As her fellowship and time in Williamsburg came to a bittersweet end, Erika packed her bags with her boyfriend Peter and their cat Pepper to attend the University of Utah. As a master's student under the advisement of Phil Denison and Andrea Brunelle, Erika is conducting research on the modern and past vegetation response to drought in the central Sierra Nevada region of California. In her spare time Erika enjoys roasting coffee, "getting swole", listening to 80s metal, hiking, and playing alternate reality games like Fallout.

Yangyi Wu: Yangyi Wu was born in Wuhan, China, in 1992. He received his bachelor's degree in Geodesy and Geomatics Engineering from Wuhan University in 2013, and recently

completed a Master's degree in Geospatial Science at the University of Texas at Dallas. He is currently a Ph.D. student at The University of Utah. His research interest includes economic geography and urban geography, especially on urban issues. He is also interested in the application of big data, data processing methods, and models. His hobbies are soccer, reading, and writing.

MSGIS Students Fall 2015



Rear L-R: Mitch Ottesen, Michael Eichorn, Steve Arnold, Sumer Bivens, Chelsea Welker
Front L-R: Yiwei Wang & Xiaomin Jiao
Not pictured: Tim Berggren, Ed Graves, & Alex McComb

ALUMNI SPOTLIGHT

Tamara Wambeam: Tammy Wambeam received her B.A. in Geography with a minor in Geology from the University of Wyoming in Laramie, Wyoming in 1993. In 2001, she received her M.S. in Geography from the University of Utah with an emphasis in Geomorphology and GIS. Her thesis work was with Don Currey and focused on using GIS to show surface area and volume of Lake Bonneville from 26,000 years ago to present. She began working part-time for Salt Lake City Public Utilities at the end of graduate school and for 18 years has worked full-time in their GIS Department.

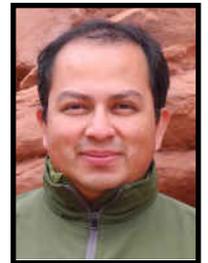


Her duties range from creating hazard and trail maps of the Salt Lake City watershed to managing a database on utility work done by the city. The emphasis in the past couple years has been on creating mobile mapping solutions for the field crews and using LIDAR data for modeling stream flow and flooding potential. She lives in Salt Lake City in the 9th and 9th area with her longtime partner Dave and their 2 cats. She travels at least once a year, focusing on geologically interesting places such as Iceland, New Zealand, and Chile. She continues to stay active in physical geography by volunteering with Genevieve Atwood and as an officer for the local chapter of the Association for Women Geoscientists (AWG). Her advice for geography majors is to think about minoring in a field related to your career focus. Also, most employers are looking for some experience so don't be afraid to do an internship before or right after graduation. Networking through professional and academic societies helps with finding jobs and filling a resume. All of this helps you decide if you really like the work because the most important thing in life is to be happy by enjoying your work and your free time.

MSGIS Graduates 2015



Sam Hall



Emanuel Vasquez Gomez

Recent Graduates



Back L-R: Richard Forster, Philip Dennison, Thomas Cova, Richard Medina
2nd L-R: Yi Qi, Phoebe McNeally, Deb Travers, Ran Meng, Mitchell Power, Andrea Brunelle
Front L-R: Emanuel Vasquez Gomez, Yoshi Maezumi, Ryan Hile, Emily Nicolosi, Corey Unger

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end of this letter.
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Spotlight on the URSA Lab

The last year was a busy one for the Utah Remote Sensing Applications (URSA) Lab. Ran Meng completed his Ph.D. and published a paper on vegetation recovery following fire in the Sierra Nevada. Ran is now in a postdoc at Brookhaven National Lab. Austin Coates completed his Masters, and published a very important first look at the impacts of the California drought on shrub and tree species in southern California. Graduates Yi Qi and Kenneth Dudley also published papers on their graduate work. Ph.D. student Mickey Campbell continues to work on using lidar data to map firefighter safety zones. Master's student Josh Reynolds took on a new project demonstrating how Google Earth Engine can be used to map fire severity for the Forest Service, and Josh is also working on his Masters thesis project mapping urban forest cover in the Salt Lake Valley. Brent Lloyd is using remote sensing to look at productivity of water harvest farms in Burkina Faso, and Lawrence Kellum is mapping changes in volume resulting from mining using photogrammetry and lidar. Masters students Erika Wenrich, Tim Berggren, and Adam Clark joined the lab in Fall 2015. Tim and Erika are planning on doing their research on impacts of the California drought on vegetation, and spent a week in October doing field reconnaissance in the Sierra Nevada.

We were sad to move out of our old lab space in Orson Spencer Hall in January, but excited to combine forces with the DIGIT Lab in new space in Research Park. URSA will remain in that space until the new building replacing OSH is completed.

Merrill Ridd Scholarship 2015-16

Sherri Stockfleth: Sherri is in the process of obtaining her Bachelor degree in Geography. Upon graduation she is hoping to work in some form of land management as she has an avid interest in teaching about sustainable practices. She is also working on a GIS certificate that she hopes to put into use. Eventually Sherri is tentatively considering a master program in city planning which will eventually allow her to use her learned skills to help influence smart use of city resources and waste disposal.

We would like to extend a big THANK YOU to Dr. Merrill K. Ridd and the many donors that have contributed to the Merrill K. Ridd Scholarship over the past several years. Your generosity has helped a deserving undergraduate student with a financial award of \$1,000 per year beginning fall semester, 2010.

Currey Scholarship 2016

Kaylee Barket \$950. Kaylee will be using her award for Radiocarbon dating on sediment core collected in July 2015 from an active spring within the Bonneville Basin on the Dugway Proving Grounds. Analysis of this core will consist of pollen, charcoal, X-ray fluorescence, magnetic susceptibility, and loss on ignition. Data gathered from these proxies will result in a vegetation reconstruction, fire history, elemental analysis, erosional events, and sediment composition.

Melanie Cooke \$475. Melanie's award will aid in the ongoing analysis of a 7.0-meter-long sediment core collected from Utah Lake. This funding will provide an additional AMS date for the record. Research

reveals an exciting ecological history with evidence of large scale disturbance events.

Logan Frederick \$950. Logan will use a lake sediment core from Tres Lagunas in the Quimsachocha region of Southern Ecuador that was collected in the summer of 2014 to characterize the spatial and temporal extent of the mid-Holocene warm-dry event. She will obtain two radiocarbon datings on this lake core.

Maria Groves \$950. Maria will take a multi-disciplinary approach with use of a North Gate Bog sediment core extracted June 2015 at Range Creek, Utah. A synthesis of modern vegetation and fossil pollen information will be analyzed to reconstruct the paleoenvironmental record of the Range Creek Canyon, which is an understudied, archeologically rich environment.

Josh Heyer \$950. Josh's award will be used for AMS Radiocarbon dating of two sediment cores, obtained from an oxbow lake adjacent to the Dolores River, Utah. The setting is ideal for reconstructing past environmental disturbances (i.e. cottonwood gallery fire) and paleoclimate (e.g. fluvial geomorphology of oxbow lakes, hydroclimate variability), which will further our understanding of Colorado Plateau paleoecology.

Alyssa Hynes \$950. Alyssa will conduct tests on sediment core, RSP15B, collected from the Dugway Proving Grounds in July 2015 in order to reconstruct the vegetation and climate history of the surrounding area, this core will be subjected to multiple analyses, including X-Ray Fluorescence, pollen, charcoal, radiocarbon dating, magnetic susceptibility, and loss on ignition.

Liz Looby \$950. Liz's focus will be on the analysis of three sediment profiles collected in May 2015 from the Tigray Plateau in Ethiopia. Two carbon dates funded by this award will contribute to an age model and allow for the analysis of spatio-temporal variation in land clearance, specifically fire history, as well as in precipitation. These dates, coupled with environmental records, will play a very important role in determining the timing of the presence of humans and vegetation in these archeological sites.

Kate Magargal \$475. Kate will use 29 dry sediment samples representing the entirety of the visible soil stratigraphy in an exposed cut-bank in an ephemeral tributary to the Escalante River known as Upper Valley Creek. These samples were taken by researchers in 2008. She will be able to date pollen from one of the strata which, combined with 6 other forthcoming dates, will greatly improve the resolution of the age model and form the basis for interpreting this data.



L-R: Josh Heyer, Logan Frederick, Liz Looby, Kaylee Barket, Maria Groves, Kate Magargal, Alyssa Hynes

Not Pictured: Melanie Cooke

We thank Stan Currey and the many donors that have contributed to the Donald R. Currey Graduate Research Scholarship over the past several years. Your generosity has helped many graduate students with field related expenses necessary to complete their research projects. A great tribute to Donald R. Currey's memory.

Scholarships/Awards 2015-16

Donald R. Currey 2016 — Kaylee Barket, Melanie Cooke, Logan Frederick, Maria Groves, Josh Heyer, Alyssa Hynes, Liz Looby, Kate Magargal

Merrill Ridd Scholarship — Sherri Stockfleth

Brian Haslam Scholarship — Joseph Frost

Continuing Student Scholarships — Andy Bayardo, Natalie de Montreux, Joseph Frost & David Lenz

Geography Excellence Awards — James Farley, Steven Lizotte & Sarah Rivera

Don and Sue Lewon Scholarship — Marli Stevens (CSBS Undergraduate Honor Roll)
Claire Weber (CSBS Graduate Honor Roll)

Global Change & Sustainability Center Graduate Fellowship — Vanessa Bailey

S.A.C./Geography Club/GTU News



This academic year has been exciting for Geography Club/GTU/SAC! We have grown in size this year due to social media and outreach event promotion. We have gone out to eat at various restaurants serving international foods, hosted the second annual Geography Bowl Competition, helped with Geography Awareness Week and GIS Day, helped host a crisis mapping event, and worked to organize our next fundraiser. We hope to continue to promote this student group to show students how to get involved with Geography! (Natalie de Montreux)

GIS Day/Geography Awareness Week

Once again Geography Awareness Week and GIS day were a great success. We held our annual photo contest, which is always a fun event with wonderful pictures. Wednesday we featured two career panels with presenters from 8 different locations. The presenters included: Former Geography graduate students, Greg Smith, from National Weather Service Colorado Basin River Forecast Center, Heidi Hadley, National Science Advisor, Bureau of Land Management, Robert Baskin, USGeological Survey, Ian Housman, Red Castle Resources, USFS Remote Sensing Application Center. Former Geography undergraduate students Sean Reid, Cityworks, Inc., Curtis Olson, Graymont Mining Inc., and Patrick Wheatley, National Geospatial Intelligence Agency, and Damien Pitts, University of Utah Career Services. We held the Geography Bowl again this year on Thursday. Fun and learning was had by all. Friday we closed the events with a colloquium featuring Dr. Heidi Hadley, National Science Advisor and former Geography graduate student. Her presentation was entitled, "*The Landscape Approach at the Bureau of Land Management (BLM)*". It was a great week.



Gifts to the Department 2015-16

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

Dane Boggs, Jr.
Richard Campany, Jr.
Gary Christenson
Chand Coleman
Stenfo Demars
Brand Faupell
Brian Haslam
Karen Wells Higgins

Jiajun Liu & Tong Zheng
Charles Oviatt
Merrill & Codele Ridd
James R. Smith
Christine Tobolski
Albert Voegeli
Lotti Ann Wann
Scott & Daphne White

Humanitarian Crisis Mapping Event!

In late October 2015, Graduate Students Tim Edgar and Seth Bishop hosted a crisis mapping event at the U. Disaster response and recovery efforts were underway in western Mexico following landfall of Hurricane Patricia, one of the strongest storms ever recorded. Tim and Seth organized the event to showcase a mapping tool that members of the community –and volunteers everywhere- could use to help.

Using the Humanitarian OpenStreetMap Team platform (www.hotosm.org), volunteers from anywhere in the world can provide operations support by digitizing and labeling donated satellite imagery. Local governments, non-governmental organizations, and aid groups use the resulting maps to systematically conduct and coordinate their work.

Event attendees included students from a cross-section of disciplines, GIS professionals, and members of the greater Salt Lake community. Mapped data from the event was uploaded to OSM and made publicly accessible. Fortunately, devastation from Hurricane Patricia was not as serious as first feared, but Tim and Seth used the opportunity to raise awareness of this mapping tool, which can be used for any number of disasters.



Seth Bishop and Tim Edgar demonstrating the Open Street Map program for the event.

No Student Left Inside!



GEOG: 5810/6810: Analysis of Utah Landforms Field Seminar led by Genevieve Atwood and Tim Edgar

One of the Geography Field Courses, GEOG 5810/6810: Analysis of Utah Landforms Field Seminar, takes undergraduate and graduate students on a week-long camping trip during Spring Break to visit the many Utah landscapes and landforms. The course teaches concepts and skills of geomorphology and applies those skills to reading Utah's landscapes. The course boasts 8 days of intense geomorphic thought, abundant camaraderie, and remarkable field food.

This year, the students spent eight days, and seven nights, traveling to places like Antelope Island, the West Desert, Ibex (west of Delta), Bryce Canyon, Kodachrome State Park, Little Egypt south of Hanksville, near the Maze of Canyonlands, along the Green River, and back to SLC.

Two students can be seen posing in this photo from the Spring 2016 class. Photo was taken looking southeast near Hite Crossing of Colorado River and what remains of Lake Powell. Matt Angioli, Maddie Jamora, and Amber Henshaw show off their landform yoga poses to represent a talus slope, a plateau, and a spire.

Matt Angioli, Maddie Jamora and Amber Henshaw posing yoga landforms.

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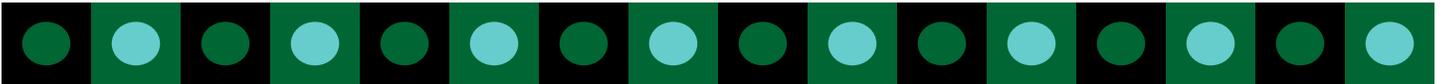
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- If you can use the department or DIGIT lab for funded research/service projects;
- If you have ideas and time to devote to improving our department;
- If you have a desire to support the department and the students financially;
- If you want to support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

Contact andrea.brunelle@geog.utah.edu if you have any questions about Geography Donations



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.

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