Letter from the Chair

Greetings Geographers, Friends, and Families,

The 2019-2020 academic year was a time of many changes and accomplishments for the Department of Geography. Let me begin by acknowledging the innovation, cooperation, and patience of the students, staff, and faculty who adapted to the unanticipated challenges of dealing with the COVID-19 pandemic. We especially congratulate the Geography and Environmental Science students who had completed their courses of study this spring but were unable to celebrate the achievement with a graduation celebration. We celebrate your accomplishments and wish you every success as you demonstrate what geographers are capable of. And when you have a few moments, drop us a note to let us know what you are up to. That invitation is open to all previous graduates. We want to hear from you.

Once again we have had an outstanding year for UA Geography, and it is exciting to be able to share some of our accomplishments and bring you up to date with changes experienced during the year. We remain committed, as a team, to strengthening and improving our collective performances in teaching, research and service.

With regard to teaching efforts, this spring we successfully implemented our second, semester-equivalent study-abroad program in Costa Rica. Ten students spent seven weeks at the Solitics Center for Research and Education, near la Fortuna. They took four courses that focused mainly on tropical environments. We are planning for a third program in the spring of 2021. Our graduate program continues to grow, with 38 students enrolled for the fall semester, including 17 Ph.D. students. Two of the Ph.D. students will graduate this summer -- our first ever. Both have found employment with other universities. This is a great credit to them -- Jordan Cissell and Min Xu -- and their supervisors -- Michael Steinberg and Hongxing Liu. This year Nishani Moragoda won the Outstanding Thesis Award of the College of Arts and Sciences and Jacob Reed won the A&S and UA Outstanding Research by a Master’s Student.
Awards. These students continue the record of recognition of achievement by our graduate students, and we are proud to claim them as our own. Credit also to their respective supervisors, Sagy Cohen and Jason Senkbeil, who also deserve our appreciation.

In the main office, Krystal Feigle and Elizabeth Singleton have kept the office running, and they were joined by Stephanie Holcomb, who moved to Geography from Biological Sciences. We are very happy to have the three of them as a team. They do much more than meets the eye. Dr. Johanna Engstrom, our Geographic Services Manager, left the department in the fall and has been replaced by Mr. Eric Courtchesne. Eric’s appointment began the day that UA suspended normal operations, so he has been launched under awkward and challenging circumstances. Assistant Professor Jared Margulies joined us in August, moving here from a postdoctoral position at the University of Sheffield. More information on Dr. Margulies and the rest of our faculty can be found further on in this newsletter.

On the research front, our faculty published 55 journal articles last year, the best annual performance yet, representing an average of more than three papers per person. Led by this success in publishing our research and with increasing federal research funding, UA Geography has been ranked as the 22nd best department in the U.S. This is also a departmental record, and our sights are set higher. Accomplishments like these almost make it sound like this is easy. Please let me assure you it is not. To make this happen requires great effort from all quarters: the students, staff, and faculty, and support of our administration.

We are looking forward to the challenges that will face us in 2020-2021, and we continue to strive to make all aspects of our program better for students, our staff and faculty, and for the residents of the State of Alabama and elsewhere. One of our motivations for our activities is to make you proud of what your department is doing.

Cheers, Douglas J. Sherman
SETH APPIAH-OPOKU has just entered my 18th year at The University of Alabama. Significant milestones were recorded this past year. In the area of service, he served as the College of Arts and Sciences’ Ombudsperson assisting faculty in finding equitable, just, and timely resolutions to contentious administrative issues. Seth continued to serve on the editorial board of three international journals – Environmental Impact Assessment Review, African Geographical Review, and the Environment and Social Psychology Journal. He also served as an external reviewer for the planning program at the Namibia University of Science and Technology (NUST). It is interesting to note that one of his former graduate students at UA, Dr. Eric Yankson, now teaches at the NUST. Outside the university community, Seth served as a resource person to both the Tuscaloosa Housing Authority and the City of Tuscaloosa Sister-Cities International.

In the area of research, Seth worked with the Alabama Transportation Institute on an exploratory research funding proposal submitted to the Volvo Research and Education Foundation, Gothenburg, Sweden. The goal of the proposed research is to analyze the combined effects of transport and urban morphology on public health in two African cities. Collaborators on this proposal are from the Namibia University of Science and Technology and the Kwame Nkrumah University of Science and Technology in Ghana. In addition, two articles he co-authored with his graduate students were published in the Journal of Urban Planning & Development and the Journal of African Geographical Review respectively. In addition, he completed another edited book that was recently published in London, UK, by the IntechOpen. The book is titled Land Use Change and Sustainability.

Finally, Seth worked with his graduate student, Judith Oppong, to complete her research and thesis on the “Feasibility Study of Bike Sharing program on the University of Alabama Campus.” Judith is currently a PhD student in Urban Planning at the Jackson State University, Jackson, Mississippi.

In the area of teaching, Seth continued to teach Land Use Regulation, Geography of Africa, and World Regional Geography. Finally, he directed and continues to direct the thesis work of three talented graduate students in the areas of international e-waste dumping, campus infrastructure gaps, and low-income housing preferences respectively.

DR. BENNETT BEARDEN’s legal, political, and negotiating experiences have placed him squarely in the center of one of Alabama’s most important natural resources issues: water policy. Bennett is the former founding Director (2013-2018) of the Water Policy and Law Institute at The University of Alabama and is currently an Adjunct Professor in the Department of Geography. In April 2012, the Governor appointed Bennett chair of the Alabama Water Agencies Working Group (AWAWG), the task force charged with developing policy options and recommendations for a comprehensive state water management plan. As chair from 2012-2013, he provided the AWAWG with constructive resolution of emerging challenges at the intersection of water policy and law, emphasizing data-driven policy making, strategic counseling, water diplomacy, water conflict mediation, crisis management, creative dispute resolution, and enhanced relations with stakeholders and community groups.

Bennett served as Special Counsel to the Governor on Water Law and Policy from 2013-2017. He received his B.S. (geography, 1980), B.S. in Geology (1981), and M.S. (geology, 1984) degrees from The University of Alabama. He received
his Juris Doctor (J.D.) degree (1992) from Birmingham School of Law (ranked no. one academically in his class) and his Master of Laws (L.L.M.) degree in Commercial and Corporate Law (with honors, 2006) from the University of London. Bennett also has a post-graduate Certificate in Watershed Management from the University of British Columbia. In 2011, he earned his doctorate (J.S.D. degree, legal education’s counterpart to the Ph.D.) in water law and policy at McGeorge School of Law, University of the Pacific, in Sacramento, California, where he was the recipient of the 2008 Slater International Water Law Award. Bennett is a member of the Alabama State Bar, the Washington, D.C. Bar, and is admitted to the Roll of Solicitors in England and Wales. He is a member of the American Bar Association (ABA) Section of Environment, Energy, and Resources (SEER) Water Resources Committee, the Alabama Section of the American Water Resources Association (AWRA), the Organizing Committee of the Annual Alabama Water Resources Conference (Conference Chair in 2020) and the International Water Association (IWA), and a former member of the Executive Committee of the Environmental Section of the Alabama State Bar. He is the co-author and co-editor of a lending national casebook on water law and policy, Cases and Materials on Water Law, now in its 10th edition, published by West Legal Publishing Co. in 2020.


He is the Associate Editor of Water Policy, the official journal of the World Water Council and leading publication in the field of water policy. In 2014, Bennett received the Governor’s Award-Certificate of Recognition for advancing water policy in Alabama. In 2017, he received the E. Roger Sayers Distinguished Service Award from the President’s Council of The University of Alabama for his work in advancing water policy and law in Alabama. Bennett teaches Water Resources Management, Law and Policy, Public Policy Development in Water Resources, and Water Diplomacy. He is currently developing a course in Interstate Water Conflict. He is the author/co-author of over 100 publications and four books.

SAGY COHEN, Associate Professor, Surface Dynamics Modeling Lab

Another productive year at the SDML with five journal publications at Environmental Research Letters, Global and Planetary Change, Journal of the American Water Resources Association, and two at Nat. Hazards Earth Syst. Sci.. SDML members presented or co-authored over 10 conference papers at multiple conferences including AGU, Community Surface Dynamics Modeling System (CSDMS), and Alabama Water Resources Conference. SDML was awarded or collaborated on three grants by CUAHSI/NOAA, UCAR, and EPA.

Nishani Moragoda and Afrin Anni defended their MS thesis last summer. Both submitted a manuscript for publication based on their thesis work. Afrin’s paper, ‘Sensitivity of Urban Flood Simulations to Stormwater Infrastructure and Soil Infiltration’ is currently under review at the Journal of Hydrology. Nishani’s paper, ‘Climate-induced Trends in Global Riverine Water Discharge and Suspended Sediment Dynamics in the 21st Century’, is currently after review at Global and Planetary Change. Nishani transitioned to a PhD. candidacy in the fall. Her dissertation research focuses on the effect of anthropogenic activities on global sediment flux. Dinuke Munasinghe continues his PhD. candidacy on morphological changes in large river deltas. He plans to submit two manuscripts to leading journals this summer. Austin Raney is in the
2nd year of his MS candidacy, focusing on channel geometry analysis. He is also expected to submit a manuscript for publication in the summer.

SDML hosted four undergraduate research assistants this year: Anuska Narayanan, working on soil moisture analysis; Henry Pitts, working on stream gage data extractions; Laney Brager, working on Google Earth Engine analysis of river width; and Ben Hand who worked on remote sensing of land use in river deltas. Anuska will start her MS candidacy in the fall, focusing on the effect of forest fires on fluvial sediment fluxes.

This academic year was also a very productive year for SDML, with five journal publications at Global and Planetary Change, Applied Geography, Journal of Hydrology Journal of the American Water Resources Association, Science of The Total Environment; a book chapter and a conference paper. SDML members presented or co-authored over 20 conference papers at multiple conferences including AGU, EGU, CSDMS, SEDAAG, Global Flood Partnership Conference and OCEANS 2018. SDML was awarded or collaborated on three new grants by CUAHSI/NOAA, UCAR, and EPA.

KEVIN M. CURTIN is Professor of Geography and Director of the Laboratory for Location Science at The University of Alabama. Dr. Curtin received his Ph.D. in Geography from the University of California-Santa Barbara, with a dual focus on GIS and optimal facilities location. He performs primary research in the field of Geographic Information Science with specializations in location science, transportation and logistics, urban resource allocation, spatial statistics, and network GIS. Application areas for his research include autonomous vehicle logistics, transportation geography, crime studies, health and nutrition, and geospatial intelligence, and he teaches extensively at both the undergraduate and graduate university levels.

LISA DAVIS This past academic year Lisa worked on paleoflood research funded by the Tennessee Valley Authority. She and Ph.D. student, Rachel Lombardi, have an article currently in press in The Holocene about how rivers across the eastern U.S. responded to changing conditions during the Holocene. Lisa was honored to be an expert panelist at a workshop held in May 2019 by the Nuclear Regulatory Commission and a contributor to the development of a report on paleoflood analyses for flood frequency studies being developed by the USGS. She also gave two invited presentations – one during the AGU fall meeting in San Francisco, CA, titled “Characterizing extreme floods on the Tennessee River (USA)” and the other at the annual meeting of the National Council on Science and the Environment meeting held in Washington, D.C. in October, titled “Big decisions, little data: assessing extreme flood risk on the Tennessee River.” Lisa was interviewed about her Tennessee River paleoflood research by local media outlets (WHNT - Huntsville) and featured on TVA’s news page. She was also interviewed, and her research was featured on Climate Connections, a radio and web-program of the Yale School of Forestry and Environmental Studies. The GY 207, Austria Field Course in Water and Climate had another awesome trip to central Europe with over 30 students participating in the 2019 course.

GY 207 students doing particle counts in the Stubei Valley, Austria.
EMILY ELLIOTT is a research scientist and instructor at the University of Alabama in the Departments of Geography and Geological Sciences. Her research focuses on the establishment of paleo-records to better understand hydroclimatic variation and coastal geomorphic change. Utilizing principles of sedimentology, paleotempestology, geochemistry, geomorphology, geochronology and dendrochronology Elliott works to establish long term, high-resolution records, which can be used to elucidate hydrologic variation, storm frequency/magnitude, geomorphic and ecological change.

KRYSTAL FEIGLE is going into her fourth year as the department’s administrative secretary, and her 14th year overall at The University of Alabama. As the departmental manager, she is the primary source for information regarding budgets and payroll, a resource for student financial information, and any other duties that she may be called upon to complete. She has three adult children and one grandchild. Krystal enjoys the outdoors, the beach, reading, and spending time with her family.

APRIL FRAKE is a Medical Geographer whose research examines multi-scalar impacts of global climate and environmental change on infectious disease vector distributions and vector-borne disease ecology. She is currently a Postdoctoral Researcher with the Department of Geography at the University of Alabama and an Adjunct Research Associate with Michigan State University’s Center for Global Change and Earth Observation. April’s research is regionally focused in East and Southern Africa, but she enjoys producing research that is generalizable across geographies.

April’s current research projects include:

- Investigating the role of irrigation water management on Anopheles larval abundances in a smallholder irrigation scheme in Malawi
- Demonstrating that proximity of human residence to irrigation is a significant determinant of malaria risk in agro-ecosystems in Malawi
- Developing an open-source, agile habitat suitability model for malaria disease vectors in Google Earth Engine
- Analyzing linkages between habitat suitability for Anopheles gambiae s.s. mosquitoes and childhood malaria
- Investigating mosquito population dynamics and the geography of isolated, vector-borne disease agents in Everglades National Park

Overall, April’s research agenda is guided by two major themes: (1) Spatio-temporal patterns of disease driven by global climate and land use changes; and (2) Leveraging big data and remote sensing for public health.

When she’s not working, you’re likely to find April building with Legos, playing in sandboxes, or racing hot wheels with her two boys, Ezra (4) and Levi (2). Her Husband, Adam is an accomplished homebrewer and together they enjoy coming up with new recipes to brew, traveling to new breweries and meeting their brewers, and learning more about the geography of craft brewing in the United States and abroad. Together, April and Adam have visited more than 100 breweries and are always looking to add more to their list. Cheers!
CADI FUNG joined the Department of Geography in August 2019 as a postdoctoral researcher for Dean Messina after completing her PhD at Michigan State University. Her research focuses primarily on human-wildlife conflict, particularly among the Amazon river dolphin (*Inia geoffrensis*), subsistence fishers, and tourism operators in the central Brazilian Amazon. She is currently preparing four manuscripts for publication pertaining to (1) socioeconomic factors that underpin perceptions of, and attitudes towards, *Inia geoffrensis* among fishers and tourism operators; (2) potential spatial and temporal hotspots of conflict between humans and *Inia geoffrensis* on the Lower Rio Negro outside of Manaus, Amazonas; and (3) the role of legislation and environmental policy on river dolphin vulnerability in both subsistence fishing and wildlife tourism industries.

More recently, she has begun work as a researcher on a NASA-funded project (Co-PIs Dr. Joseph Messina, UA, and Dr. Peilei Fan, MSU) on urbanization, land transition, and environmental change in Southeast Asia. Fieldwork was to have commenced this summer but has been postponed until 2021.

Prior to her PhD studies, Cadi worked as an animal trainer and performer in Clearwater and Tampa, FL, and later studied Buddhism at a Thai Forest Tradition Buddhist monastery in Southern California. In her spare time, she enjoys figure skating and is a member of Magic City Theatre on Ice in Pelham, AL.

LUOHENG HAN continued his administrative role as associate provost for academic affairs this past year. He enjoyed working on academic programs and policy related matters. This past year marks his 25th year of service at the Capstone. He is looking forward to continuing his service and contribution to make University of Alabama a better place.

JUSTIN HART is Professor, Director of the Environmental Science Program, Director of Graduate Studies, and Director of the Forest Dynamics Lab (FDL). The primary mission of the FDL is to provide science-based solutions to pressing forest management issues. We accomplish this goal through applied research, outreach with an emphasis on practitioners, and professional and civic service efforts. Current research in the lab is largely focused on developing silvicultural prescriptions patterned after natural disturbance processes to improve forest resiliency to disturbance. Currently, the lab supports five graduate students and three undergraduate technicians.

ANDRIES HEYNS joined the Laboratory for Location Science in September 2018. His current research focus is on the optimisation of tower site selection for camera-based wildfire detection systems. His research has already been implemented for the selection of a number of tower sites in South Africa and his work has been selected as a finalist for the International Federation of Operations Research Societies’ triennial award for Operation Research in Development 2020. He has recently completed a surveillance optimisation project for the Rhino Pride Foundation in South Africa, as well as the optimisation of rural roads planning in Nepal, a project with the World Bank – publications on all these topics are forthcoming.
**STEPHANIE HOLCOMB** is completing her first year as the environmental science program administrative secretary and her 17th year overall at The University of Alabama. As the environmental science program source for information, she assists Dr. Justin Hart with undergraduate advising and student records. She has an Associate’s degree in applied science (office administration) from Bevill State Community College, a Bachelor of Arts degree in history and political science from The University of Alabama, a Master of Arts degree in higher education administration from The University of Alabama, and completed all required doctorate classes for organizational leadership in higher education with Grand Canyon University.

**DAVID KEELLINGS** has had another busy year! David continues to teach weather and climate related courses to both undergraduates and graduates. He has been active across campus in his advisory role for Club Geography and Environmental Council student organizations and was an invited speaker at the Tuscaloosa Global Climate Strike organized on the UA campus. Dr. Keellings has published two papers so far, this academic year and has three more under review. He is currently working on numerous research projects including the relationship between climate and forest fires around the globe and changes in heat wave severity and spatial extent over the US. Last summer he received a three-year grant from the National Science Foundation for $340,528 to fund his heat wave research. David’s heat wave research was also highlighted in the national press including NBC, ABC, CBS, and Fox News. He also gave invited talks on heat waves and health to local groups including the Tuscaloosa Kiwanis International Club and the Tuscaloosa YMCA.

**MATTHEW LAFEVOR** is in his fourth year as Assistant Professor. Over the summer he worked in Mexico, Guatemala, and Israel on hillslope agriculture and runoff management. He recently was awarded a grant for a new project with la Universidad de las Americas-Puebla, Mexico although recent travel restrictions have put the grant on hold until next year. LaFevor continues to publish work on agriculture and conservation in Latin America and recently finished his second year directing the Costa Rica study abroad program, as well as the thesis of our first graduate of the Accelerated Master’s Program (AMP). He was also nominated by the Department to become an A&S Distinguished Teaching Fellow.

**HONGXING LIU** is a professor in Department of Geography and the director of Environmental Remote Sensing Laboratory (ERSL). He has published over 100 peer-reviewed papers in various academic journals, and received a number of prestigious awards, including two NASA Group Achievement Awards, John Davidson President’s Award for Practical Papers from the American Society for Photogrammetry and Remote Sensing (ASPRS), the Best Paper Award from Computers & Geoscience, and Editor’s Choice Award from Water Resources Research.
The expertise of his research lab includes remote sensing, inland water quality, eco-hydrology, polar and cryosphere studies, coastal geomorphology, and natural hazards. His research group has extensive experiences in processing and analyzing hyperspectral, LiDAR, synthetic aperture radar (SAR), passive microwave, and radar and laser altimetry data. In the past decade, various innovative techniques, algorithms and software tools have been developed to handle remote sensing and GIS data for a wide range of geoscience studies and practical applications. Those include object-oriented image analysis, image-matching based ice flow analysis, spatio-temporal data assimilation, multi-scale spatial representation, linear feature extraction, localized inversion models, and multi-predictor ensemble models, with a U.S. Invention Patent (U.S. Patent No. 10096154).

The research projects of his lab have been funded by NASA, NSF, NOAA Sea Grant Program, USGS, USACE, NOPP, and other state and private funding agencies. The ongoing research projects include water quality remote sensing of inland lakes and rivers, CubeSat constellation for bathymetry and water quality, and polar ice dynamics. The ERSL is collaborating with NSF NEON program and UA biogeochemistry research group to investigate the drivers (i.e., climate change, land use, invasive species) and responses (ecohydrology, biogeochemistry, biodiversity) of aquatic ecosystems of inland rivers and lakes across large spatial and temporal scales over Black Warrior River and Tombigbee River Watersheds. Drones with multi-spectral, hyperspectral and thermal sensors have been employed in the recent research projects, along with satellite remote sensing data, and in situ instrumentation and field surveys with multiple instruments. The undergraduate and graduate students are strongly encouraged to participate in the research activities of the ERSL.

NICHOLAS MAGLIOCCA completed his third year in the department. Major highlights from this year included contributing to the UA in Costa Rica study abroad program, progress on two ongoing collaborative research projects, securing funding for another, and several successful publications produced through from new and continuing collaborations.

As one of four instructors supporting the Costa Rica program, Dr. Magliocca adapted the existing course GY 202: The Water Planet to Costa Rican water systems. One major change was adding a module on water-energy-food (WEF) nexus issues in Costa Rica, which proved to be the ideal place to study these topics. The highlight of the course was a field trip to Guanacaste Province, which included stops at irrigated farms, fields of wind turbines, and a restored wetland – all connected by water sourced from Lake Arenal. In collaboration with Dr. Eugenio Gonzalez-Jimenez of the Soltis Center, Dr. Magliocca published a pedagogical case study of the WEF nexus class in Costa Rica, which was published in Case Studies in the Environment.

Dr. Magliocca is a co-investigator on a multi-institutional NASA-funded project charged with conducting a global synthesis of the causes associated with land-use changes and consequences of large-scale land acquisitions (LSLAs). The project uses remote sensing to detect the timing and rate of LSLA-related land-use changes integrated with geospatial and case study data synthesis to construct generalizable trajectories of LSLA caused-land conversion-consequences. LSLAs were a global reactionary phenomenon prompted by the flood and financial crises of 2008 and 2011, and this research will support the design of policy interventions to manage LSLAs in the event of future crises. Results from the research team’s work in Cambodia were presented at AGU, AAG, and the Global Land Programme’s (GLP) Open Science Meeting (OSM) in Bern, Switzerland. Two published articles report the team’s findings in Ecology & Society and Environmental Research Letters.
Dr. Magliocca has also been directing an NSF-funded project to study the adaptive responses of cocaine smuggling, or narco-trafficking, supply networks to counterdrug interdiction in Central America. This project relates to previous and ongoing work investigating the role of narco-trafficking in deforestation in Central America. Working with Dr. Kevin Curtin in the Department of Geography and Dr. Diana Dolliver in the Department of Criminology and Criminal Justice, the team is constructing coupled narco-trafficking and interdiction models to understand the spatial adjustment of traffickers to alternative interdiction strategies. Preliminary modeling work was published in the *Proceedings of the National Academy of Sciences*. Several manuscripts are in preparation to a variety of journals in geography, criminology, and interdisciplinary science.

Finally, Dr. Magliocca is working as part of a team from UA and Auburn University on a newly funded NSF INFEWS (Innovation at the Nexus of Food-Energy-Water Systems) project. The project focuses on the potential agricultural and socioeconomic benefits of transitioning from rain-fed to irrigated agriculture throughout the Mobile Bay drainage constituted by the Alabama-Coosa-Tallapoosa (ACT) and Black Warrior-Tombigbee (BWT) river basins. The project will focus on four main activities: (a) agent based models of farmers' crop choice and irrigation decisions; (b) a spatially-explicit crop growth model for evaluation of productivity and water use; (c) an optimal irrigation scheduling scheme for minimization of water use for pumping; and (d) a coupled hydrologic-hydrodynamics model for assessment of the interactions between water use for crop production, water supply to municipalities, and its impacts on power generation and riverine navigation.

**JARED MARGULIES** completed his first year in the department. He spent the Fall 2019 semester completing fieldwork in South Korea as part of his multi-sited, multi-species ethnography of the illicit succulent plant trade for his in-progress book manuscript. He intends to submit his book proposal to University presses this summer. In Fall 2019 he also published a critical review on the problem of racial stereotyping of Asian consumers within illegal wildlife trade demand reduction campaigns. In Spring 2020 he began teaching two sections of World Regional Geography and published two articles related to the illegal wildlife trade, including an article for *World Development* analyzing fifteen years of international conservation funding by the US Fish and Wildlife Service and the emergence of illegal wildlife trade as a matter of national security interest.

Dr. Margulies presented his preliminary findings on the emergence of the international illegal trade in the *Dudleya* genus of succulent plants as an invited speaker at the San Diego Museum of Natural History’s State of Biodiversity Symposium in February 2020. In February he also co-facilitated a workshop for first-time book authors in the field of political ecology at the 10th annual Dimensions of Political Ecology Conference at the University of Kentucky. Spring 2020 regrettably saw a number of invited talks and chaired panels about the illegal trade in plants in Halle, Germany, Kyoto, Japan, Marseille, France, and Brighton, UK cancelled or postponed because of the COVID-19 pandemic.

Dr. Margulies was commissioned in 2020 by The National Building Museum in Washington, DC, to produce an extended soundscape and gallery-wall sized landscape photograph as part of their upcoming exhibition, “The Wall/El Muro: What is a Border Wall?” which is set to open in Summer 2020. This work builds from his combined interdisciplinary research and artistic practice of political ecology in the US-Mexico borderlands in relation to endangered plant species conservation within violent environments. Finally, a planned May 2020 international workshop to be held in Tuscaloosa co-organized by
Dr. Margulies, Dr. Brittany Gilmer (CCJ), and Dr. Francis Massé (U Northumbria) and funded by the University of Sheffield, the Alabama Water Institute, and the Departments of Geography and Criminology and Criminal Justice in support of a planned special issue for the journal Geoforum on illicit geographies and environmental change was instead hosted virtually and attended by 15 participants.

CAROLINE MCCLURE is completing her second year as an instructor for the UA Geography Department. She teaches World Regional Geography; People, Places, and the Environment, Cultural Geography, and Introduction to GIS. Caroline has found that she enjoys teaching the GIS course, and seeing what types of questions and projects her students can create/answer using GIS technologies and skills. Caroline also manages the Geography Department’s social media accounts and website, is the GIS Day Coordinator, GIS Certificate Manager, and produces the department newsletter. Outside of the time spent in the classroom, she loves to be outdoors, hiking, playing ultimate Frisbee, or enjoying Tuscaloosa with her dog, Gypsy.

BRAD G. PETER joined the Department of Geography as a Postdoctoral Researcher in fall of 2019 under the direction of Dean Messina after obtaining his PhD from Michigan State University. His research links remote sensing of agriculture, environmental niche modeling, and geovisualization. He is engaged in ongoing research projects that include (i) exploring global agricultural climate and land suitability, (ii) mapping the geographic scaling potential of sustainable crop technologies, and (iii) evaluating satellite/small unmanned aerial systems (sUAS) for precision agriculture in smallholder farming contexts. His first publication affiliated with the department involved drone flights and field sampling at two experimentation farms in Malawi to investigate effective spatial resolutions for relating spectral imagery to crop productivity, which is openly accessible via PE&RS (Photogrammetric Engineering & Remote Sensing). More research utilizing the sUAS imagery is being conducted to explore effective spectral indices and test classification techniques for distinguishing between crop species at fine spatial resolutions. A comprehensive collection of Dr. Peter’s published works can be viewed online at https://cartoscience.com.

Since joining the department, he has begun collaborating with the Surface Dynamics Modeling Lab (SDML) led by Dr. Sagy Cohen to build publicly available floodwater mapping tools using Google Earth Engine. Additionally, he has partnered with Dr. Cadi Fung on a NASA-funded project (Co-PIs Dr. Joseph Messina, UA, and Dr. Peilei Fan, MSU) on urbanization, land transition, and environmental change in Southeast Asia. His role in this project revolves around measuring time-series agricultural productivity trends and linkages to climatic changes and social factors such as foreign direct investments.

Dr. Peter is expected to teach a course this coming fall of 2020 on the use of web-GIS for remote sensing analytics. Brad is formerly a musician from Austin, TX and enjoys playing bass in his free time, cooking, talking to his cat, and optimizing his soybean and sunflower farms in an online simulator game with his friends.
MARY WALLACE PITTS Over the last twelve years in her role as instructor and advisor, Mrs. Pitts has taught and advised a lot of fascinating students who keep her on her toes. Her regular course load includes Earth Surface Processes (GY 102), Natural Hazards (GY 317), and Natural Resources and the Environment (GY 339).

A professional geologist, she also serves on the Editorial Board for Environmental Geosciences, and as a committee member on the City of Tuscaloosa Floodplain Management Plan Committee and the Tuscaloosa County Natural Resources Planning Committee. Her interests include water resources, watershed management, and water policy.

A graduate of Trinity College Dublin and University College London, Mrs. Pitts has decided to add a degree from UA to her resume. Currently her research focus is water policy in Alabama and is being conducted in furtherance of an Interdisciplinary Ph.D. in Watershed Science from the University of Alabama.

Her 20-year old triplets have just completed their third year at UA!

CRAIG REMINGTON has worked as the Director of the UA Cartographic Research Laboratory since 1984. He received both his degrees from Florida State, earning a bachelor’s in geography in 1976 and a master’s degree in geography in 1981. In his spare time Craig enjoys camping and traveling.

JASON SENKBEIL is a climatologist/meteorologist with primary research interests in atmospheric hazards and applied climatology. Specifically, Dr. Senkbeil hopes to improve the ways in which we communicate severe weather information so that people better understand their risk and take appropriate actions. This year he completed work on a NOAA Vortex SE Grant, “Improving Accessibility and Comprehension of Tornado Warnings for the Deaf, Blind, and Deaf-Blind.” He and colleagues are hoping that the results and recommendations will be used to establish a separate television meteorology feed during tornado warnings for Deaf audiences. He also started research on a new NOAA Vortex SE Grant, “Geospatial Threat Personalization and its Influence on Warning Risk Perception and Protective Actions.” For this research, core geographic themes of location and mapping will be explored to understand how well people comprehend their locations on maps during tornado warning scenarios. He and his students continue to pursue multiple research topics on hurricane and tornado perception, or perception of commonly used weather communication tools and graphics. They have published and submitted several articles in American Meteorological Society journals in the past 2 years. Other research projects continue to explore climatic variability and change in the eastern U.S.A. This spring he taught Applied Climatology as part of the Costa Rica study abroad program. He and the students conducted a microclimate analysis of a tropical waterfall finding interesting results. In his spare time, he loves being outdoors doing anything active and coaching youth sports.
**WANYUN SHAO** This is the second year for Dr. Wanyun “Abby” Shao at UA. She has been selected to be a fellow for the National Science Foundation Enabling Next Generation of Hazards Researchers Fellowship Program. She has published 7 articles in the past year. She has secured a grant from the National Academies of Sciences, Engineering, and Medicine Gulf Research Program to study decision making regarding the cascading effects of potential petroleum facilities failures in Mobile, AL. She has been advising two graduate students: Md Musfiqur Rahman Bhuiya and Evan Cass. Musfiq is going to study accessibility to critical facilities for movement challenged persons in Dhaka, Bangladesh. Evan is going to study planning for coastal hazards in New Orleans, LA. In addition, she is also supervising an undergraduate student Caroline Barnes on a project comparing sustainability plans of Vanderbilt University and University of Alabama. She has taught two new courses: Environment and Society and Environmental Decision Making in addition to People, Place, and the Environment. She has been the Department colloquium coordinator since August 2019.

**DOUGLAS SHERMAN** is Professor and Chair of the Department of Geography at the University of Alabama (since 2011) where he moved after being Head of the Department of Geography at Texas A&M University from 2001. Prior to that appointment he was on the faculty of the Department of Geography at the University of Southern California for eighteen years. He obtained his Ph.D. from the University of Toronto and was a post-doctoral scholar in the Ocean Engineering Department at Woods Hole Oceanographic Institution. Dr. Sherman’s research interests are in coastal and aeolian geomorphology and sedimentation. He has published more than one hundred scholarly articles, and recently edited or co-edited volumes of the *Treatise on Geomorphology on Coastal Geomorphology and Aeolian Geomorphology*, and co-edited a volume of *Coastal and Marine Hazards, Risks, and Disasters*. Much of his recent research involves human impacts on coastal sedimentation, hydrodynamics in the vicinity of coastal structures, and the physics of sediment transport, especially wind-blown sand. He is a Fellow of the American Association for the Advancement of Science, the American Association of Geographers, and the American Geographical Society and has twice been a Fulbright Senior Scholar.

**MICHAEL K. STEINBERG** is a professor in the New College and Geography at the University of Alabama. His research is focused on the human-dimensions of environmental conservation, endangered species, and conservation mapping. He is the author of *Stalking the Ghost Bird: The Elusive Ivory-billed Woodpecker in Louisiana*, 2008 LSU Press, and *Dangerous Harvest: Drug Plants and the Transformation of Indigenous Landscapes*, Oxford University Press 2004. His work has also been published in journals such as the *Geographical Review, The Professional Geographer, Conservation Biology, Conservation and Society, Mississippi Quarterly, FOCUS on Geography*, and the *Bonefish and Tarpon Journal*.
MATTHEW THERRELL just completed his seventh year at The University of Alabama. Dr. Therrell’s research has been focused on carrying out fieldwork and lab analysis in support of two large externally funded research projects supported by the EPA and NSF focusing on using tree rings to study streamflow in southeastern rivers. These projects are being carried out in collaboration with colleagues in Geography and Engineering as part of a larger collaborative Research group called Collaborative Research of Paleoenvironments and Society (CoRPS), which is focused on improving the interdisciplinary understanding of hydrological and climatological variability and past extreme events to inform and improve the prediction of future socioecological impacts. He is also focused on research related to flooding on the Mississippi River and rivers in the southeast.

JOE WEBER This year I did some field work in Nevada to look for a lost city in the desert. Well, actually, a small town that had been flooded by a reservoir 80 years ago and reemerged due to prolonged drought. Nothing much is left of it. I was looking for the route of an old highway that passed through the town. Decades of sedimentation has erased any sign of the road here, but away from the reservoir it looks as it would have in 1920.

I also took some time to walk on the moon….sort of. The Cinder Lake Crater Field near Flagstaff, Arizona, was used by NASA to train Apollo astronauts to walk on the moon. In 1967 NASA blasted hundreds of craters in the volcanic landscape to create a replica of part of the moon’s Sea of Tranquility. It is badly eroded and becoming overgrown by trees, but still a fascinating cultural landscape.

I found time to see a museum exhibit featuring Native American Star Wars art. The Hopi, Navajo, Zuni, and others are big fans of the movie and have adapted R2-D2, Darth Vader’s helmet, and other familiar elements of the movies to their own artistic styles. I got to watch a bit of Star Wars that had been translated into the Navajo language. Ats’áhoníyéé’ nil hólǫq doo!
Graduate Students

**Ph.D. Students**
- Jinsu Bae
- Jordan Cissell
- Davis Goode
- Javar Henry
- Jonathan Kleinman
- Yang Liu
- Ray Lombardi
- Penelope Mitchell
- Nishani Poorna Moragoda
- Dinuke Nanayakkara Munasinghe
- Ashleigh Price
- Daniel Turner
- Min Xu
- Pei Zhang

**M.S. Students**
- Bradley Barrick
- Md Musfiqur Rahman Bhuiya
- Jayla Blanke
- Jess Blankenship
- Devyn Boatright
- Kimberly Brothers
- Evan Cass
- Amber Chan
- Joni Corbin
- Joshua Dugat
- Raien Emery
- Jake Ervin
- Alex Fries
- Katherine Henry
- Anna Holland-Levine
- Katherine Jack
- Carly Jones
- Alexandra Logan
- Bouran Mozayen
- David Phillips
- Austin Raney
- Carrie Schmitt
- Emily Schnarre
- Greg Shafer
- Lydia Stanley
Graduate Student Profiles

JINSU BAE is a second-year Ph.D. student working with Dr. Sherman. He earned a master’s degree in South Korea, focusing on coastal geomorphology. Jinsu’s research focus includes coastal geomorphology and aeolian sediment transport. In this year, he has worked on the barchan morphometry on Earth and Mars, as preparing for publishing the article. Also, he has taught GY101 labs in previous Fall and Spring semester.

MD MUSFIQUR RAHMAN BHUIYA is a first-year master’s student. He is from Dhaka, Bangladesh. Before coming to UA, Musfiq completed his bachelor’s degree in Urban and Regional Planning and Master’s in Urban and Regional Planning from Bangladesh University of Engineering and Technology (BUET). He is working under supervision of Dr. Wanyun Shao in the Environmental Decision-Making Laboratory. His research focus is to integrate urban transportation planning, rights of persons with disabilities and urban resilience holistically for spatial planning. Musfiq is currently working on risk perception of movement challenged persons and their accessibility to evacuation routes in Dhaka. As a Graduate Research Assistant, Musfiq is working with Eric Courchesne to improve the Map Library.

JAYLA BLANKE is a second-year master’s student originally from Houston, Texas. She earned her bachelor’s degree from the Capstone in 2018, majoring in biology and marine science. Her passion for natural resource management and conservation has led her to investigate the distribution, sources, and socioeconomic perceptions of marine debris in Belize. She spent the summer of 2019 performing field work while also serving as a teaching assistant for Dr. Steinberg’s Belize tropical conservation study abroad course. This year she also represented the department in the Three Minute Thesis semi-finals. She plans to continue her Capstone education through the Ph.D. program this upcoming fall.

JESS BLANKENSHIP completed her undergraduate studies at Birmingham-Southern College with a bachelor’s in urban environmental studies. Jess is a first year’s master’s student at the University who is interested in regional and community planning. Jess is doing her research on how urban sprawl affects low-income communities in Birmingham. Jess’s hope is that this research will help community planners in similar mid-sized cities mitigate some of the long-term problems that come about from urban sprawl. When she is not working on research or grading labs Jess enjoys being outdoors with her dogs and camping with her Fiancé and little boy.

KIMBERLY BROTHERS is a new master’s student who started in the Spring 2020 semester. She graduated from The University of Alabama in 2018 with a B.S. in Geography. Kimberly is a TA for GY 101 and has been working with Dr. Senkbeil on projects related to Hurricanes Dorian and Florence.
**EVAN CASS** is a first-year master’s student from Decatur, Georgia. He completed his Bachelor of Science degree in Environmental Science from the University of Alabama in 2019 through the Accelerated Master’s Program before beginning his graduate work full time in 2020. His proposed thesis research focuses on the relationship between resident risk perceptions and municipal policy pertaining to natural hazards in coastal communities.

**AMBER “AYWEN” CHAN** is a first-year master’s student from Norman, Oklahoma. During the Spring 2019 semester they graduated summa cum laude with a B.A. in Geography, minor in GIS, and Global Studies Certificate. They also started coursework towards the completion of their M.S. through the Accelerated Master’s Program and achieved full graduate student status in the fall of 2019. Currently, they are working on thesis work centered around understanding the potential impacts of electronic waste on Agbogbloshie, a multi-faceted e-waste site in Accra, Ghana.

**JORDAN CISSELL** completed his Ph.D. under the supervision of Dr. Michael Steinberg in Summer 2020 and is now an assistant professor in the Department of Geography and Sociology at Samford University in Birmingham, Alabama. A lifelong resident of Alabama, Jordan first came to the UA Department of Geography as an M.S. student in Fall 2015 after completing his B.S. in accounting at UA in Spring 2015. He feels very fortunate to have spent the past five years with such a fantastic group of people, and he looks forward to continued interaction with the Department for many years to come!

**JONI CORBIN** is a second-year master's student originally from Bellevue, Washington. She graduated from UA in 2011 with a M.S. in Civil and Environmental Engineering and spent the last 4 years teaching for the Tuscaloosa City Schools. She is currently finishing her thesis research titled "Using Paleoflood Hydrology to Extend Flood Records and Understand Large Floods in South Sauty Creek, Buck's Pocket State Park, AL". The research focuses on recreating paleofloods for South Sauty Creek, located in north Alabama, to mitigate future flood hazards along the Tennessee River, under the guidance of Dr. Lisa Davis. She presented her research at the Alabama Water Resources Conference and Symposium in September and the Alabama Water Institute Symposium in December 2019. She also participated in the Club Geography partnership with Woodland Forest Elementary School teaching first graders about map making. Joni hopes to continue to merge her scientific research and K-12 education outreach moving forward. Outside of school, she enjoys hiking with her dog, Kaia.

**JOSHUA DUGAT** In December 2019, Josh Dugat successfully defended his MS thesis, “Self-caught fish consumption and methylmercury advisories in Tuscaloosa County.” He will defend an MFA thesis in UA’s Department of English in April 2020. Josh continues to teach with Alabama Prison Arts + Education Project, and backpacks all across Tuscaloosa with his one-year-old son.
RAIEN EMERY was a NOAA Hollings Scholar and held an appointment with the NOAA Northwest Fisheries Science Center in summer 2019. Originally from Wyoming, she joined the Forest Dynamics Lab as a sophomore in the UA Environmental Science Program. As an Accelerated Master’s Program student, she spent one semester as a full-time graduate with a thesis focused on forest fuel flammability, composition, and loading in longleaf pine woodlands. Results of this research will aid forest managers in applying prescribed fire to achieve desired conditions in mixed pine-hardwood stands. Raien was also an Academic All-American on the UA rowing team and she spent a lot of time on the Black Warrior River.

ALEXANDER FRIES is a second-year master’s student originally from Dothan, Alabama. He completed his undergraduate degrees in Geography and History at The University of Alabama in 2018, during which time he was also introduced to the world of cartography by working in the Cartographic Research Lab under supervisor Craig Remington. His thesis research involved an exploratory statistical analysis of geographical factors that have influenced urban growth and population in Alabama over the course of its history. As a cartographer in the Cartographic Research Lab, over the past year Alex has primarily been responsible with creating more than two hundred maps of various river basins for an upcoming reference text on the rivers of North America. He presented his work at the 2019 annual meeting of the North American Cartographic Information Society (NACIS) in Tacoma, Washington. Alex also served as the President of Club Geography during the 2019-2020 academic year.

DAVIS GOODE earned his MS in the Forest Dynamics Lab in 2019 and is currently in his first year of the PhD program. As an undergraduate Environmental Science student, he published research linking canopy disturbance to structural complexity in and an upland oak stand. He also has published research on the effects of drought on longleaf pine radial growth, and edge influence in longleaf pine woodlands following catastrophic disturbance. His dissertation research focuses on restoring and maintaining shortleaf pine in mixed pine-hardwood stands to enhance forest health and resiliency. This summer will be his fifth field season with the Forest Dynamics Lab.

KATHERINE HENRY is a first-year master’s student from Tulsa, Oklahoma. She completed her undergraduate studies at Oklahoma State University having received her Bachelor of Science in Geography, Bachelor of Arts in Sociology, and a minor in Middle Eastern Studies. Her undergraduate honors thesis was focused on the topic of the anthropogenic influence on climate change induced drought in the American Southwest. Her research interests include remote sensing of water quality and the influence of land use/land cover on water quality. Her regions of interest
Graduate Student Profiles

are the Middle East and South Asia. She is working under the guidance of Dr. Luoheng Han and her thesis is focused on the application of remote sensing to classify land use/land cover over time for Keenjhar Lake in Pakistan. After graduate school she hopes to attend medical school on a combined M.D./PhD track. Her hobbies outside of school include reading, kayaking, hiking, and traveling. She went backpacking for three weeks in Morocco for winter break.

ANNA HOLLAND-LEVINE successfully defended her MS thesis, titled “The social-ecological system of sheep ranching, recreation, and large carnivores on multiple-use U.S. public lands” in March. In December, she organized a geography education outreach event with Woodland Forrest Elementary School in Tuscaloosa. Anna presented a summary of her thesis project at the 2020 virtual meeting of the AAG and is now working on formatting this research for publication. She’s enjoyed her experience at UA so much that she’s considering a Ph.D.! Anna is looking forward to hiking and camping the American West this summer as she identifies opportunities to continue contributing to land and natural resource management.

KATIE JACK is a second-year master’s student originally from Albany, Georgia. She was part of the first cohort of students in the Accelerated Master’s Program in the Department of Geography. In the fall of 2018, she earned her Bachelor of Science in Geography with a minor in Anthropology from the University of Alabama, and in the spring of 2019, she transitioned to a full-time graduate student and began teaching Geography 101 labs. Her research interests focus on environmental justice, and in the spring of 2020 she successfully defended her thesis, “Developing a Holistic Methodology for Identifying Areas of Potential Environmental Justice Concerns: A Case Study of Jefferson County, Alabama,” which explored the social, economic, and environmental history of Jefferson County, Alabama and the spatial relationships between pollution and demographics in this area.

CARLY JONES is a first-year master’s student who returned to her native Tuscaloosa after graduating from Boston University in 2018 with a B.S. in Environmental Analysis and Policy. Prior to joining the Geography Department where she works as a research assistant in the Dendrochronology Lab under Dr. Matthew Therrell, Carly served as the Alabama Water Institute’s Outreach Coordinator. She is currently assisting with an EPA sponsored project focused on using tree rings to study streamflow in southeastern rivers. Her research goals are focused on improvement of the paleoclimate record for the Mobile-Tensaw River Delta and expanding the broader understanding of the region’s hydrologic variability. When away from microscopes, Carly lovingly cares for her houseplant jungle and two sweet dogs.
**JONATHAN KLEINMAN** joined the Department as a master’s student in 2015 and is now in his third year of the PhD program. Prior to his time at Alabama, Jonathan studied Ecology and Evolutionary Biology at the University of Colorado and worked as a field technician on public lands in Georgia, Idaho, and Tennessee. His research focusses on the ecological consequences of interacting disturbances in forest ecosystems. This summer will be Jonathan’s sixth field season with the Forest Dynamics Lab monitoring the effects of wind disturbance, salvage logging, and prescribed fire on longleaf pine stand dynamics in the Talladega National Forest.

**YANG LIU** is a second-year Ph.D. student in the Environmental Remote Sensing Laboratory. He received the B.S. degree in geographic information system from Sun Yat-Sen University, Guangzhou, China, in 2015, and the M.A. degree in geography from the University of Cincinnati, Cincinnati, OH, USA, in 2018. His research interests include image fusion, spatiotemporal analysis, image object, LiDAR applications, and satellite hydrology. Yang won the first place in the Student Illustrated Paper Competition of the Remote Sensing Specialty Group in the 2018 Annual Meeting of the Association of American Geographers (AAG) in New Orleans, Louisiana; and also the runner-up in the Student Oral Presentation Competition of the Landscape Specialty Group in the 2019 Annual Meeting of the AAG in Washington D.C. In the last year, his main research targets on the quantitative investigation of the aquatic habitats in the Mobile River Basin using Sentinel-2 data.

**ALEXANDRA LOGAN** is a second-year master’s student working in the Forest Dynamics Lab. She completed her BS degree from Syracuse University in May 2018 with majors in Geography and Biology, with a focus in Environmental Science. She successfully defended her thesis titled, “Influence of coarse woody debris on seedlings and saplings in a Pinus palustris woodland” this past spring and presented her findings at the American Association of Geographers Annual Meeting in April. Alexandra is currently working on a project that utilizes General Land Office records to reconstruct past forest conditions of Alabama. She is also collaborating with members of the Forest Stewards Guild to write a report on best management practices in the Southeast as they relate to forested wetlands. The final report will be available as an online resource for silviculturists, loggers, and landowners.
RAY LOMBARDI is a doctoral candidate in the Department of Geography with a specialization in flood science at University of Alabama. Prior to beginning her Ph.D. work, Ray earned her M.S. in Geography from UA, and a B.S. in Environmental Science from Longwood University in Farmville, Va. Ray’s research interests include paleoflood hydrology, flood frequency statistics, and human-riverine interactions. More specifically, her work examines the spatio-temporal relationship of flood deposits preserved in floodplains to improve prediction of future floods. Her research combines a passion for river systems, watershed management, and playing in the dirt.

In 2019, Ray worked as Dr. Davis’ research assistant for a paleoflood hydrology investigation funded by Tennessee Valley Authority (TVA). This research included conducting field work on the Tennessee River, generating paleoflood hydraulic models, and performing flood frequency analyses. Flood frequency curves developed by Dr. Davis and Ray greatly reduced uncertainty in flood frequency estimates for the middle Tennessee River and will be used in TVA’s upcoming risk assessment of a major dam in Northern Alabama.

In addition to her research assistantship, Ray presented her dissertation research at conferences including the American Geophysical Union in San Francisco, CA. Ray published her master’s research titled, “Fluvial activity in major river basins of the eastern USA during the Holocene” in The Holocene. Ray also served as Department of Geography’s Graduate Student Association representative and served on awards committee for the American Association of Geographer’s Paleoenvironment Change Group.

PENELLOPE MITCHELL joined the Ph.D. program in January 2019 and is working under the research guidance of Dr. Curtin in the Laboratory for Location Science. Penelope was awarded the 2020 Outstanding Graduate Award for the Department of Geography. Her research interests include healthcare accessibility, complex systems, spatial optimization, spatial analysis, and the opioid epidemic. Her dissertation research focuses on healthcare accessibility and resource allocation in response to the opioid epidemic. Additionally, Penelope is a graduate research assistant contributing to the Collective Spatial Cognition research effort related to knowledge discovery regarding how groups of people learn about space, and act on the spatial knowledge they collectively gain. Prior to starting with UA, Penelope was an instructional designer for the University of West Florida, as well as an online adjunct professor teaching Cartographic Design for Johns Hopkins Online Master of Science in GIS program. She received her M.S. in Environmental Studies, a Graduate GIS Certificate, and B.S. in Environmental Policy from the University of West Florida.

NISHANI MORAGODA is a Ph.D. student and a member of the Surface Dynamics Modeling Lab, with research interests in impacts of climate change and human activities on water resources, fluvial sediment flux dynamics, and global-scale hydrological modeling. Her dissertation research, under the guidance of Professor Sagy Cohen, is focused on the impacts of anthropogenic and climatic changes on global riverine fluxes in the 21st century. For her master’s thesis, entitled "Climate-Induced Trends in Global Riverine Water Discharge and Suspended Sediment Dynamics in the 21st Century", she was selected as one of the recipients of the College of Arts & Sciences’ Outstanding Master’s Thesis Award in 2019.
DINUKE MUNASINGHE is a PhD student and member of the Surface Dynamics Modelling Lab (SDML), Department of Geography, with research interests in Remote Sensing Applications in Flood Inundation Mapping, Computational Hydrology, Hydraulic Modeling, and Sediment Transport and Monitoring. Currently, he is working on morphological evolution of global river deltas using a hydrological and remote sensing approach.

DAVID PHILLIPS is a first-year master’s student in the Forest Dynamics Lab. He completed his Bachelor of Science in Environmental Science as part of the Accelerated Master’s Program in fall 2019. For his thesis, David is studying spatial patterns of canopy disturbance in relation to regeneration and stand dynamics in a longleaf pine woodland. David is also working with Alexandra Logan to reconstruct forest conditions and analyze vegetation-environment relationships in Alabama prior to widespread European settlement.

ASHLEIGH PRICE is a Ph.D. student working under the mentorship of Dr. Kevin Curtin in the Laboratory for Location Science. Prior to beginning her doctoral program, she completed her BS in Geosciences at Virginia Tech and her MS in Geography at the University of Southern Mississippi. Her research interests are in facilities location science, hazard vulnerability and resilience, and the geography of crime.

AUSTIN RANEY is a second-year master’s student and a member of the Surface Dynamics Modeling Lab, with research interests in container-based computing, long short-term neural networks, stochastic hydrological model parameterization, statistical attribution of climatic occultations to explain heatwave frequency, magnitude, and duration, and remote sensing applications to estimate riverine bankfull parameters. This year he contributed an open-source Python and Docker package, The Dockerized Job Scheduler, that drastically simplifies model usage and accelerates hypothesis testing of the National Water Model. Currently, he is working on extracting river widths for the conterminous United States using remote sensing techniques to drive a novel approach to estimate riverine bankfull parameters. Aside from his thesis work, Austin is participating in ongoing collaborative activities exploring climatic oscillation influence on heatwaves with Dr. David Keellings and investigating the utility of long-short term neural networks to improve hydrological modeling results with Department of Geology Ph.D. student Jonathan Frame.

CARRIE SCHMITT earned a BS in Environmental Science in December 2019, after participating in UA's Accelerated Master's Program. She is now a full-time master's student, now preparing her thesis proposal defense. Carrie spent the summer of 2019 working for the National Ecological Observatory Network (NEON), which is proving to have been a valuable experience regarding the developing interests in wildlife conservation, endangered species, and natural protected areas. Her current thesis work examines the assessment of natural protected areas; specifically, the metrics, tools and field techniques by which assessments do (or do not) lead to effective wildlife conservation.
EMILY SCHNARRE is a first-year master’s student in the Geography department, studying under Dr. Appiah-Opoku. Originally from Pittsburgh, Pennsylvania she completed her undergraduate degree in Geology with a minor in Political Science here at the University of Alabama in 2015. Her research focuses on multimodal transportation systems and the impacts of infrastructure inequalities on network connectivity.

LYDIA STANLEY is a first-year master’s student originally from Pensacola, Florida. She is currently working under the guidance of Dr. Nicholas Magliocca and is part of the Human-Environment Interaction Modeling and Analysis (HEIMA) lab. After completing her bachelor’s degree at UA in Environmental Science she continued her education at the Capstone and researches the effects of Land Use Land Cover (LULC) change and urbanization on Urban Heat Islands (UHIs) in Mobile, AL. She hopes that her research will communicate the importance of mapping LULC to aid in creating UHIs mitigation strategies. In her free time, she enjoys playing/coaching volleyball, boating in the Gulf, or spending quality time with her friends.

DANIEL TURNER is a PhD student in the University of Alabama's Department of Geography, where he is a Research Assistant in Dr. Kevin Curtin's Laboratory for Location Science. He holds an A.B. in History from the University of Chicago and a M.S. in GIS from the University of Texas at Dallas. His research interests include complex systems, spatial optimization, network analysis, human-environment interaction, conservation, and software development.

MIN XU is a Ph.D. student in the Department of Geography at the University of Alabama. In May 2015, she received the M.A. degree in Geography & GIS from the University of Cincinnati (UC). In August 2015, she was admitted to the Ph.D. program of Geography & GIS and spent another three years at UC. She then transferred to The University of Alabama (UA) in August 2018 and is currently pursuing the Ph.D. degree in Geography at UA. Her research interests include remote sensing, geospatial analysis, and environmental studies with a focus on the water quality problems of freshwater resources. Her dissertation research focuses on the development of numerical algorithms for deriving water quality parameters for inland water bodies using the state-of-the-art remote sensing technology. As a graduate research assistant, she is currently working on the NASA funded project “Remote Sensing Research for Harmful Algal Blooms in Inland Waters” led by her advisor Dr. Hongxing Liu. In the past few years, she has participated in the extensive field campaigns to collect inland water quality data for Harsha Lake and Caesar Creek in Ohio, western Lake Eire, Taylorsville Lake in Kentucky, Brookville Lake in Indiana, the Ohio River, and the Black Warrior River and Tombigbee River in Alabama. In February 2019, she was awarded the Graduate Council Fellowship (Category 2: Research and Creative Activity) at UA to support her ongoing dissertation research. She also received the 2020 Outstanding Graduate Research Award in the Department of Geography.
PEI ZHANG is a third-year Ph.D. student from Henan province in China. She earned her master’s degree in physical geography from Beijing Normal University and bachelor’s degree in science education from Harbin Normal University. Her research interests include coastal geomorphology, desert landforms evolution, aeolian sediment transport processes, electrostatic effect in sand/dust storms. She joined the University of Alabama in 2017.
### Environmental Science Majors and Hometowns

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<th>Student</th>
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<td>Brady Allen</td>
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<td>Rolf Konrad</td>
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<td>Melissa Meyer</td>
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<td>John Mueller</td>
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<td>Margaret Woodard</td>
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## Geography Bachelor’s Degrees Earned

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<tr>
<td>Samuel Andrus</td>
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<td>Sloane Buschman</td>
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<td>Amber Chan</td>
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<td>Adam Tillery</td>
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<td>Joshua Sims</td>
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<td>Milton Tucker</td>
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## Environmental Science Bachelor’s Degrees Earned

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<tr>
<td>John Berg</td>
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<td>Emma Berlingame</td>
<td>Nathan Byars</td>
<td>Raien Emery</td>
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<td>Gavin Conley</td>
<td>Hannah Hostetler</td>
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<td>Shelly Gossman</td>
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<td>Brianna Lowery</td>
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<td>Jared Lofti</td>
<td>Katelyn Morris</td>
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<td>Jared Priesz</td>
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<td>Jane Kunberger</td>
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<td>Marcus Mizerany</td>
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<td>Mya Montrella</td>
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<td>Zachary O’Donnell</td>
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<td>Carrie Ragsdale</td>
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<td>Claudia Santiago</td>
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<td>Lydia Stanley</td>
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<td>Jennie Wilson</td>
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Geography Master’s Degrees Earned

Spring 2019
Gavin Conley
Davis Goode
James Misfeldt
Judith Oppong
Brian Van Nostrand

Summer 2019
Afrin Hossain Anni
Aubrey Loria
Nishani Poorna Moragoda
Jacob Reed

Fall 2019
William Booth
Robert Butler
John Lee
Qifan Nie
Kory Pilet

GIS Certificates Earned

Undergraduate
Kimberly Anne Brothers
Michael Parris

Graduate
Emma Seager Callanan
Shelley Gossman
Bouran Mozayen
Judith M. Oppong

Departmental Awards

Outstanding Undergraduate in Geography
2015: Bradford L. Bates
2016: Anna B. Davis
2017: James Misfeldt
2018: Alexander Fries
2019: Amber Chan
2020: William Bridges

Outstanding Undergraduate in Environmental Science
2015: Monica Standohar
2016: Sydney D. Shaefer
2017: Davis Goode
2018: Kathryn Shay
2019: Raïen Emery
2020: Katelyn Morris

Chairperson’s Award
2015: Allison M. Tarbox
2016: Monica H. Stone
2017: Dinuke Munasinghe
2018: Mariam Khanam
2019: Jonathan Kleinman
2020: Jordan Cissell

Outstanding Graduate Research Assistant
2015: Lauren E. Cox
2016: Shawn M. Carter
2017: Scott Ford
2018: Rachel Lombardi
2019: Davis Goode
2020: Min Xu

Outstanding Graduate Teaching Assistant
2015: Michelle E. Saunders
2016: Sandra L. Almayeda Zambrano
2017: Jordan Cissell
2018: Alysa Delgado
2019: Jordan Cissell
2020: Greg Shafer

Outstanding Graduate Student
2015: Matthew D. Meko
2016: Lauren E. Cox
2017: Jonathan Kleinman
2018: Kevin Wilson
2019: Nishani Moragoda
2020: Penelope Mitchell
The Cartographic Research Lab is in the midst of very busy time. The Lab has contracted with Elsevier Academic Press to produce 196 river basin maps for the second edition of *Rivers of North America*. We await the completion of an agreement with the Alabama Alcoholic Beverage Control Board to provide maps concerning demographic, marketing and public safety issues for areas surrounding their 174 stores in the State. The Geological Survey of Alabama has agreed to combine their substantial collection of aerial photography with the collection presently held by the Geography Department. This arrangement doubles the number of photographs available to customers of the Lab. The new U.S.D.A. Census of Agriculture has been recently released, which provides countless mapping opportunities for this important part of the State’s economy. After 35 years, Craig Remington remains the director of the Lab. Mr. Remington anxiously awaits the results of the 2020 Census. Political redistricting season, like football, can’t arrive soon enough.

This year the UA Geography Department welcomed a new Map Librarian, Eric Courchesne. Eric has been Program Director, Development Director, and Executive Director for over a dozen nonprofits. He has worked with the Michael and Susan Dell Foundation, Austin Parks Foundation, and several local environmental and education-based nonprofits. His company, Oak Philanthropy (oakphilanthropy.org), has supported causes including the Friends of Hurricane Creek. Eric was a UA Honors College instructor where he taught Grant Writing, Social Entrepreneurship, and Nonprofit Management.

“I’m very excited to be joining the Geography Department. I’ve been studying and working with environmental causes my entire career. I’m looking forward to working with faculty to develop grant capacity, teach essential skills to our students, and expand the reach of our amazing map library. In the months ahead I’ll be reaching out to faculty about potential community partnerships, environmental programming, and the map library. My first outreach project will center on improving bicycle infrastructure in Tuscaloosa, something I’ve been passionate about since doing like work in Austin, TX. I wish I were joining the team under better circumstances but I look forward to meeting you all in person soon.

I’m excited to help improve the physical map space for students and visitors, expand our reach and accessibility online, and get maps and curriculum to K-12 classrooms throughout Alabama to help inspire another generation of environmentalists.”
The Department of Geography hosted GIS Day, November 13, 2019. There were eight speakers, representing the UA Geography Department, the City of Huntsville, and the Washington Geologic Survey. Additionally, Daniel Coe, the speaker from the WGS, met with faculty to discuss future research projects, and with graduate students and the Intro to GIS course to speak about working with geospatial technologies outside of academia. This year the GIS Day included two sessions of speakers, as well as a break for students and attendees to speak with and ask questions to the speakers.

**GIS Day**

November 13, 2019 | 1000 Bevill Hall

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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| 10:00-10:05 | Welcome and Opening Remarks  
Dr. Caroline McClure, UA Department of Geography                                   |
| 10:05-10:35 | “Applications of Remote Sensing and GIS in Water Quality Monitoring”  
Dr. Luoheng Han, UA Department of Geography and UA Office for Academic Affairs      |
| 10:35-11:05 | “GIS Tool Development for Flood Analysis and Response”  
Dr. Sagy Cohn, UA Department of Geography                                           |
| 11:05-11:35 | “Redistricting Grove Hill, Alabama in 2019: Why Are We Doing This?”  
Craig Remington, UA Cartographic Research Lab                                        |
| 11:35-12:05 | “Geology Meets Geography: Using GIS and Lidar to Map the Dynamic Landscape of Washington State”  
Daniel Coe, Washington Geologic Survey                                             |
| 12:05-1:05   | Break for lunch, light snacks provided                                                        |
| 1:05-1:35    | “The Skills You Need in 2019 and Beyond”  
Nicholas Haney, City of Huntsville                                                   |
| 1:35-2:05    | “Mapping the Past with Historical GIS”  
Dr. Joe Weber, UA Department of Geography                                               |
| 2:05-2:35    | “Applications of GIS for Wildfire Detection and Endangered Wildlife Surveillance”  
Dr. Andries Heyns, UA Department of Geography                                        |
| 2:35-3:05    | “Geography Backwards through Space and Time”  
Dean Joseph Messina, UA College of Arts and Sciences                                 |
<table>
<thead>
<tr>
<th>Date</th>
<th>Presenter</th>
<th>Title</th>
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<tbody>
<tr>
<td>September 25, 2019</td>
<td>Dr. John England</td>
<td>“Extreme Floods, Paleoflood Data, and Flood Hazards for Dam and Levee Safety”</td>
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<tr>
<td>September 27, 2019</td>
<td>Dr. Joseph Messina</td>
<td>“Precision Agriculture for smallholder systems in Africa”</td>
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<td>October 1, 2019</td>
<td>Curt Hammill</td>
<td>“ESRI, the Company and Its Mission to Support the U.S. Department of Defense”</td>
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<tr>
<td>October 11, 2019</td>
<td>Dr. Cadi Fung</td>
<td>“Understanding human-wildlife conflict among artisanal fishers, tourism operators, and the Amazon river dolphin in the Central Brazilian Amazon”</td>
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<td>October 25, 2019</td>
<td>Dr. Thomas Cova</td>
<td>“Wildfire protective options and strategies for protecting residents in the most at-risk wildfire communities”</td>
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<tr>
<td>November 15, 2019</td>
<td>Dr. Scott Hemmerling</td>
<td>“Elevating local knowledge through participatory modeling: active community engagement in restoration planning in coastal Louisiana”</td>
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<tr>
<td>January 24, 2020</td>
<td>Emily Schnarre</td>
<td>“Campus Infrastructure as a Barrier to Transit: A preview of a multimodal transportation study in Tuscaloosa, Alabama”</td>
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<td>January 24, 2020</td>
<td>Md Musfiqur Rahman Bhuiya</td>
<td>“Accessibility of Movement Challenged Persons to Evacuation Routes and Their Earthquake Risk Perception”</td>
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<tr>
<td>January 24, 2020</td>
<td>Lydia Stanley</td>
<td>“Utilizing Google Earth Engine to map LULC change in correlation with local UHIs in Mobile, AL (from 2008-2019)”</td>
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<td>January 24, 2020</td>
<td>Penelope Mitchell</td>
<td>&quot;A Framework for Response to a Complex Spatial Problem: Optimal Placement of Interventions for Opioid Incident Deployment&quot;</td>
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February 6, 2020
Dr. Timothy Beach
“Under the Forest Canopy: Prehispanic Wetland Agroecosystems in Global Context”

February 21, 2020
Ashleigh Price
“Spatial Optimization for Hazards and Crime”

Javar Henry
“Water Quality and Storage Monitoring of Eastern and South Africa Great Lakes Using Satellites”

Amber Chan
“E-waste in Ghana”

Carly Jones
“Tree-ring Reconstruction of Streamflow Records within the Mobile-Tensaw Delta”

Carrie Schmidt
“Effectiveness of Protected Areas”

March 6, 2020
Dr. April Frake
“Scaling Irrigation and Malaria Risk in Malawi”
BELIZE

The Belize 2019 field course was the largest yet with 25 motivated, hard-working students from across the university. This course was a multi-week trip to Belize to examine first-hand the biodiversity of the two most diverse ecosystems on earth: the coral reef and the tropical rainforest. Days were spent in the field making observations and collecting data; lectures in the evenings covered topics including diversity of tropical organisms and habitats, rainforest ecology, coral reef biology, cultural ecology, symbiosis, and conservation of tropical biodiversity.

COSTA RICA

For spring 2020, the Department of Geography led a semester study abroad program in Costa Rica. The program was housed at The Soltis Center, owned by Texas A&M, on the windward slope of the mountains in the rainforest in the interior of Costa Rica. Ten students participated in the 14-hour program, which offered a full semester of classes in just over 6 weeks. The classes were: GY 345 Geography of Latin America and The Caribbean taught by Dr. Matthew LaFevor, GY 454 Field Studies in Costa Rica taught by Jonathan Kleinman, GY 413 Applied Climatology taught by Dr. Jason Senkbeil, and GY 202 The Water Planet taught by Dr. Nick Magliocca. For each class, several overnight and day field trips were planned as part of the curriculum. The students had a great experience and we hope to go back again next year! Here are some of the activities:

- **GY 345** - Arenal Volcano National Observatory, Espiritu Santo Coffee Tour, a local sustainable farm tour, and some ½ day trips
- **GY 454** - Whitewater rafting on Rio Balsa, Venado Caves, and several ecology and forest field activities near Soltis
- **GY 413** - Beach trip to Puerto Viejo, some ½ day trips, class project on the microclimate of a tropical rainforest waterfall
- **GY 202** - Guanacaste Province (Liberia, Tempisque River Basin, Palo Verde National Park, Playa Hermosa) Students learned about linkages between hydroelectric power generation, wind energy, irrigation, and rice and sugarcane production.
Invited Talks and Panels


Workshops


Community Surface Dynamics Modeling System Annual Meeting (CSDMS), May 21-23, 2019; Boulder, CO


5th AMS Conference on Weather Warnings and Communication, June 12, 2019; San Diego, CA

Senkbeil, J.* 2019. Improving accessibility and comprehension of tornado warnings for the deaf and deaf-blind community.

American Sociological Association Annual Meeting, August 10-13, 2019; New York, NY


Alabama Water Resources Conference, September 4-6, 2019; Orange Beach, AL


Pitts, M.W.* 2019. Analysis of the state of Alabama agency mandates and spatial organization.


Society of American Foresters National Convention, October 39-November 3, 2019; Louisville, KY


Annual Meeting of Association of Pacific Coast Geographers, October 16-19, 2019; Flagstaff, AZ


The University of Alabama Department of Geography GIS Day, November 13, 2019; Tuscaloosa, AL

Weber, J.* 2019. Mapping the Past with Historical GIS.

Southeastern Division of the American Association of Geographers (SEDAGG) Regional Conference, November 24-25, 2019; Wilmington, NC


Senkbeil, J.* 2019. Improved accessibility and comprehension warnings for the deaf community.

Alabama Water Institute Symposium, December 3-4, 2019; Tuscaloosa, AL


American Geophysical Union Annual Meeting, December 9-13, 2019; San Francisco, CA


Cohen, S.*, et al. 2019. The Floodwater Depth Estimation Tool (FwDET v2.0) for improved remote sensing analysis of coastal flooding.


Magliocca, N.* 2019. Large-scale land acquisitions catalyze commodity frontier expansion in Argentina’s dry Chaco.


Conference of Latin American Geography, January 2, 2020; Antigua, Guatemala


LaFevor, M.C.* 2020. Hydroclimatic vulnerability and large-scale investments in rainfed farms in Mexico.

Southeastern Universities Graduate Research Symposium, April 2, 2020;


Annual Meeting of the American Association of Geographers, April 6-11, 2020; Virtual Conference


Levine, A.* 2020. Social-ecological systems of sheep ranching, recreation, and large carnivores on multiple-use U.S. public lands.”


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