DEPARTMENT OF
GEOGRAPHY
College of Arts and Sciences

Geography Newsletter

September 2024

INSIDE:

Geography

Autumn Arrives

As we launch into a new academic year, we have a lot of activities on the slate.

Upcoming October events:

Our regional professional conference (SWAAG) is being held jointly with AGX in San Marcos, Texas October 6-8.

Faculty and staff are participating in a number of undergraduate recruiting events:

- October 9 & 10, Gallagher-Iba Arena, 8:00-9:45 AM: **OSU Up-Close**. The GIA events are followed by **CAS Sessions**, in the Student Union Ballroom, 11 AM to 12:30 PM.
- **Scholars Day** is Tuesday, October 15th
- **Majors Showcase** (11:00-2:00) happens at the Student Union Ballroom on October 16th.

Geography **Ten Pin Bowling** will be at Frontier Lanes on Thursday evening October 3rd.

Homecoming Walkaround is Friday, November 1st and the Cowboys welcome the Arizona State University Sun Devils to the Big XII Conference on Saturday, November 2nd.

New Faculty

Dr. Brittany Lauren Wheeler is a Visiting Assistant Professor who earned her PhD from Clark University (2023). Her research focuses on the interconnections of legality, morality, and temporality as they present in the reparative relationships between Britain, the United States, and members of the global oceanic south. She works with processes of repair and is interested in the dynamic between how we understand historical events and contemporary modes of justice. She was involved with the Marshall Islands Climate and Migration project between 2018-2022.

In Chicago, she worked with indigenous groups at the Field Museum of Natural History, assessing repatriation requests and facilitating the return of cultural items and ancestral remains. This role first brought her to Oklahoma for a National NAGPRA meeting.

Her background in geography and museology stems from MA degrees in Forced Migration Studies (University of the Witwatersrand, South Africa) and International Museum Studies (University of Gothenburg, Sweden).

Most recently, she lectured at Auburn University, teaching courses in Human Geography, Global Geography, and Africa, focusing on human geography research methods, human-environment interactions, and historical-to-modern place shifts. Active in the American Association of Geographers, she has engaged in geography pedagogy and methods training. Previous teaching roles include positions at Mount Holyoke College and the University of Massachusetts Amherst.

In Oklahoma, she is excited to guide students in exploring cultural geography and support geography majors and graduate students in developing strong research skills.

New Graduate Students

Aakriti Adhikari is a new Environmental Science PhD student who holds an MS from Tribhuvan University in Kirtipur, Kathmandu, Nepal.

Daniel Aderotoye is a new Geography MS student with research interests in Hydroclimatology, Environmental Adaptation, Remote Sensing, GIS, and Hydrology. He earned his undergraduate degree in Meteorology and Climate Sciences at the Federal University of Technology, Akure. Outside academics, he loves listening to hymns and classical music.

Blessing Twumasi Ankrah is a new Geography MS student who earned his Bachelor's degree in Geography and Regional Planning from the University of Cape Coast, Ghana (2022), where he developed a keen interest in Transportation Geography, Climate Change, and Sustainable Development. At OSU he intends to explore how transportation systems can be optimized for sustainability and resilience against climate change. Beyond academics, Blessing enjoys following the Chelsea Football Club.

New Graduate Students (cont.)

Nasibul Hoque is a new Geography PhD student who earned his MA from the University of Padua (Italy), 2017. His research interests include Human Geography, Human Rights, Migration, and Europe.

Md Saiful Islam is a new Geography PhD student who received his Master's degree in Geo-Information Science and Earth Observation for Environmental Modeling and Management from the University of Twente and Lund University (Erasmus Mundus Joint Masters). Saiful's research interests include remote sensing, ecosystem and ecological modeling, and environmental monitoring.

Sylvia Mensah is a new Geography MS student with research interests in issues related to water insecurity, GIS, and environmental management. She earned her Bachelor's degree at Kwame Nkrumah University of Science and Technology (KNUST), Ghana.

New Graduate Students (cont.)

Jacob Shepherd is a new Geography MS student. He received his BA in Global Studies from Oklahoma State University in 2023 with a focus on sustainability. For his MS, Jacob is focusing on GIS applications and programming.

Naiem Sheikh is a new Geography PhD student interested in Remote Sensing and GIS as applied to climate change and agroecosytem management. He earned his BS and MS (2023) from Jahangirnagar University in Bangladesh. Naiem enjoys outdoor activities, travel, and playing games.

Smriti Shrestha is a new Geography MS student who earned her BS in Environmental Science in 2023 from Kathmandu University in Nepal, where she modeled climatological effects on river basin hydrology. At OSU, she intends to continue using GIS and Remote Sensing applications for hydrology and climatology. Outside of academics, she loves playing the guitar and singing.

News from around the Department

Dr. Tao Hu, as the institutional Principal Investigator (PI), has been awarded an NSF grant for his research project, "Beneath the Surface: Integrating Wastewater Surveillance and Human Behavior to Decode Epidemiological Patterns." This three-year $641,000 project allocates $115,000 to OSU and is a collaborative effort with UTHealth Houston, Arizona State University (ASU), and Lawrence Technological University. The research will enhance mathematical epidemiological modeling by integrating human behavioral data with wastewater surveillance to create a comprehensive and timely approach to outbreak detection and response.

Dr. Hu has also received a grant as Co-PI for $20,000 by the Earth Science Information Partners (ESIP) on a project titled “Leveraging Generative Artificial Intelligence (AI) for Automated Climate Resilience Dashboards: A Case Study on Flood Monitoring in Central Appalachia.” A collaborative effort with East Tennessee State University, the project aims to enhance climate resilience by developing and automating dashboards using advanced generative pre-trained transformer (GPT) tools. This award was made just prior to Hurricane Helene’s onslaught of flooding in Appalachia.

News from around the Department

Rakotoarivony receives prestigious NASA FINESST Award

M. Ny Aina Rakotoarivony, a Ph.D. candidate in the Department of Geography, was awarded the prestigious ***Future Investigators in NASA Earth and Space Science and Technology (FINESST)*** grant. The FINESST grant will fund Rakotoarivony's research on the impact of the invasive plant *Lespedeza cuneata*, also known as Chinese bushclover, on grassland ecosystems, specifically in Oklahoma.

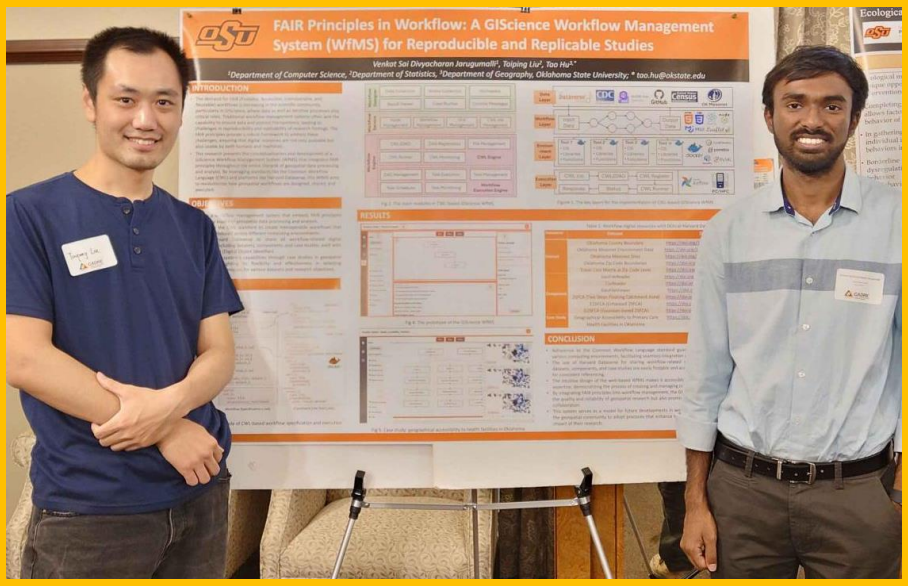
"Ny Aina joined my lab in 2021 as a Ph.D. student. After joining our program, Ny Aina hit the ground running and expanded on the work done in a relevant pilot study that we conducted a few years ago," said Dr. Hamed Gholizadeh, Ny Aina's advisor. Her work focuses on developing cost-effective remote sensing approaches to map the spread of *Lespedeza cuneata* and assess its impacts on the grasslands of Oklahoma.

"I've always been fascinated by the application of novel remote sensing technologies to study pressing environmental issues," she said. "As I was conducting my research, I became more aware of the significant threats of the invasive Lespedeza cuneata on grassland ecosystems and their biodiversity." Rakotoarivony's research uses imaging spectroscopy, also known as hyperspectral remote sensing, collected from satellites, aircraft and drones.

Using imaging spectroscopy, researchers can collect highly detailed imagery with hundreds of spectral bands. However, a common challenge of doing hyperspectral remote sensing is the large volume of data. "We can easily end up with terabytes of data," Rakotoarivony said. "To address this issue, I use OSU's Pete supercomputer for data analysis when needed." Rakotoarivony's proposal was one of the 55 selected proposals out of 431 submitted to the Earth Science Division of the NASA FINESST program in 2024. In order to get her FINESST grant funded, Rakotoarivony spent six months writing the proposal. With feedback from Gholizadeh and numerous rounds of revisions, she crafted a competitive and polished proposal that got funded. "Even at this early stage in her career, I believe Ny Aina possesses all the tools to be a highly impactful scholar," said Gholizadeh, noting the highly competitive nature of the FINESST grant she received. "She is one of those graduate students who you come to regard as a colleague."

News from around the Department

Summer Activities



Master's students Taiping Liu (Statistics) and Venkat Sai Divyacharan Jarugumalli (Computer Science), both advised by Dr. Tao Hu, received 2nd Place in the poster competition at the 2024 CADRE (Coalition for Advancing Digital Research and Education) Conference.

Participants (including our own **Ehsan Foroutan**) from the I-GUIDE (NSF Institute for Geospatial Understanding through an Integrative Discovery Environment) Summer School, held at the University Corporation for Atmospheric Research (UCAR) campus in Boulder, Colorado, August 5-9. I-GUIDE is UCAR is a nonprofit consortium of more than 120 North American colleges and universities focused on research and training in Earth system science.

News from around the Department

Colloquium

Dr. Kyle Colton Flynn, who earned his PhD from the OSU Department of Geography in 2019, is a Research Soil Scientist for the USDA Agricultural Research Service in Temple, Texas. On September 23rd Dr. Flynn presented a colloquium titled "Remote Sensing Methods and Unmanned Aerial Vehicles in Precision Agriculture."

News from around the Department

Water Researchers Featured

Alumna Lily Chavez (‘24) and Assistant Professor **Dr. Thomas Lavanchy**, were recently featured in an article on interdisciplinary water resources research conducted across the College of Arts and Sciences.

USING A GLOBAL PERSPECTIVE

Dr. Thomas LaVanchy, an assistant professor in the Department of Geography, is using his research to address global concerns both in the classroom, where he teaches about sustainability and water resources, and abroad, where he works to find adequate water across nations.

“The road to meeting global food needs is a shared path through water and water management,” LaVanchy said. “To solve the global food problem, it takes more food, and the water footprint to fill that growing demand is a growing challenge.”

LaVanchy has traveled to locations including Cape Town, South Africa, and Ghana to explore climate change’s impacts on agriculture and the sustainability of access to water as a resource.

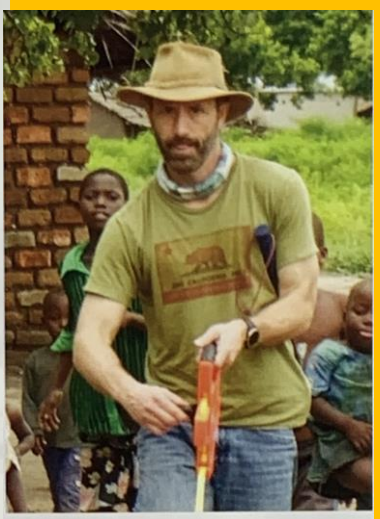
“What a farmer could typically do to sustain their industry is changing,” LaVanchy said. “Now, they are needing to irrigate, and as priorities from competing industries are shifting, we’re looking at supply issues and then the social aspect of who is sharing the burden of getting that water.”

LaVanchy said in 2018, Cape Town almost ran out of water. He was interested in helping residents be proactive to avoid future crises.

“Something cities sometimes struggle with is the waste from unhoused populations making its way to the water source,” LaVanchy said. “We’re working with populations to use nature-based solutions to clean the water and keep it clean enough to support drinking water and watering crops.”

As an instructor, LaVanchy said he aspires to help his students see the bigger picture in the world.

“Solving water problems is inherently inter- and transdisciplinary,” LaVanchy said. “CAS offers a variety of perspectives that can be partnered to solve these wicked problems.”



Dr. Thomas LaVanchy conducts geophysical surveying in Malawi.

Source: CONNECT Magazine, 2024

News from around the Department

Dr. Saber Brasher Living the Land-Grant Mission

Dr. Saber Brasher, Assistant Professor of Geography, was among five faculty in the College of Arts and Sciences who were recently featured in an article on how faculty are living out the land-grant mission.

Dr. Saber Brasher

In the classroom, geography's Brasher is educating students on the climate to understand the impact on the future of our communities.

"As a climate scientist, I am deeply committed to the land-grant mission through my work. In both my classroom and research program, I emphasize practical applications of science to real-world challenges, engaging with communities and stakeholders to work toward a more resilient future under climate change.

"My teaching focuses on empowering students with a foundational understanding of climatology, climate change and meteorology, yielding skills to understand the complexities of the climate system. I have found that many students care a lot about climate but are overwhelmed by the amount of information out there. I aim to help them sift through the noise, to leave the classroom confident and eager to get engaged in a way that utilizes their unique skills and interests.

"In my research, I investigate the interactions between surface cover, climate and water. I collaborate on projects centered on changing precipitation and drought conditions and impacts on agriculture, water resources and ecosystems. I am currently working on two externally funded research grants: the first focuses on building climate resilience in rural communities through collaborative partnerships, while the second integrates remote sensing and climate science to optimize invasive plant management in grasslands.

Dr. Saber Brasher

"Actionable science that serves students and communities aligns with the core values of the land-grant mission and is at the heart of what I try to do as a faculty member at OSU."

Story By: Erin Weaver, CAS Communications Coordinator | erin.weaver@okstate.edu

Source: Elizabeth Gosney, OSU Headlines, September 12, 2024

Alumni Spotlight

Dr. David Brockway (PhD, 2008)

In May, **Professor Emeritus Tom Wikle**, while conducting research on his latest project on Oklahoma's aviation history, caught up with his former advisee, **Dr. Dave Brockway** (PhD, 2008), who is a Pilot Ground Instructor for the Spartan College of Aeronautics and Technology in Tulsa.

Dave's dissertation was titled "Impact of a General Aviation Airport on Surrounding Land Use Patterns: Richard Lloyd Jones Jr. Airport."

From the Archives

Geography Graduation Celebration, May 1989, in the backyard of Dick and Georgia Hecock, on 3rd Avenue in Stillwater. Pictured from left to right: Pat Tweedie, Tom Wikle, Steve Tweedie, Barbara Stadler, and James R. Curtis.

Your editor, listening to a war story by his advisor and beloved Geographical Concepts II instructor, **Dr. Bob Norris** in May 1989.