



## Department of Earth and Environmental Sciences

### Greetings from the Chair

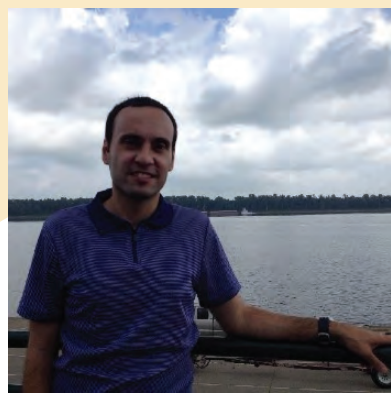
Murray State University celebrates centennial this year, 100 years of excellence in higher learning and serving the communities in our region. I learned a bit of the history of Earth and Environmental Sciences. At one time or another, we had separate programs of Geography, Geology, and Anthropology and Archaeology. Geography has had the longest tradition, as one of the first disciplines taught since the Fall of 1923, the first semester of Murray Normal School. Ten geography courses were included in the 1925 catalog. Dr. James Matthai, an early influential geography faculty, joined MSU in 1958. Dr. Armin Clark was the first hire to teach geology in 1961, in the Department of Chemistry and Geology, followed by Dr. Peter Whaley in 1968. The Blackburn Science building was also completed in 1968, named after Dr. Walter E. Blackburn, a chemist who served in many distinguished roles including the Dean of the College of Environmental Science (predecessor of the College of Science). Anthropology can trace its origin to 1970, when the Department of Sociology and Anthropology was created. Dr. Jack Nance was the first anthropology faculty to join MSU in 1972. In 1979, the Mid-America Remote Sensing (MARC) was established (now the Mapping Application and Resource Center), growing out of a NASA technology transfer center. In 1980, the Department of Geography and the Geology division in Chemistry merged into the Department of Geosciences, with MARC as a close affiliation. Anthropology remained with Sociology and Social Work until 2000, when the department was dissolved, and Anthropology and Archaeology found a new home in Geosciences. On July 1, 2018, the Department of Geosciences became the Department of Earth and Environmental Sciences. The spirit of "Hope, Endeavor, and Achievement" remains the same throughout. In the last 100 years, 868 students have graduated from our programs as their major while 1200 students graduated with either a major or minor.

Hope you will join us in our celebration of centennial throughout the year, especially the Centennial Homecoming October 27-30. I am sure that the next 100 years will bring us new beginnings and milestones, opportunities and challenges. Thank you for your continued dedication and support!

-Robin Zhang



### Dr. El Masri receives NSF Major Research Instrumentation grant



Dr. Bassil El Masri and collaborators were recently awarded an NSF MRI grant in the amount of \$297,890. The grant is titled "Acquisition of Gas fluxes and Analyzers to Strengthen Interdisciplinary Research and Education at Murray State University". Their study will assess the effects of changing climate on greenhouse gas (GHG) emissions in wetland and upland ecosystems. Given the climatic importance of the production and consumption of GHGs on land, this project will raise public awareness in protecting the local environment through monitoring and model development. The equipment supported by this project will allow for real-time analysis of the soil-vegetation-atmosphere of GHGs exchanges including canopy carbon dioxide ( $\text{CO}_2$ ), water ( $\text{H}_2\text{O}$ ), and methane ( $\text{CH}_4$ ), and soil  $\text{CO}_2$ ,  $\text{H}_2\text{O}$ ,  $\text{CH}_4$ , and nitrogen oxide ( $\text{N}_2\text{O}$ ). The

project will improve infrastructure at MSU for multidisciplinary research, training, and teaching of MSU students. This infrastructure will allow MSU faculty to conduct innovative research and increase student participation in cutting edge scientific inquiry.

### Dr. Cetin receives the ASPRS Fellow Award



Dr. Haluk Cetin was selected to receive the 2022 American Society for Photogrammetry and Remote Sensing (ASPRS) Fellow Award. The Award is conferred on Society members who have demonstrated professional excellence and for service to the Society. Dr. Cetin has been an active member of ASPRS for three decades and had held many positions within the Society, especially in the Mid-South Region. From 2010 to 2016, he served as the National Director of the Region, and was the VP and President of the Region from 2001 to 2006. Dr. Cetin received a lapel pin and a hand-engrossed certificate at an Award Ceremony in Denver on February 7, 2022. Congratulations to Dr. Cetin for this well-deserved recognition!

### Jane Benson receives the Steven H. Cobb Staff Excellence Award



Mrs. Jane Benson is the 2022 recipient of the JCSET's Steven H. Cobb Staff Excellent Award. Jane is the Geospatial Analyst for the Watershed Studies Institute (WSI) and the Mapping Applications and Resource Center (MARC). She manages and updates the Kentucky Lake Geographic Information System (KLGIS). She runs quality control for the Kentucky Lake Monitoring Program (KLMP) that contains over 30 years of Lake cruise data. In addition, she has been the data manager for the Four Rivers Watershed Watch for over 20 years. In her spare time, she teaches EES 110 World Geography and EES 507/607 Land Use Planning. Congratulations to Mrs. Benson for her distinguish service to Murray State University!

### Dr. Venter receives tenure and promotion



Dr. Marcie Venter, a faculty member with expertise in anthropology and archaeology, is awarded tenure and promoted to Associate Professor. Dr. Venter joined the faculty in 2016. Congratulations to Dr. Venter for achieving this significant milestone in her career!



## Congratulations to our Outstanding Students and Graduates of 2021-2022!



2021 - 2022 Outstanding Seniors and Graduate Students (left to right): Lacy Risner, Sydney Abbott, Marshall Thompson, and Matthew Meyer.

### 2021 - 2022 Outstanding Seniors and Graduate Students

Outstanding Senior in Environmental Science: Sydney Abbott, Marshall Thompson

Outstanding Graduate Student in Teaching: Matthew Meyer

Outstanding Graduate Student in Research: Lacy Risner

### 2022-2023 Departmental Scholarship Recipients

Jones Endowment Scholarship: Jarred Asselta, Melanie Johnson, Ash Medlock, Skylar Ross

Alice and George Kipphut Sr. Scholarship: Logan McGowan, Lauren Smith, Lauren Gilchrist

Clyde Reed-Jim Smith Scholarship: Sofia Bayer, Devin Richards

A B Waters Scholarship: Leola Dillehay

James Allan Roberts STEM Internship Scholarship: Rachel Stuckey

Jesse D. and Deborah C. Jones Scholarship: Rachel Farris, Kenney Cook

Matthai-Panzer Scholarship: Anna Compton, Jenna Opp

Neil and Joan Weber Endowed Scholarship: Grace Salmon

### Congratulations to our amazing graduates of 2021-2022!

BS Degree Recipients: Sydney Abbott, Steven Collett, Clint Cornelison, Atherton Milford, Garrik Quertermous, Dylan Smith, Anna Thomas, Marshall Thompson, Shane Vanover, Tayler Vickers, Kaylin Wilson

MS Degree Recipients: Amal Alfawzan, Harshitkumar Godhasara, Bhanu Chandar Ponnaganti, Ysabel Lavitz

Certificate in GIS Recipients: Sydney Abbott, Evan Barr, Atherton Milford, Garrik Quertermous, Samuel Smith, Dylan Smith, Marshall Thompson

Graduate Certificate in Geospatial Data Science Recipient: Fatema Hussaini

## Student Research and Internship Highlights



From May to August 2022, Murray State EES Archaeology graduate student Matthew Meyer participated in the field research in Veracruz, Mexico. He is part of the team working on the Collaborative NSF-funded Tuxtla Ingenio Project, directed by PI Dr. Marcie Venter (MSU EES) and Co-PI Dr. Chris Pool (UK Anthropology). The project is investigating the cultural and environmental transformations of the region following the introduction of sugar cane in the 16th century, as well as the interactions and changing social dynamics between the indigenous inhabitants of the region, enslaved and free Africans, and Spanish colonizers through the nineteenth century.

*Matthew Meyer (left) and UK Anthropology student Dorian Record exploring the ruins of the 16th Century Spanish fort of San Juan de Ulua in Veracruz, Mexico.*



Three students put their GIS skills to task and learned how field mapping and GIS help local government agencies serve the community. Junior Logan McGowan (*above, left*) and incoming graduate student Marshall Thompson (*above, center*) worked for the City of Murray's Planning and Engineering Department as GIS Technicians, while Senior Pam Rodriguez (*above, right; pictured with Nathan Baird, TAC Officer, Calloway County Sheriff's Office*) worked as a GIS Technician for the Calloway County 9-1-1 Dispatch Center. They mapped utilities and structures either using GPS in the field or through address coding, produced maps for distribution to the public on paper and online. "I have gained a good amount of experience and knowledge by collaborating with people from various fields and backgrounds. A difficulty that comes with this job is that most water meters, gas lines, water lines, etc. have never been mapped. Therefore, it can be hard at times to find what needs to be mapped. I find this position very awarding in knowing that I can collect and produce geographic information to share with the public for their benefit.", says Logan. The experience is equally rewarding to Pam, "it has given me a broader perspective on how GIS can be utilized to assist in protecting and providing for our communities."



### Alumni Update: Brandi Flanagan Butler - BS 2006, Geospatial Engineer, Wilson & Company, Inc.



Growing up I loved collecting rocks. My mom would take me on “rock hunts”, known to most as a walk around the neighborhood. I didn’t attend Murray State with this in mind. Like many students, my major changed a few times, but was always geared toward the natural sciences. I tell people my degree was decided with a coin flip. Sounds dubious but 100% true.

I graduated in 2006 with my Bachelor of Science in Geosciences/GIS. About 8 months later I accepted my first “real” job doing defense mapping for NGA (National Geospatial Intelligence Agency) via Intergraph (now Hexagon). Then the recession of 2008 to 2010 hit and I had to pivot to nursing after sudden unemployment. I still kept an eye out for more “GIS” jobs and returned to the industry in early 2011. It was then that I was immersed and quickly specialized in, Lidar. For the next decade I worked with a variety of clients: USGS, USFS, USACE, FEMA, BOR, NOAA, BLM, as well as various county & city governments to find lidar and geospatial solutions to their issues. I also worked tech support for a Geospatial software company, which I

feel imparted real insight to the daily struggles of other people in the industry. It also keyed me in to the breadth & scope with which geospatial technologies are applied. During this decade I was also the 9th person to achieve the ASPRS Certified Lidar Technologist (CLT).

My current employer is Wilson & Company, Inc. Engineers and Architects. There I work mostly on smaller scale (compared with USGS & USFS that is) DOT, historical site preservation, rail, powerline, and fiber corridors, & miscellaneous civil engineering requests. I currently live just outside of Littleton, Colorado with my husband and our pet parrots.

### Alumni Update: John Steller - BS 2012, Geologist, US Environmental Protection Agency (EPA)



I originally came to Murray State as an Advertising major. Fortunately, it only took one semester for me to realize this wasn't the major for me. As I pondered what to study, I couldn't ignore my strong desire to find work in the sciences, outdoors, with the natural environment. The Geosciences Department it was! I graduated from Murray State in 2012 as the Outstanding Senior in Environmental Geology. Reflecting upon my next steps, it took me a long time and required taking a diverse course load to narrow down my specific career interests coming out of school; ultimately, climate change became the focus of my career. I completed my Master's degree in Climate Sciences and Solutions from Northern Arizona University in 2013.

Upon graduation, I joined a research fellowship program through the Oak Ridge Institute for Science and Education at the U.S. Environmental Protection Agency (EPA) in Washington, DC. This program provides recent graduates an opportunity to work on research projects and gain exposure to various federal government agencies. I worked on projects related to greenhouse gases, data analysis, and bioenergy. I've been with the EPA ever since having subsequently moved into a full-time position. In my role at EPA, I coordinate the development of the Agriculture and Land Use, Land Use Change, and Forestry chapters of the U.S. Greenhouse Gas Inventory which is submitted annually to the United Nations Framework Convention on Climate Change. I also coordinate an international program to build capacity for greenhouse gas inventory development in developing countries. My work focuses on estimating greenhouse gas emissions, because you can't mitigate what you can't measure. I have the privilege of collaborating with experts from governments, universities, industry and non-governmental entities in such areas as agriculture, forestry, mineral commodities, GIS/remote sensing, soil sciences, and hydrological sciences. Working with such a wide array of individuals allows me to utilize the knowledge gained from my time at Murray State. The great education, wonderful classmates, and supportive faculty at Murray State provided a great foundation for my current work. I live in DC with my wife, Jackie, and son, Arthur.

## Update from retired faculty: Dr. Neil Weber



Greetings to all from Mount Juliet, Tennessee. The Webers have had an eventful 2022 thus far. On January 14 we sold our home of 40 years in Murray, where we raised our three children, Erika, Christopher, and Jeremy; and four days later closed on a home in Mount Juliet to live closer to them. Neil successfully recovered from eight weeks of targeted radiation therapy for prostate cancer and is now cancer free! We are so grateful to God! No major trips for the Webers in 2022,

although our entire family traveled to Durham, N.C. for a celebration of life and get-together to honor the 55 years of service given by our brother-in-law, The Reverend John Heinemeier, who died in April at age 85 after a long battle of cancer. Many of you might remember John and my sister, Sharon. John retired five times from the ministry before he was diagnosed with cancer and declared his final retirement.

Joan and I take great joy and pride in our three children and five grandchildren (don't ALL grandparents--HA!). All five grandchildren are hardworking good students. Our eldest, Zakary, is an Eagle Scout and a rising sophomore in Engineering at Tennessee Tech. Claire is a rising junior and recently won TN Junior PGA Championship and will represent TN in the National Jr. PGA Championship in Chicago. Owen plays with the Lead Off Baseball Academy Travel Team as a pitcher and second baseman and will play both baseball and golf as a rising freshman. Aniston is a rising 8th grader at Mount Juliet Middle School. We were honored to attend the live debut of Anniston singing her original song, "I Got Over You," at the historic Blue Bird Café in downtown Nashville. Our youngest, Olivia, is eight, loves all sports and is a Daddy's Girl.

One can readily see how the Webers spend their leisure time. We love being close to family and meeting new friends in our Del Webb Retirement Community—but miss former colleagues and students. PEACE and JOY! (Text with edits and picture from Neil and Joan Weber)

## Invitation to Share Experiences or Research

*The Department of Earth and Environmental Sciences is always on the lookout for alumni willing to speak about their employment experiences or research. Our students greatly value the experience and guidance from our alumni! If you are in the area and would like to present on a subject or employment opportunities, please contact us. Email our administrative assistant, Ms. Tracie Russo, [trusso@murraystate.edu](mailto:trusso@murraystate.edu), or call 270-809-2591 to schedule.*

## Giving and Gifting

*If you would like to donate to the Department of Earth and Environmental Sciences, we have a number of scholarships to select from, including the Wesler Scholarship, the Matthai-Panzera Scholarship, the Reed-Smith Scholarship, the Alice and George Kipphut Sr. Scholarship and the recently formed Neil and Joan Weber Endowed Scholarship. Gifts to the Department of Earth and Environmental Sciences encourage student success in a variety of ways, by providing grants and scholarships, funding travel, or by purchasing equipment upgrades. Gifts of any size are greatly appreciated and always needed!*

*Checks should be sent to the Office of Development, Heritage Hall, Murray, KY 42071-3441. Please specify a fund in the memo field. Donations can be made over the phone by calling 1-877-282-0033 or 270-809-3001. Visit [murraystate.edu/giving](http://murraystate.edu/giving) to make an online donation. Thank you for your support!*