

# *KU GEOGRAPHY & ATMOSPHERIC SCIENCE*

FALL 2020 NEWS





# SNAPSHOTS



A student hurries into Lindley Hall for class.

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**At left:** students participate in an aerial mapping exercise with drones.

**At right, above:** Students wear masks and practice social distancing on the KU campus.



**At right below:** Student Brittany Foster poses next to Lindley Hall as part of her virtual graduation.



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# MESSAGE FROM THE CHAIR

David Mechem

## *Greetings from Lindley Hall!*



Greetings! I am writing this at not quite the halfway point in the fall semester, as the leaves on campus and elsewhere in Lawrence are beginning to turn. After a one-year stint as Acting Chair during the 2018–2019 academic year, I am beginning the job of department chair for real. I first want to express my gratitude to Prof. Nate Brunsell, who just finished serving his 5-year term as Chair. He ends his tenure of effective leadership with a history of significant accomplishments in the department, including securing a number of new faculty position hires in all disciplinary areas; coordinating renovation of departmental computer labs; prioritizing funding for graduate students; and promoting our new Ph.D. in Atmospheric Science degree and various new certificates (GIS, Climate and Climate Change).

“Unprecedented” is a term we’ve all grown weary of this year, but it remains relevant. As at most other colleges and universities, regular instruction came to a screeching halt in mid-March. Shifting on a dime to online instruction was a challenge and demanded heroic efforts from faculty and staff, and extraordinary patience from the students. This semester has been a mix of in-person classes in socially distanced settings, purely online offerings, and ‘hybrid’ approaches that combined the two. Faculty in the department are doing their very best at delivering an engaging educational experience in these different teaching approaches, but I we are greatly looking forward to a day when we can invite all our students back to campus for a more typical residential university experience.

Although the year has been challenging, there are many bright spots. I keep returning to the accomplishments of our students, some of which are outlined in this newsletter. Our undergraduate majors are highly engaged, with many of them doing undergrad research with faculty members or internships at companies or government organizations (e.g., US Geological Survey, National Weather Service). At the graduate level, I’m particularly impressed by student enthusiasm for their research, efforts to publish their research results, and motivation to pursue fellowships and grants, skills that are highly useful no matter whether a student seeks employment in industry, government, NGOs, or academia. These efforts speak highly both of the students and their faculty advisors and I feel is a by-product of our commitment to fund as many of them and as fully as possible. I will note that your monetary contributions to the department directly fund vital student education, including research and conference travel that is always difficult to procure but that is so necessary for their professional development as students.

We love hearing what our alumni are up to, so please drop us a line at [kugeog@ku.edu](mailto:kugeog@ku.edu) even if it’s just a quick “Hello.” The fond feeling of connection that KU alumni have for their university continues to amaze me. You’ve left your stamp on KU, and KU is a part of you! I’m greatly looking forward to fostering closer relationships with the alumni in the coming years and helping foster engagement with KU and your home department.

Rock Chalk!  
David Mechem



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## Dave Braaten

sends his greetings. During fall 2019 and spring 2020 semesters he was on sabbatical leave to focus on research. He mainly resided in Lawrence, KS, with field work on Grand Mesa, Colorado, and trips to work with research collaborators at the University of Alabama.

He is working on two research projects. One is analyzing surface-based ice penetrating radar data from a field expedition to Dome Fuji in East Antarctica, and the second is an airborne radar development program to measure seasonal snowpack thickness in western Colorado mountains. Both projects are associated with CRESES (Center for Remote Sensing of Ice Sheets), which he helped establish in 2005. The Dome Fuji, Antarctica project is an international collaboration with the Norwegian Polar Institute (NPI), the National Institute of Polar Research (NIPR) in Japan, and the University of Alabama. He presented results from the project this past summer at the Japan Geophysical Union meeting that was going to be held in Tokyo, but was transformed

into a virtual meeting due to COVID.

The radar snowpack measurement project is part of a NOAA Cooperative Institute led by the University of Maryland that involves the University of Alabama (UA). Dave Braaten's team works with UA to provide ground validation of the radar snowpack measurements. This project is providing detailed snowpack data to the National Water Model run by the NOAA National Water Center located on the University of Alabama campus.

The KU team had a successful field season at Grand Mesa, Colorado during January 2020, but had to cancel a second field season in March 2020 because of the COVID pandemic. That fieldwork has been pushed back a year until March 2021.



## Chris Brown

continues in his fourth year as vice provost for faculty development, now serving with KU's 3rd provost in as many years. He continues advising 2 PhD students, but misses the day-to-day of contact with everyone in the department. He has not been able to continue with his research on soybean expansion in the Amazon, but has kept in touch

with Brazilian colleagues who lament the state of affairs there: the terrible fire seasons in the Amazon and also in the Pantanal wetlands; suppression of government environmental data; lack of environmental enforcement around reserve areas and indigenous lands; federal government indifference to the pandemic. COVID has created opportunities to participate in conferences in Brazil, since all is done remotely, so he's appreciated that opportunity to connect with colleagues and students there. KU's institutional exchange agreement with UNICAMP in Campinas, Brazil was renewed, with Bob Goldstein (GEOL) working now as well to increase exchange between our universities.



## Nate Brunsell

finished his term as chair of the department this year. He has continued his research with the Land Institute as well as continued collaboration with Brazilian colleagues from his recent sabbatical.

Since COVID, there has been a lot of time sitting in the dining room in Zoom meetings and enjoying time with the family's new quarantine puppy Anicca.



# FACULTY NEWS



## Abel Chikanda

co-published an article in the *African Geographical Review* with his doctoral student, Julie Morris (Geography), on the integration outcomes of African-born immigrants in the United States. He also published two book chapters on South-South Migration and Diasporas (Routledge Press) and Diasporas and Development (Edward Elgar).

Chikanda also continued with his work on food security, publishing a paper in the *Hungry Cities Discussion Series* (jointly with Jonathan Crush and Godfrey Tawodzera) on migration and food security in cities of the Global South. He recently submitted a proposal for NSF funding to support his research on COVID-19 and food systems in African cities.

Working jointly with KU Intelligence Community Center for Academic Excellence, he supervised six e-interns who worked on a project titled *The Gray Zones in Africa*. Working together with the Sawyer seminar series team (Drs Rhine and Mesick-Braun & others), he helped co-organize nine seminars on chronic conditions among African-descended populations at the KU Lawrence

campus as well as KU medical school campuses in Kansas City, Salina and Wichita. Chikanda currently serves as the Director of the Social Science's Multicultural Scholars Program.



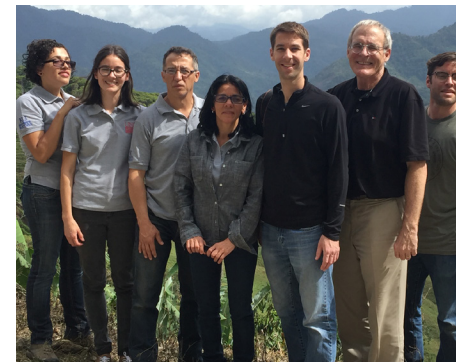
## Alexander Diener

has been at KU since 2012 and is currently an Associate Professor and the Director of Graduate Studies for the Department of Geography and ATMO.

In 2020, he published the journal articles "Geographies of Place Attachment: A Place-Based Model of Materiality, Performance, and Narration" co-authored with Joshua Hagen in *Geographical Review* (2020 DOI <https://doi.org/10.1080/00167428.2020.1839899>); "Local Perceptions of Tourism's Effects in Russia's Altai Republic" co-authored with Ruth Remmers in (*Ustoichivoe razvitie gornykh territorii -Sustainable Development of Mountain Territories - v.12 no.3, 2020*) pp. 327-338 <https://doi.org/10.21177/1998-4502-2020-12-3-327-338>; and "Multi-Scalar Territorialization in Kazakhstan's Northern Borderland" *Geographical Review* (2020 DOI: <https://doi.org/10.1080/00167428.2020.1814676>).

He is completing three edited

volume chapters for varied books on Central Asia which should be published within the year and is co-editing the book *Invisible Borders: Geographies of Power, Mobility, and Belonging* with Joshua Hagen (contracted with Routledge Publishers for 2021). Alex is also co-editing two special issues of journals for publication in 2021/22 and making progress on his book on *Place Attachment* for Oxford University Press. Over the last year, Alex has offered a variety of remote-public-lectures at different universities and is has successfully mentored several graduate students to completion of degree.



*Photo: Peter with Taylor Tappan, John Paul Henry, and research collaborators from the National University of Costa Rica in the Talamanca Mountains.*

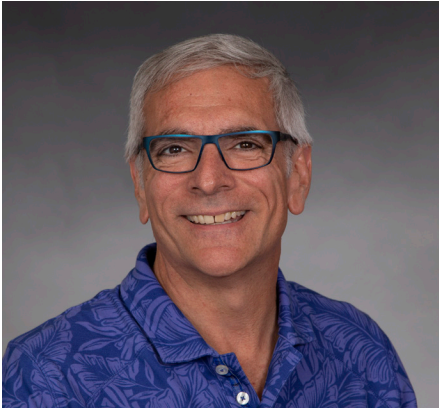
## Peter Herlihy

is happy to announce that his two PhD candidates Matt Fahrenbruch and Taylor Tappan returned from successful completion of their US Fulbright Grants in Nicaragua and Costa Rica respectively before the corona pandemic and they are both thankful to be writing their dissertations with field work completed. Another MA student,



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Kiera Smith, is working on feral cats in Lawrence, carrying on an academic tradition of one of Peter's mentor's Daniel Gade. Peter highlights a forthcoming publication with Matt and Taylor in the prestigious Oxford University Handbook of Central American History called "Regaining Ground: Indigenous Populations and Territories in Central America," summarizing significant research finding from their research.

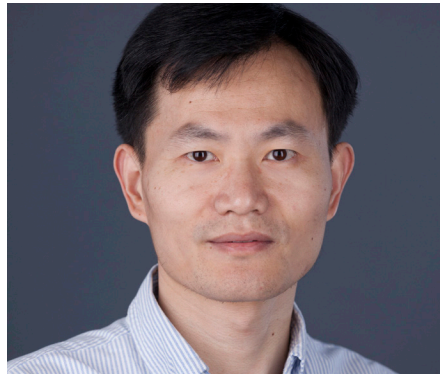


## Jay T. Johnson

During this past year, Professor Johnson continued his collaborations with Haskell as the co-director of the Haskell Environmental Research Studies internship program. During the summer of 2019, we hosted 15 interns from across the country at Haskell campus with trips to visit Konza Prairie and the National Center for Atmospheric Research in Boulder, Colorado. The interns are currently presenting their research projects at a variety of conferences including the American Indian Science and Engineering Society and American Association of Geographers. Professor Johnson was chosen to serve as the Integrated Arts Research Faculty Fellow at the Spencer Muse-

um of Art for the fall of 2019.

As the Faculty Fellow, Professor Johnson is co-teaching a dual KU/Haskell course with local artist Dave Loewenstein, KU faculty member Joe Brewer, and Haskell faculty member Cody Marshall. The students are creating a poster campaign to engage the Lawrence community concerning the threats posed by urban development to the Wakarusa Wetlands. The posters are available for viewing at <http://ipsr.ku.edu/cfirst/projects/wearethewetlands.shtml>.



## Ting Lei

has worked on a research project with his students on conflating geospatial data, which involves developing methods for combining two or more maps to produce a better map. The project leverages his prior work on optimization and spatial databases. He has published two papers based on initial findings of the conflation research in International Journal of Geographic Information Science (2020) and in Transactions in GIS (2019) as well as an UCGIS Body of Knowledge article.

In teaching, he has employed a novel approach of teaching the

spatial databases class -- a core class for the graduate GIS certificate program. He has re-written the course materials using a new online teaching technology which made it possible for the students to perform the assignments without needing to go to campus computer labs in Fall 2020



## Xingong Li

continues his collaboration with researchers at the Nanjing University and has published six journal articles so far in 2020. David Weekly has successfully virtually defended his dissertation with honor. David's second paper is currently under the second round of review on Water Resources Research and we hope it will soon be accepted. Ken Okechukwu, a Master graduate student from Nigeria joined Dr. Li's research group last fall. His thesis research will evaluate the potential and limitation of using NASA's IMERG satellite data to estimate the probable maximum precipitation for flood risk analysis.

Chen Liang, a third year PhD student is still developing her dissertation research proposal and may focus on water quality modeling for lake algae management. Jim Coll continues explor-



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ing the possibility of estimating channel using drone without the availability of ADCP for measuring stream discharge.

Because of the COVID-19, all the courses have been taught online since March but that seemed not too bad for teaching technology courses. Students do not need to take many notes as they can now review lecture recordings and more students showed up in office hours asking questions. Dr. Li's family members are safe and healthy and are having more time staying together, which is at least one benefit we enjoy among many challenges.



## David Mechem

The Cloud Dynamics and Microphysics Group has kept busy the past year. The COVID pandemic has been a real challenge for university research, but those of us doing computational projects — either modeling work or analysis of previously collected data — have had it somewhat easier than those with wet labs or those needing to get out in the field.

Back in January, we began a collaborative project together funded by the Department of Energy

with the University of Maryland Baltimore County with the aim to explore how spatial variability in cloud properties impacts precipitation processes, and to improve how this variability is represented in climate models.

A new student, Justin Covert, joined the group back in January right after finishing up his Masters work at Iowa State University to work on this project. We're happy to have him! Ph.D. student Luke McMichael passed his comprehensive exam and has been making great progress in his Ph.D. program, including having a lead-authored paper published in *Geophysical Research Letters*. This paper was an outgrowth of a Department of Energy summer school project and includes collaborators from national laboratories and international universities. Jordan Eissner defended her Masters thesis over the summer and is putting the finishing touches on a manuscript to be submitted for publication. Jordan will be continuing in the Ph.D. program.

We have also supervised a couple of interesting undergraduate research projects, including one on convective invigoration of warm clouds by ultrafine aerosol and an exploration of meteorological influences on rudimentary baseball defensive metrics. Feel free to follow on Twitter (@dbmechem)!



## Shannon O'Lear

Prof. Shannon O'Lear's edited volume, *A Research Agenda for Environmental Geopolitics*, was published by Edward Elgar early this year (see the link below for the full first chapter of the book!). In March, Prof. O'Lear traveled to South Dakota as an invited, keynote speaker at the 51st Annual South Dakota State Geography Convention. Her presentation title was, "Environmental Geopolitics: Cracking the Code of Political Claims About the Environment."

She returned to Lawrence just as Covid19 upended normal life as we know it. Prof. O'Lear worked with her team of Graduate Teaching Assistants, Reece Knapic, Karee Orrick, and Colin Pate, to shift the 90+ student introductory human geography class to an all-online learning experience. Thanks to the hard work of the GTAs and some quick technological interventions, the effort was a success.

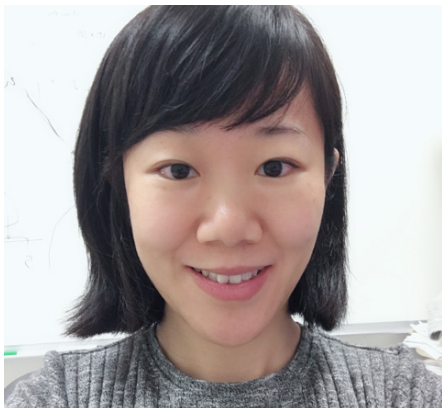
Over the summer, Prof. O'Lear enrolled in a week-long Flexible Course Design Boot Camp offered by the Center for Teaching Excellence where her skillset for online teaching was transformed



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to enable a massive overhaul of the GEOG/EVRN 371: Environmental Geopolitics course. The best part of that class this semester, according to a survey of students enrolled in the class, are the optional Zoom conversations that are offered twice each week (cameras on or off, come as you are, coffee and pets are welcome!).

In July, Prof. O'Lear took on the role of Interim Director of the KU Environmental Studies Program for the academic year. Meanwhile, Prof. O'Lear is finishing work on her next edited volume focused on slow violence, holding meetings and teaching class in her kitchen (virtually), and training a puppy, which seemed like a good addition to a household in lockdown.



**Bing Pu** is in her second year in the Department of Geography and Atmospheric Science. A new graduate student Jacob Zorani Tindan joined her research group this fall. Jacob is originally from Ghana and has studied Earth System Physics in a postgraduate program in the International Center for Theoretical Physics (ICTP) in

Italy prior to coming to KU. Currently, Jacob and Bing are working on understanding the day-night differences of dust aerosols over North Africa and the Middle East.

In January, Bing's research work on retrieving global distribution of the threshold of wind erosion and its implementation in a general circulation model (GCM) was accepted and published on Atmospheric, Chemistry and Physics. In addition to research and teaching, Bing serves as a departmental representative to the Center for Teaching Excellence at KU and volunteered to be a reviewer of the Undergraduate Research Award in fall 2019. She also served as a committee member on MS thesis defense and proposal defense in this spring and summer. Bing continues to work on American Meteorological Society (AMS) Committee on Climate Variability and Change and as an Associate Editor of Journal of Climate.

Her son was born in this January. Although working from home brings Bing closer to her family, she looks forward to resuming 'normal' and working on campus with colleagues and students soon.



## David Rahn

Like many of us, the chaos of the past year has been quite a rollercoaster ride, and it isn't over yet! The transition to fully online teaching and working from home has been a particular challenge. However, there is still plenty of good news!

I'd like to congratulate my M.S. student Joe Wermter who successfully defended his thesis that examined the urban boundary layer with aircraft observations alongside results from the Weather Research and Forecasting model, which highlighted the impact of model parameterization of low-level mixing on surface temperatures.

I'd also like to highlight a couple papers that were published including one led by a past M.S. student that examined the conversion of abandoned property to greenspace as a strategy to mitigate the urban heat island investigated with numerical simulations, and another paper with colleagues in Chile that examined the role of migratory anticyclones in the projected changes at the end of the century in the upwelling-favorable winds

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at the ocean's eastern boundary systems.

Last and certainly not least, Jane Marie Rahn was born at the beginning of September and Leslie and I are really excited, even though we've already had plenty of sleepless nights!



## Katy Rhine

was appointed as the senior faculty fellow in the University Honors Program, in which she will develop programs for second-year honors students, as well as assist in facilitating Diversity, Equity, and Inclusion events for the Honors community. She is also taking a leadership role in organizing the University Scholars Program. She has spent much of her time this semester developing online modules for her course, Culture & Health, and trying to find ways to give 275 students a meaningful virtual experience, despite the limits that the COVID-19 pandemic imposes.

Over 2021, she plans to continue to lead the Mellon-funded Sawyer Seminar, "Chronic Conditions: Knowing, Seeing, and Healing the Body" and launch

the 2021 Global Humanities Summer Institute in Dar es Salaam, Tanzania. Her plans to continue her fieldwork in Nigeria has been postponed, indefinitely, pending changes in the course of the pandemic.



## Justin Stachnik

leads the Clouds, Climate, and Precipitation (CCP) group at KU. Over the last year, he and his students have continued to research phenomenon in tropical meteorology and climate dynamics. Travel plans were cut short in 2020 though the CCP group will attend the American Meteorological Society (AMS) virtual annual meeting in January 2021. They also plan to share their latest work at the AMS Conference on Hurricanes and Tropical Meteorology in New Orleans just a few weeks before the official start to the 2021 tropical cyclone season!

Brett Chrisler was Justin's first graduate student to defend their thesis and completed their MS in Spring 2020. Brett's research on the Madden-Julian oscillation

has been published in the Journal of Geophysical Research – Atmospheres with a second article in revision for the Journal of Climate. Morgan Stessman passed her MS proposal defense in Spring 2020 studying tropical clouds using remote sensing data from CloudSat. Her future work will examine InterTropical Convergence Zone (ITCZ) variability with a final defense planned for Spring 2021. Finally, MS student Carrie Lewis-Merritt made great progress towards documenting the heating characteristics of tropical easterly waves using satellite and reanalysis data. Her work has been presented at NASA Science Team meetings and she will defend her MS proposal defense in Fall 2020.

Justin recently developed a new course in Tropical Meteorology (ATMO 615 / ATMO 715), which was the first time the elective had ever been taught at KU. Seniors and graduate students learned about all aspects of tropical weather and climate, which included developing a simple model to forecast the intensity and track of Hurricane Maria (2017). He also created new case studies for ATMO 630 (Synoptic Meteorology) where students get hands-on experiences using the National Weather Service (NWS) Advanced Weather Interactive Processing System (AWIPS).

Outside of teaching and research, Justin continues to enjoy playing tennis despite persistent challenges defending against a lefty, slice serve. When not on Zoom, he can be found outside doing socially distanced activities including



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running, hiking, or chasing away hordes of bunnies from the poor tomato plants in his quarantine garden.

## **Cornelis van der Veen**

spent the Spring of this year in Ohio, at his home at Indian Lake. He got stuck there when KU decided to close the campus after Spring Break. The transition to online classes did not go very smoothly, so he decided to overhaul the GEOG 104 (“Introduction to Physical Geography”) and make this an entirely online class. That took a big chunk of the Summer but it did pay off in that KU decided to go online for the big classes. So the material was already there and could be shared with other instructors of GEOG 104. The class time is mostly used to work on activities in break-out groups.

Another class, GEOL 891, is taught together with Leigh Stearns from the Geology Department and is also online. So there is really little incentive to come back to Kansas and KU. When through a Facebook comment Kees came across a buyer for his house in Kansas City, the decision to “permanently” move back to Ohio was easily made.

After all, his spouse already lived in Ohio where he opened a dog grooming salon earlier this year, after the Governor of Ohio allowed businesses to reopen again. The month of September was busy with packing everything and making several trips with a U-Haul trailer for the few things we decided to keep. The rest went to Goodwill or was sold to folks in the neighborhood. The only professional help was to transport the collection of vintage vehicles back to Ohio. There was not enough time to make even more trips back and forth and drive these cars back. So now Kees has officially joined the legions of tele-workers. Should the University decide to reopen and offer introductory classes in



person, Kees can always move back and find a small apartment to spend the last few years before retiring.

## **Barney Warf**

has been active over the last year, despite the coronavirus plague. He continues as editor of *Geojournal* and co-editor of *Growth and Change*, and also edits the *Oxford Bibliography Online* series for geography.

He had two edited volumes appear in 2020: *Political Landscapes of Donald Trump* and

*Geographies of the Internet*, both with Routledge. His monograph on *Geographies of Cosmopolitanism* (Edward Elgar) will appear shortly, and he is co-editing a *Handbook on Geographies of Media* (Routledge). He had 3 book chapters appear in 2020, 3 more in 2021, and 10 more forthcoming, as well as four encyclopedia entries.

Barney teaches courses in Human Geography, Urban Geography, Globalization, and the History of Geographic Thought. He also continues to work with two doctoral and two Master’s students.

# CHANGES

## TRANSITION

**Kathryn Rhine** joined the Departments of Geography & Atmospheric Science and African & African-American Studies as an Associate Professor in fall 2019.

She received her Ph.D. in Cultural Anthropology from Brown University in 2010, and has lived and worked in Nigeria for nearly four years over the past 15 years.

She has written a book titled, *The Unseen Things: Women, Secrecy, and HIV in Northern Nigeria* (2016, Indiana University Press), which won the 2017 Best Book Award from the Nigerian Studies Association. She is currently developing a new project titled, *Bloodless: Innovation and the Production of Surgical Knowledge in Nigeria*, based on ethnographic fieldwork in Calabar, Nigeria.

## RETIREMENT

Professor **Stephen Egbert** retired in July. He started as a research associate in 1996 before transitioning to his teaching career in 1998 in the Department of Geography.

He taught a range of subjects, including cultural geography and GIS: Remote Sensing Applications.

## TRANSITION

Professor **Andrea Brookfield** left the Department of Geography last Fall, transitioning to a position at University of Waterloo in Ontario, Canada.

While at KU, her research focused on improving the efficiency and effectiveness of models used for simulating and predicting changes in water resources in the surface and subsurface. She developed, integrated, and used a wide variety of tools, ranging from computationally demanding, fully-integrated, physically-based surface/sub-

## NEW FACES

**Terrienne Levin** joined the department this year in August.

She developed her strengths in both teaching and inclusion while working at KU Info and being a peer-support for students learning English as a second language.

She says she is committed to working with all students marginalized for multiple reasons such as LGBTQ, disabilities, and people of color, and I have a strong commitment to helping them.



*Faculty in the field:*

## INTERMITTENT STREAMS RESEARCH

A National Science Foundation grant is helping KU researchers install sensors and field sites, while training students, to investigate how intermittent streams support both the environment and humankind. Key collaborators include KU Geography & Atmospheric Science professor Jay T. Johnson, as well as principal investigator Amy Burgin, professor of ecology & evolutionary biology and environmental studies.

Photo: KU News



# AERIAL MAPPING WITH DRONES



Last year, a group of University of Kansas students has just finished an innovative eight-week course in using drones to develop aerial maps. Over the past two months, they've visited sites in KU's West District and at the Baker Wetlands, taking still images and videos over those areas.

"The drone mapping course has been excellent in providing a hands-on experience with the drones," said Siddharth Shankar, graduate student from Lucknow, India. "The course has focused not just on drones and how to fly them but also has made us aware of the FAA rules and regulations about drone flying and safety precautions.

"My research has been in glaciology, with the study of icebergs in Greenland. The drone mapping course has provided new insights into incorporating it with my research in the near future."

The course, offered annually during the fall semester, is designed to teach students about the rapidly growing technology of small unmanned aerial systems, referred to as drones, and its wide-ranging applications — which include search-and-rescue, real estate and environmental monitoring.

Students in the course come from a variety of disciplines including geography & atmospheric science, geology, ecology & evolutionary biology and civil engineering. Enthusiasm for the course has been very high, and it has filled rapidly each time it has been offered.

Three scientists, all holding the FAA Remote Pilot Certificate, teach the course:

- Dana Peterson, a Kansas Biological Survey researcher with a doctorate in geography
- Steve Egbert, who will soon retire as professor of geography and senior scientist at the Biological Survey
- Xingong Li, professor of geography & atmospheric science.



“The drone industry has been increasing nearly exponentially,” Egbert said. “Drone applications, including using drones for mapping and environmental monitoring, are becoming more and more commonplace. Students who gain experience piloting drones, collecting aerial photography and creating digital maps in the lab will have an advantage not only with their own research but when it comes time to enter the job market.”

Drone imagery captured in the course can be combined with other available data for student-led research. Likewise, the drone data captured will enhance current research and provide opportunities for future research collaborations. The course is open to both undergraduate and graduate students.

The course is a component of the KansasView program, part of the U.S. Geological Survey’s AmericaView, a national consortium of scientists who use Landsat and other satellite data to promote remote sensing education and outreach.

Within the AmericaView program, each state’s goals and activities are different, with KansasView currently focused on drones for aerial mapping applications. Primary funding for KansasView comes from a USGS grant. Egbert initiated the grant for the program in 2004; Peterson will lead the program going forward.

KansasView has a consortium, including the Kansas GIS Policy Board, the Data Access and Support Center at the Kansas Geological Survey, the KU Edwards Campus, Kansas State University, Fort Hays State University, Emporia State University and Haskell Indian Nations University. It also works closely with a number of state agencies.

The program has provided research scholarships to its partner educational institutions, sponsored a statewide remote sensing conference, co-sponsored events with other state agencies and nonprofits, and presented at local and regional conferences and meetings.

In addition, Egbert has mentored undergraduates in KU’s federally funded Post-Baccalaureate Research Education Program, which provides experiences and training to assist recently graduated students, particularly those from groups underrepresented in biomedical and behavioral research, to prepare for graduate school in a science-related field.







Last year, the University of Kansas approved a Climate Change Certificate that aims to inform students about the physical and human aspects of climate change. These days, as the nation – and much of the world – is in lockdown due to the COVID-19 pandemic, the certificate has gained even greater relevance as there are many analogies between both threats to humans and their economic well-being.

“Climate change is more than the physical science,” said Shannon O’Lear, professor of geography at KU, who helped create the program. “While there’s a lot of physical science to understand, there’s also social science. We put a certificate program together so students could get the fuller picture of what we’re looking at with climate change. We realize it’s not comprehensive — it doesn’t reflect everything happening at KU. But it’s a good overview from geography and atmospheric science.”

In addition to two core courses — “Climate and Climate Change” and “Environmental Geopolitics” — students will choose from several electives such as “Introduction to Environmental Hydrology and Water Resources” or “Geography of the Energy Crisis.” After compiling 12-14 credit hours in the curriculum, students will be awarded the Climate Change Certificate.

“The science is settled, and we teach the science in the physical side of the climate change curriculum,” said Cornelis Van Der Veen, professor of geography at KU. “What we now need is an adequate human response to these challenges. We also look at policy, geopolitics and consumption practices and the meaning of energy.”

Van Der Veen, who helped design the certificate program, said he hoped the climate change certificate could help create scientists and thought leaders in environmental policy and politics by teaching key concepts.

“Perhaps the most important point I want students to understand is the ‘Power of Two,’ or exponential growth,” he said. “The current spread of the virus illustrates this point, albeit at an accelerated pace. Until people become thoroughly aware of this type of growth, which virtually every environmental index shows over the last few hundred years, it’s doubtful that much, if anything, will hap-



pen. Sustainable economic growth is an oxymoron, and the sooner we realize that, the better.”

According to O’Lear, the climate change certificate will serve to bolster students’ credentials in a vital area of scientific and societal importance as they look to find employment or continue their academic careers after graduation.

“The phrase we hear from professionals is ‘stackable credentials,’ meaning they want students to show multiple things on their transcript when they graduate,” she said. “A major is your devoted field of study, and you can have double majors — a lot of students do. But the certificate is something you add on top of that. It’s fewer classes than a major, but often you have coursework that overlaps. A certificate demonstrates on students’ transcripts they’ve specialized and done a little extra work to add this special component to their learning.”

Both O’Lear and Ven Der Veen said the societal and economic disruptions caused by the coronavirus pandemic could be a mere coming attraction for the larger issue of climate chaos.

“With the coronavirus, back in January and February when people were becoming aware of this seemingly far-away process, we missed opportunities for early intervention,” O’Lear said. “With climate change, it also seems far away much of the time. We don’t directly perceive carbon and methane emissions. We read about melting ice sheets and bleached coral in distant places. But climate scientists have been measuring atmospheric CO<sub>2</sub> at the Mauna Loa Observatory in Hawaii since 1960, and those emissions have been increasing and increasingly steeply. The evidence and not-so-early warning signs are already here.”

Many of the societal weaknesses revealed by coronavirus — mass unemployment, disruptions to supply chains, wild swings in commodity and stock values — will be tested more severely by the changing climate.

“How will society prepare, adapt and adjust to new realities of an altered climate? Climate is where we all live: short and long-term weather patterns, storms and disasters, food and water supply – the very basis of our economic systems,” O’Lear said.

According to Van Der Veen, the COVID-19 emergency points the way to changes society can make to mitigate climate change and prepare for consequences that already are inevitable.

“The current pandemic has taught us a few things, but relating to climate change — and environmental destruction in general — the lockdown of most of the world has shown us that humans can survive a much-reduced economic activity, that there are more important things than the almighty economy,” he said. “Even on the short time scale, we can see considerable improvements in the environment, such as less pollution in India – allowing folks to see the Himalayas for hundreds of miles – or the lagoon of Venice. With clear-eyed planning, we might develop a greener economy that is also just in the distribution of benefits. So perhaps we should grab the opportunity to move towards a greener economy, and preferably a much scaled-down economy, thereby combating climate change, or at least lessening the impacts somewhat.”

Students interested in finding out more about the climate change certificate should visit the certificate information page at the Department of Geography & Atmospheric Science website or contact Lisa Hamblen, undergraduate academic adviser for the department.



President Donald Trump may have nearly ended the flow of refugees and other African immigrants to the United States, but a new study shows that at least those from Nigeria are well-educated, hardworking and contribute more to society than they cost the American social security system. The paper contrasts Nigerian newcomers with those from Somalia, whose work ethic is similarly strong, but whose lack of education hurts their employment prospects here.

The authors argue that Americans should “reconsider the treatment of African immigrants as a collective group, as this obscures differences between immigrants from different African countries and the ways they adjust to life in the U.S.”

Abel Chikanda, assistant professor of African & African American studies and geography, and a KU doctoral student, Julie Morris, are the co-authors of a paper published this spring in the journal *African Geographical Review*. In it, they compare and contrast the incorporation (they prefer that term to “integration”) of immigrants from two African nations – Nigeria and Somalia – using data from the 2017 American Community Survey of the U.S. Census Bureau.

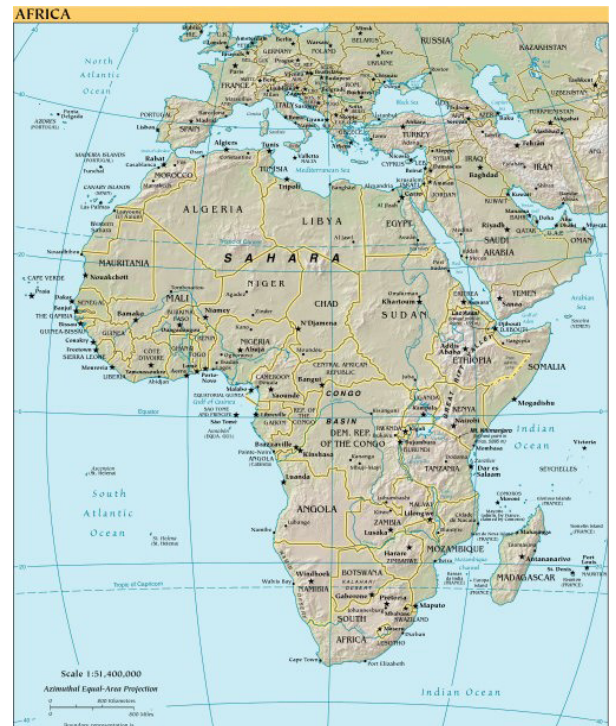
Chikanda, who was born in Zimbabwe, said he had long noted that those outside Africa tend to regard all African immigrants as part of the same group, ignoring the fact that there are 55 countries on the continent.

“I wanted to challenge this notion of treating African immigrants as one unified entity,” Chikanda said, “so I purposefully chose two groups — the Nigerians, who have a long immigration history, and then the other group from Somalia. They are coming from a war-torn country as refugees. They don’t have high levels of education, and they have another handicap of being Muslim. So I wanted to see how these two distinct African groups are formed when they enter into U.S. society.”

Since 1980, immigrants from Africa have formed an ever-larger percentage of immigrants to the United States, at least through 2017, when the president’s travel ban from mostly Muslim countries took effect. Today, Africans comprise 5.1% of all immigrants to the United States.

And while there are differences among people from various African countries, when considered as a whole, the authors write, “Compared to the U.S. population, the African-born immigrant population is generally more youthful with 81.3% falling in the 18-64 age group, compared to 61.8% for the national population.”

Their relative youth is one reason why these immigrants are net contributors to American society, the authors wrote. They are “likely to exert less pressure on the country’s pension and social security system. In





*“Data from the ACS shows that African-born immigrants aged 25 and over possess high levels of education comparable to, if not better than, the average American population.”*

the absence of significant barriers to employment opportunities, African-born immigrants are strategically positioned to make a net positive contribution to the country’s social security system.”

And while relatively lower levels of development in Africa lead Americans to assume that African immigrants are less well-educated, “Data from the ACS shows that African-born immigrants aged 25 and over possess high levels of education comparable to, if not better than, the average American population.”



Refugees who flee to the country are expected to be self-sufficient within six months of arriving – when government benefits run out, Chikanda said. Thus, perhaps it should not be surprising that data from the ACS show that “the labor force participation rates of African-born immigrants are higher than that of the foreign-born population and the general U.S. population,” the authors wrote.

The “participation rate” is the number of employed and unemployed-but-looking as a percentage of the population ages 16 years and over.

The rate for African immigrants, the study found, was roughly 73%, or about 10 percentage points greater than for native-born Americans. This makes sense because the immigrants almost never have the generational family wealth or high-earning spouse that permits some Americans to avoid working.

Even if higher rates of labor force participation do not automatically translate to higher rates of employment, the gap between immigrants and the U.S.-born population held true in 2017, the study found.

The authors wrote: “Overall, African-born immigrants aged 16 and over have a higher rate of employment (69.2%) relative to the foreign-born population (63.1%) and the general US population (59.9%).”

The study also notes significant differences between Nigerian immigrants, who mostly come from that country’s south, and Somalis. For one thing, with its history of British colonization, many more Nigerians speak English upon arrival in the U.S. than do Somalis. That makes the Nigerians’ transition easier in almost every respect.

“For the Nigerian-born immigrants, the proportion that possesses at least a bachelor’s degree is 60.5%,” Chikanda said. “But when we look at the Somali-born population ... that’s about 15%.”

That higher level of education and English skill has translated into better jobs – a significant percentage of them managerial — for the Nigerian immigrants, Chikanda said.

Social service agencies across the country have found themselves with few refugees to resettle under the Trump administration, resulting in cuts to their funding and staff, Chikanda said. But if there is a bright side to the restrictions on newcomers, he said, it is that resettlement agencies can devote more time to helping those who made it to these shores.





# ALUMNI BOARD

*From Dan Rose, Chair of the Geography & Atmospheric Science Alumni Board*

The Department of Geography & Atmospheric Science Alumni Board continued to support KU GAS students during the pandemic, offering guidance, connections with professionals, and career advice.



Efforts are continuing to create an interactive and easily-updatable alumni map that shows the spread of our graduates across the globe.

The Board is poised once again to hold its annual Mock Interview Day in February or March 2021. Mock Interview Day is free and available to all KU students. Board Members and local employers will provide students an opportunity to go through a 30-minute mock interview session, which includes questions + feedback.

## BOARD MEMBERS

Dan Rose, Chair of Alumni Board

- Heather Putnam
- Brian Thomas
- Alexandra Ubben
- Nathan Wendt
- Jeff Krecic
- Hannah Weekley





# THANK YOU FOR GIVING

Your gift makes all the difference in the lives of our students, our faculty, and our classrooms - both inside Lindley Hall and in the field. Contributions have helped undergraduate students with tuition, research funds, special events including our colloquium series, and more. We are so grateful for alumni contributions of any amount and we thank you for your generosity. Don't see your name below? Let us know! Email us at [kugeog@ku.edu](mailto:kugeog@ku.edu). These alumni and friends helped make the 2016-2017 academic year shine for our department:

*Very special thanks to the following recent contributors:*

## WALTER KOLLMORGEN GEOGRAPHY FUND

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### Walter Kollmorgen Fund

The Walter Kollmorgen Fund honors the university distinguished professor who grew the department and served as chair from 1947-1967. The fund supports a myriad of uses, projects both large and small. It can be used for student or faculty travel to professional conferences and new equipment.

### George F. Jenks Fund

The George F. Jenks Fund is used for Cartography and GIS-related equipment, mapping, and training.

### Atmospheric Science Fund

This fund provides essential resources for a variety of programs and student scholarships.

### Walter Bohnstengel Fund

The Walter Bohnstengel Fund is used for a variety of expenses and equipment in the Atmospheric Science program. It can also be used for student and faculty travel for field work and conferences.

Contributions can be made to the Walter Kollmorgen Geography Fund, the George F. Jenks Fund, the Atmospheric Science Fund, the Bohnstengel Fund, or our upcoming "Launch KU" computer campaign. General donations to the Dept. of Geography & Atmospheric Science are also welcome. *Please indicate the Dept. of Geography & Atmospheric Science and which fund, if any, on your donation. Send your gift to:*

**The Kansas University Endowment Association**  
P.O. Box 928  
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After graduating from KU with a M.S. in Atmospheric Science in May 2018, Rodney worked as a civilian meteorologist at the U.S. Navy’s Fleet Numerical Meteorology and Oceanography Center (FNMOC) in Monterey, CA. He worked in the Climatology Division, where he provided naval units with tailored climate support packages for their operations. He also participated in roadshows to meet with product users and better understand their needs. In addition, he led the FNMOC Morale, Welfare, and Recreation program that strives to bring staff from the center together to do civic-oriented activities, such as fundraising.

In Sep 2019, Rodney joined the NWS Boston/Norton office as a General Forecaster. Besides his forecasting responsibilities, Rodney has been leading virtual event reviews as an innovative way to increase science sharing and strengthen relationships with core partners and the public. Interests wise, Rodney is an avid outdoor enthusiast and has climbed Mt Whitney, Half Dome, and Mt Washington since leaving KU.





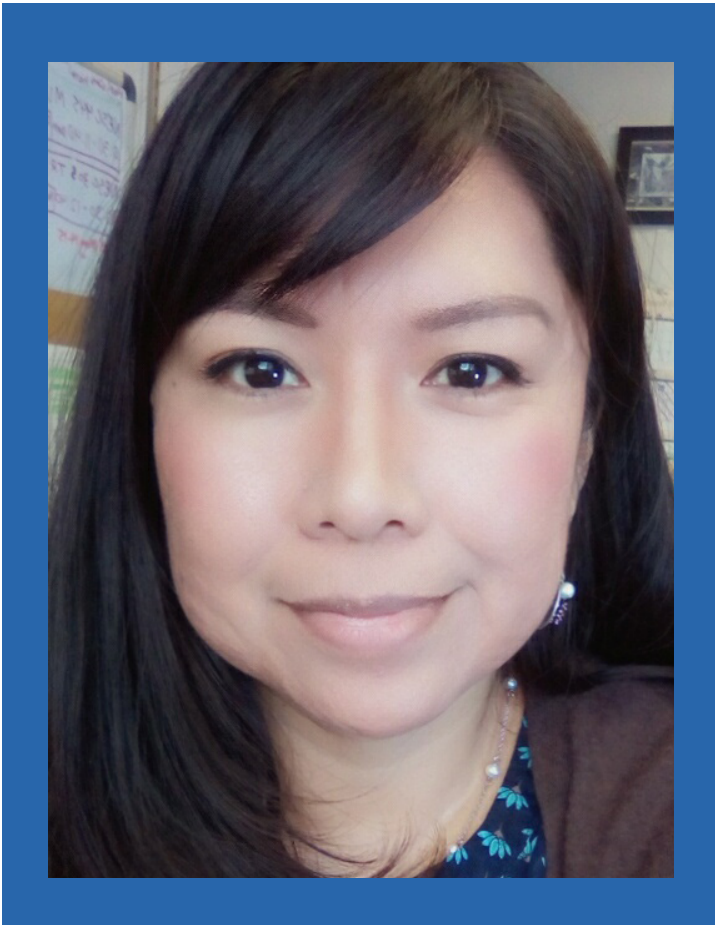
After I completed my doctoral degree with Drs. Peter Shortridge, Garth Myers, and Peter Herlihy, I got my first teaching job at Georgia Southern University in 2002. I stayed there three years before moving to the University of Missouri in 2005.

Over the years since then, I've worked my way through the tenure track and now am professor and chair of the Geography department here. I'm very lucky to have found a wonderful long-term collaborator in KU's own Dr. Jay Johnson, with whom I have published several books and articles on the agency of place in Indigenous coexistence.

These days, my professional life is mostly focused in administration, which has provided me with valuable experience and perspective on higher education, but I do look forward to returning to teaching and writing on a full-time basis after my time in this role.







Since finishing my Ph.D. with Dr. Jay T. Johnson in 2019, I continue working at Northwest Indian College (NWIC) in Bellingham, WA, where I am faculty, teaching in the Bachelors of Native Science Environmental Science (BSNES) Department since 2018.

Some of the courses I teach include the Native Views on Animal Biology, Animal Behavior, Vine Deloria Jr. Seminar, Introduction to Environmental Science, and the BSNES fundamentals interdisciplinary concentration seminar sequence.

I am also the coordinator of the Vine Deloria Jr., Indigenous Studies Symposium, held annually at Northwest Indian College. In the spring of 2020, I had the opportunity to move this event forward and hold the 14th Annual Vine Deloria Jr. Indigenous Studies Symposium in a digital online format, which was a first for this event.

I was recently honored by NWIC with the American Indian College Fund Faculty of the Year Award. I attribute my success to my Yakama and Warm Springs Family, mentors such as Dr. Johnson, my students, and those I work with and continue to learn from at NWIC.

# GRADUATION



Due to COVID-19, the Geography & Atmospheric Science Department held a virtual Recognition Ceremony

Members of our faculty created virtual messages for our students, while graduates shared photos (pictured) with messages about why they valued their time in the program.

*Pictured left: Brittany Foster  
Below, top row from left to right: Evan Direnzo, Julianna Cullen, Mandy Edwards  
Below, bottom row from left to right: Madison Gordon, Katherine Berislavich*





## STAY CONNECTED

Follow the **KU Department of Geography & Atmospheric Science** online and on social media! We love sharing news of student and faculty research and achievements, special events such as our colloquium series and the variety of unique events held across the KU campus. Have suggestions for us, job or internship opportunities for our students, or want to tell us your news? Email us at kugeog@ku.edu, or tag us on social media.

Follow us on social media now to get the news first from #KUgeography & #KUatmo!

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