



GLACIAL DEPOSITS

VOLUME 46 • DECEMBER 2021

Message from the chair

Greetings friends and colleagues! I write this message on a beautiful fall day here in Normal where the campus is filled with laughter and heaps of activity, once again. As we continue to transition from COVID-19, we are eager to be back and engaging with each other and our students in person. Most of our classes are taught in person this fall and travel restrictions are lifting. We recently hosted over two dozen visitors including families of our current and hopeful students, eager to engage with us and learn about our programs and facilities. I am happy to report that we rose to the challenges of the past 18 months with grit and resolve and are emerging today more resilient, accomplished, and eager to continue with our mission.



This past spring, two of our students were named the 2021-2022 Robert G. Bone Scholars, the highest honor bestowed on an undergraduate student at Illinois State University for excellence. Dr. Wondy Seyoum was recognized as one of the 2021 University Research Initiative Award winners for his exceptional accomplishments in research. This fall, the department welcomed Ryan Lange

as its new GIS technician and outreach coordinator, and Russell Piontek as the new coordinator of our Laboratory for Environmental Analyses. Dr. RJ Rowley and Dr. Jonathan Thayne were promoted to professor. The new environmental systems science and sustainability major continues to be very popular, with 73 students enrolled in fall 2021. Our programs continue to be generously supported by gifts that supported 17 students through various awards and scholarships. Our internship programs continued strong with 22 students completing experiences this past summer through the geography and environmental systems programs. The lifting of travel restrictions enabled us to return to the field with our students; 17 students in geology spent four weeks in Wyoming for their field camp experience.

Mixed with accomplishments and good news, unfortunately, are also a couple of sad developments that I want to share with you. Dr. E. Joan Miller and Dr. Henry Zintambila, professors emeriti of geography, passed away this past year. We are sad to see them leave us and will remember them fondly.

I encourage you to leaf through the pages of this year's *Glacial Deposits*, to learn more about these and other recent happenings and developments in the department. As you are reading, I ask that you please remember that many of the shared activities were made possible through the generous gifts and support that we continue to receive from donors and friends, like yourself, and grasp how important this support is in helping make these stories possible. On behalf of everyone on our team, I thank you for your continued support and hope that you enjoy this volume.

Dagmar Budikova, Chair

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CURRENT *faculty*



Dr. Tenley Banik
Assistant Professor of
Geology; Petrology,
Volcanology, Geochemistry



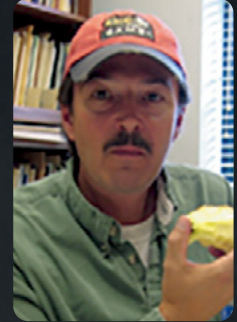
Adam Bauer
Instructional Assistant
Professor of Geography



Dr. Amy Bloom
Instructional Assistant
Professor of Geography;
IGA Co-Coordinator



Dr. Dagmar Budikova
Professor of Geography &
Chair; Climatology, GIS



Dr. James Day
Professor of Geology;
Chair; Paleontology,
Paleoecology,
Paleogeography



Dr. Alec Foster
Assistant Professor
of Geography; Urban
Environmental Change,
Urban Sustainability,
Environmental Justice



Dr. Melissa Hail
Assistant Professor of
Geography; Human
Geography, Urban
Geography, Urban Planning



Dr. Matt Himley
Associate Professor of
Geography; Nature-
Society, Political Ecology,
Latin America



Dr. John Kostelnick
Professor of Geography;
GIScience, Cartography,
GEOMAP Director, IGA
Coordinator



Dr. David Malone
Distinguished Professor
of Geology; Structure,
Stratigraphy, 3-D Mapping



Dr. Catherine O'Reilly
Professor of Geology;
Biogeochemistry, Water
Quality, Hydrogeology



Dr. Reecia Orzeck
Associate Professor of
Geography; Political
Economy, Historical and
Social Geography, Middle
East



Dr. Eric Peterson
University Professor of
Geology; Hydrogeology,
Karst Hydrology



Dr. RJ Rowley
Professor of Geography;
Sense of Place, Cultural
Geography, Internship
Coordinator



Dr. Wondwosen Seyoum
 Assistant Professor of
 Geology; Hydrogeology,
 Remote Sensing,
 Hydrologic Modeling



Dr. Aondover Tarhule
 Professor of Geography,
 Vice President for
 Academic Affairs and
 Provost



Dr. Jonathan Thayn
 Professor of Geography;
 Landscape Ecosystem
 Function Modeling, Remote
 Sensing, Latin America



Dr. Lisa Tranel
 Associate Professor of
 Geology; Geomorphology,
 GIS Applications

CURRENT *staff*



Karen Dunton
 Administrative Aide



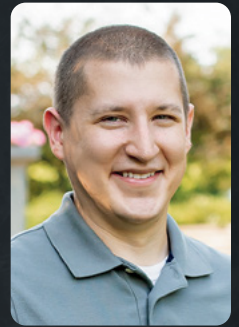
Barbara Fiest
 Civil Service Extra Help



Ryan Lange
 GIS Technician and
 Outreach Coordinator



Paul Meister
 Coordinator of Academic
 Services in Geology, GEO
 102 Instructor



Russell Piontek
 LEA Laboratory
 Coordinator



Laura Roethle
 Account Technician



Jill Thomas
 Geography Advisor,
 Teacher Education
 Specialist, Geography
 Lecturer



Pandemic can't stop third biennial volcanic processes trip to California

By Kaitlyn Dooley '21

In April 2021, Dr. Tenley Banik's volcanic processes class—under strict COVID-19 protocols—embarked on a much-anticipated trip to Death Valley and Owens Valley, California, to experi-

sin, which is the lowest point in North America at 86 meters (282 feet) below sea level. It is quite a spectacular scene, especially because Mt. Whitney, which is the highest point above sea level in the

lower 48 states, is only about 145 kilometers (90 miles) to the northwest! We ended day one with the coolest rocks any of us had laid hands on—xenoliths from the mantle. This rock had the largest olivine phenocrysts we had ever seen. How many people can say they've laid hands on the mantle? On day two, we hiked into the Big Pine Volcanic Field to a basaltic lava flow. We studied various flow patterns and structures,

man-made reservoir that sits within the caldera formed during the supereruption. We hiked to the beach where there were columns of tuff, a rare occurrence we were able to get close and personal with. After our hike back, we went up the mountain to visit Obsidian Dome. We ended our trip with a hydrogeology and ecology discussion at Mono Lake. Being able to go on this trip was collectively one of our favorite college experiences, and we could not have gone and explored this part of the world without support from our donors to the Powell Fund. Thanks to our donors, we are fortunate to have these enriching experiences and get out into the field!



Members of Dr. Tenley Banik's volcanic processes class pause for a group photo at the entrance to Death Valley. Photo by Geno Persico.

ence volcanic products and processes in the field. We had a record number of eager participants (16 students, plus one graduate student chaperone and Paul Meister). On day one in the field, we stopped at a textbook welded tuff unit and practiced our field notes and sketches en route to Death Valley. We stopped and took a picture at the national park sign before our next stop at a hill of scoria and basalt which was placed there by a nearby cinder volcano. After this, we were fortunate to stop at Badwater Ba-

and some students observed lava tubes. After a discussion on the origin of the field, we drove to the Bishop Tuff outside of Bishop, California. In order to understand the sequence of events that occurred during the supereruption ~767 kya that deposited the tuff, we constructed two stratigraphic columns. The first was of a deposit of pumice within a distal pumice quarry, and the second was of a canyon of welded and unwelded tuffs. On day three, we took a long drive out to Crowley Lake, a



Members of Dr. Tenley Banik's volcanic processes class marvel at the Crowley Lake ignimbrite columns. Photo by Geno Persico.

University recognition of student excellence: 2021-2022 Robert G. Bone Scholars

Each year, Illinois State designates a handful of its students as Bone Scholars. Being awarded this scholarship is the highest honor that an undergraduate student can receive for exceptional academic achievement. Nominees must have a cumulative grade point average of at least 3.7, demonstrate broad and excellent academic achievement with campus and community engage-

ment, and show outstanding qualities of character and leadership. Two majors in our department were selected among 12 others as the University's 2021-2022 Bone Scholars: Sara Schelinski (environmental systems science and sustainability) and Aiden Krieger (geology).

Sara Schelinski

By Sara Schelinski

In the fall of 2019, Sara Schelinski followed in her mother's footsteps to become an Illinois State University Redbird. Sara transferred to ISU after earning an associate's degree from Joliet Junior College, where she fell in love with environmental science by studying



Sara Schelinski

sustainable policy and practices in Costa Rica. At ISU, Schelinski is majoring in environmental systems science and sustainability, with minors in political science

and geography, and she has participated in many activities across campus. Schelinski has served as project manager for the Innovative Consulting Community, she has led market research for the sustainable use of Illinois' river-dredged materials in partnership with the U.S. Army Corps of Engineers, and—as president and coordinator of Fix It Friday—she has promoted the campaign for reduced textile waste by providing free clothing repairs. In this role, she also partnered with the Illinois Career and Technical Education Innovative Curriculum Resources Project (ILCTE) to lead continuing education courses in sustainability education for K-12 instructors. Schelinski also serves as vice president of member development for Alpha Delta Pi, serving her sorority by

revising their chapter accountability program and co-authoring the chapter's diversity and inclusion goals.

Schelinski is motivated by a desire to improve her community and is driven to learn from those around her every day. As a 2021-2022 Bone Scholar and 2021 Excellence in Sustainability awardee, Schelinski is thankful for the opportunities she has had in the Department of Geography, Geology, and the Environment to propel her success in these activities. With guidance and support of faculty and alumni, she is excited to pursue a career in sustainable urban development and GIS mapping.

Aidan Krieger

By Dr. David Malone

Aidan Krieger is the newest member of geology's stable of Bone Scholars that includes Julia Ferguson (2005), Simone Runyon (2010), Joe Syzdek (2018) and Jackie Epperson (2020). Krieger is a native of Fairbury, Illinois. He transferred to study geology at Illinois State as a sophomore after spending his freshman year at the University of Illinois where he majored in engineering. As a sophomore, Krieger began two projects. As a NexSTEM scholar, he studies the occurrence of rare earth elements in the phosphatic rocks of the Pennsylvanian Covel Conglomerate in Central Illinois. Krieger was also selected to participate in a National Science Foundation Research Experience for Undergraduates project based out of the University of Missouri-Kansas City to study fault kinematics in Baja, California. Krieger completed field camp 2021 and is now studying the provenance of Baraboo interval quartzites in Wisconsin. The result of this research is being presented at the Portland Geological Society of America meeting. After graduating, Krieger aims to pursue a graduate degree in structural geology.



Aidan Krieger



Aidan Krieger poses while working at the Steerhead Mapping Project east of Buffalo, Wyoming.

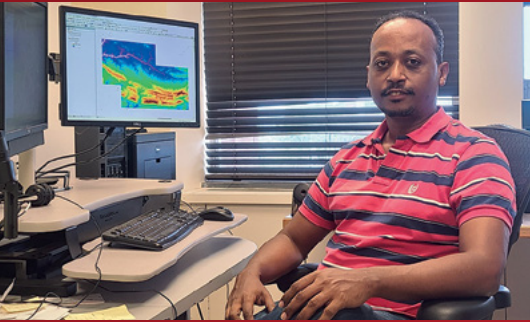


Sara Schelinski poses in between sewing projects at a Fix It Friday event last winter in the Bone Student Center.

FACULTY SPOTLIGHT

DR. WONDWOSEN SEYOUM

In this section, we would like to shine a spotlight on the accomplishments, research, and publications of one of the department's faculty members. This year's spotlight is on Dr. Wondwosen Seyoum.



Dr. Wondy Seyoum

Wondy Seyoum conducts research in broad areas of physical hydrology, specifically related to global trends in water resources, both surface (e.g., lakes, streams) and groundwater, with respect to climate variability and human impacts. He conducts his research in the U.S. as well as in remote basins in north, east,

and west Africa. To accomplish this, Seyoum employs satellite remote sensing, hydrologic modeling, and data analytics techniques.

Seyoum's research also focuses on enhancing the utility of satellite remote sensing data for application in water resources research. Most recently, Seyoum embarked on research that involves the application of unmanned aerial systems (UAS) in hydrological data collection. In collaboration with the City of Bloomington, Seyoum, other faculty members, and a team of graduate and undergraduate students are working on assessing the suitability of multi-spectral sensors mounted on UAS for monitoring the water quality of Lake Bloomington and Evergreen Lake. Seyoum believes the great potential of integrating drones in his research, as drones can provide high resolution data at a lower cost and in a timely

manner. Seyoum is involved in a multi-university U.S. Department of Energy grant-funded research project that investigates the adaptation of pennycress as a cover crop vital for reducing nutrient loss from agricultural lands and mitigation of climate change. Seyoum was one of the recipients of this year's Research Initiative Award that recognizes faculty members who have initiated an impressive research agenda early in their academic careers.

Seyoum teaches several graduate and undergraduate courses including groundwater modeling, engineering geology, and principles of geology. This fall, he is teaching a new watershed analysis and modeling course. He is excited because the course engages students in exploring physical and chemical watershed processes due to climate change and land use change impacts through advanced data analysis, empirical, and numerical watershed modeling techniques. Seyoum proposed a second new course into the program—remote sensing applications in hydrology—scheduled for spring 2022. With more than 10 years of experience in both academia and industry, Seyoum integrates his personal experiences in his teaching. Outside research and teaching, Seyoum likes sports (Georgia Bulldogs fan) and woodworking.



Graduate student Jerry Komarski gets ready to fly a drone and collect water quality data at Lake Bloomington.

Welcome TO THE DEPARTMENT!

Ryan C. Lange

Ryan C. Lange is an archaeologist and geographer who is originally from Dubuque, Iowa. He holds a bachelor's degree in anthropology (2016) and a master's in geography/GIS (2021) from the University of Northern Iowa. Prior to Illinois State, Lange worked for the University of Iowa Office of the State Archaeologist. Lange's interests include historic preservation, North American prehistory, GIS, and structure from motion photogrammetry. Lange is working with Dr. Thayne to develop new drone classes for the department.



Russell Piontek '17

Russell Piontek '17 is originally from Peru, Illinois. He graduated from Illinois State with a bachelor's degree in chemistry in 2017. Upon graduating, he spent four years at a food processing and commodities trading corporation as a research chemist. He joins the department as a laboratory coordinator for LEA (Lab for Environmental Analysis). When he's not at work, Piontek can be found reading a book, playing a board game, or spending time with his wife and 2-year-old son.



Associate Professor of Geography Matt Himley co-edits *Handbook of Critical Resource Geography*

By Dr. Matthew Himley

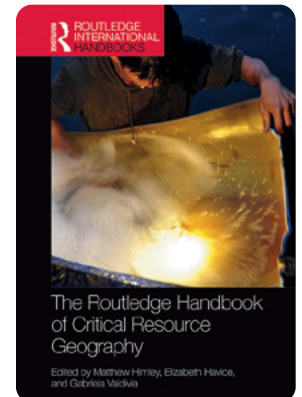
One day during the late summer of 2021, I noticed a courier delivering a mid-sized box to my front porch. My first thought: “I’m guessing there are four years of work sitting inside that box.” Indeed, the contents that were revealed when I sliced open the package were three complimentary copies of *The Routledge Handbook of Critical Resource Geography*, a 494-page volume that I co-edited with two colleagues from the University of North Carolina at Chapel Hill, Drs. Elizabeth Havice and Gabriela Valdivia, and that was published in July of this year.

My journey with this project began in the fall of 2017, when I and my co-editors began drafting, on the invitation of a Routledge publisher, a plan for an edited volume that would take stock of

a recent flourishing of scholarship from geographers and scholars from related fields on resources and their role in the world. Over the next three-and-a-half years, we worked to recruit authors to the project, provide multiple rounds of feedback on chapter drafts, write a preface and introductory chapter, ready the manuscript for submission to the publisher, and review copyedits and page proofs. The result was a 37-chapter collection involving more than 60 authors from home institutions in at least 15 different countries and with expertise in a wide range of resource types and world regions. Overall, the book provides readers with a toolkit of conceptual and methodological approaches for documenting, analyzing, and reimagining resources and the worlds with which they

are entangled.

I am very happy to have brought this handbook to completion, especially given the challenges that the COVID-19 pandemic posed during the final year of the project. I am also very grateful to have had the chance to work with and learn from two fantastic co-editors and an amazing group of authors. I am already looking forward to my next editorial project!



Funding acquired for a new scanning electron microscope

By Dr. Tenley Banik

A new scanning electron microscope (SEM) is coming to Illinois State. The Department of Geography, Geology, and the Environment is one of several departments involved in acquiring funding via a National Science Foundation Major Research Instrumentation grant to procure a state-of-the-art field emission SEM that should arrive on campus in 2022.

This \$403,900 grant will enable GGE faculty to pursue cutting-edge research opportunities, facilitate student involvement in the research process, introduce students to analytical instrumentation in coursework, and enable a diverse set of research agendas and opportunities. For example, in GEO 280 (mineralogy), the SEM will enable implementation of new lecture and lab exercises focusing on compositional variation within minerals using backscatter electron and cathodoluminescence imaging, and in GEO 285 (igneous and metamorphic petrology) students will use mineral compositions obtained

using electron dispersive spectroscopy (EDS) and microanalytical maps obtained from the SEM to develop a comprehensive petrogenetic history of their pet rocks.

Graduate students of Dr. Catherine O'Reilly who are interested in microcontaminants in water will be able to use the SEM's ESD capabilities to obtain microplastic compositions. Mineral texture and composition data—especially from apatite and zircon, which are research tools commonly used by Dr. Lisa Tranel, Dr. Dave Malone, Dr. Tenley Banik, and their students—will be easy and fast to obtain with this new instrument. The SEM will also be capable of operating at low vacuum, which is important for obtaining high resolution images of delicate fossils, such as those routinely used by Dr. Jed Day and students.

In addition to bolstering faculty research capabilities, we also hope that this new SEM will serve as a student recruitment tool. Microscopy is a viable way to involve students with mobility issues or who might otherwise be unable or reluctant to participate in field work to get involved in geoscience.

The SEM is also a commonly used tool in industry and will provide the option for students to acquire valuable career skills. The coming years will be exciting for micro-analysis and micro-imaging at ISU, and we look forward to sharing SEM images and data with our alumni in *Glacial Deposits* in the future.

In Memory

It is with deep sadness that we must inform you of the passing of two of our dear colleagues who will be missed.

Henry Jones Zintambila

By Dr. Michael D. Sublett

Dr. Henry Zintambila died on Dec. 9, 2020. He had retired just a few months earlier, following a career that included 35 years on the geography faculty at Illinois State; short stints before that at Western Carolina University and George Mason University; and prior teaching, administrative work, and coaching in Africa.



Born and raised in the small African country of Malawi, Henry came from a strong family background that included a father who was a pastor in the Seventh Day Adventist denomination. Growing up in an area of English language preparation for native speakers, Henry sought to further his formal education after high school but had limited resources.

He was able to secure support from Spicer Memorial College in India, and thus he set sail on a passenger-carrying steamer across the Indian Ocean to earn a bachelor's degree in biology. Thereafter, the University of Poona, also in India, saw his potential and helped him earn a master's degree. Not once, in those six years of schooling in India was Henry able to afford the cost of a trip back home to Malawi. Shifting his interest eventually to geography, Henry earned a slot in the Ph.D. program at the University of Hawaii, where he completed the terminal degree for his new discipline in 1982. I met Henry for the first time in April 1985, at a conference in Detroit, when I interviewed him and others for a temporary faculty position that included teaching large sections of the Geography of Africa. We did hire him, and not long after, the University transferred Henry to a permanent line, a slot that he occupied until his retirement. His Africa classes sometimes topped 300 students each, the largest we learned in the country; but he also taught world geography, earth science, climate, weather, and the late 1990s freshman course foundations of inquiry.

Henry's research focus was always in climatology with an emphasis on evapotranspiration, climatic water balance, rainfall measurement, and precipitation chemistry. He loved to attend professional meetings (often driving by himself long distances), present his latest research work, reconnect with old friends, and make new professional connections. He and I drove one time to a national meeting in Minneapolis soon after he arrived in Normal. As we entered the meeting space, several people recognized Henry and came over to greet him. We had hired ourselves a personality.

For a decade, beginning in the 1990s, he organized and chaired the department's successful series of one-day conferences for Illinois teachers of geography or earth science at two-year colleges. Henry loved people, and I cannot recall ever hearing a negative word from him about anyone. He approached life in a positive manner, making those around him feel good in his presence.

His family (especially wife Janet and son Chiko), church, students, colleagues, native Malawi, and new American citizenship filled his life with joy. He loved to cook, to sing (especially hymns), and to help others (including his thousands of students). Dr. Z was 76.

Edith Joan (Wilson) Miller

By Dr. Michael D. Sublett

Dr. E. Joan Miller died on March 3, 2021 after a long, productive, and distinguished life. Born in the English Midlands in 1923, Jo (as she asked colleagues to call her) was a student at Cambridge University's Girton College and the Cambridge Training College for Women during World War II. There she earned a bachelor's degree with honors in geography and a master's in geography. She then embarked on a career as an educator that did not end until her passing.



Her first teaching job was in a school for girls in Yorkshire. From there she moved to a similar job teaching high school girls in London. In the 1950s, feeling the need for more education and a chance to try her hand at collegiate teaching, she applied for an opening as a doctoral student at Indiana University. Accepted there, she began eventually a dissertation project involving her longstanding interest in folk life, a project that would put to use her already formidable skills as a field scholar who excelled at detailed interviews with locals, field mapping, and field sketching. Her dissertation focused on the Ozark Mountains, and Ozark folklorist Vance Randolph was a huge influence on Jo's research agenda.

While in Indiana, Jo Wilson met and married fellow geographer George J. Miller, a senior staff member at Indiana and a founding father of the National Council for Geographic Education. Illinois State Normal University hired Jo as a beginning professor in 1962; and she remained on the faculty until her retirement, having reached the age of 70, in 1993.

Early in her Illinois State career, she took leave to finish her doctorate, actually at the University of North Carolina at Chapel Hill, but on the same topic: Ozark folklore. Her Illinois State classes included world geography, historical geography, United States, Europe, and (a favorite of hers) life and landscape. She also supervised the preparation of numerous master's theses. In total, officially, she taught at Illinois State 9,014 students (her count).



After mandatory retirement, a status for which she was clearly not ready, she accepted the role as an unpaid but welcome adjunct professor, kept an office, mentored selected students, and worked tirelessly in archival materials to uncover the intellectual backgrounds of several who preceded her on the faculty. Among her prize discoveries was the connection of former Department Chair Douglas Clay Ridgley to the Herbartian educational movement.

Jo never lost her love for field study and often toured the United States with husband George or Britain with longtime English friend Ellen Keens. Jo's research led to publications in the top geographic journals, she delivered the prestigious Arts and Sciences Lecture at Illinois State in 1975, and she found herself a new member of the Arts and Sciences Hall of Fame in 2009.

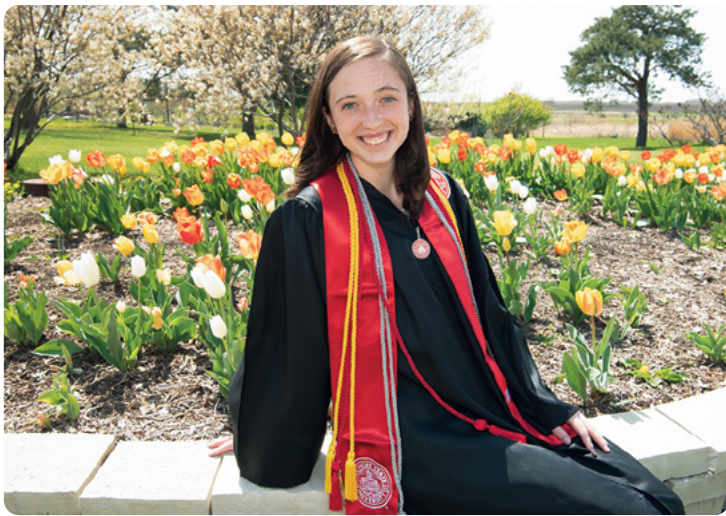
Always a fierce advocate of women's rights, Jo informed me more than once how I might make more women-inclusive decisions. She was a proud member of the national Society of Woman Geographers. "Yes, 'Woman' is correct," she would say.

Dr. Miller's legacy will continue to live on through her generous endowment to the geography program in support of professional development of program faculty and students. Jo Miller was 98.

Presidential Scholar finds purpose in preserving the planet

By John Moody

In every field—be it medicine, business, sports, the arts, etc.—someone has to lead the way. Emmi Chambers, while proud of a Redbird lineage that dates back three generations, has charted her own precedent-setting path as the first Illinois State University student to com-



mit to the curriculum of the new environmental systems science and sustainability (ESSS) major. As she graduates, she is making another bit of history as a member of the University's first cohort of ESSS graduates.

Starting out, her major wasn't a sure thing until she visited the Department of Geography, Geology, and the Environment. It was there that she met Dr. Dagmar Budikova, professor and chair, and Jill Thomas, geography academic advisor.

"They told me about this new degree program in environmental systems sciences and sustainability," Chambers said. "I was a general geography major for the first two years, and then my junior year it became my major. It's been really, really awesome. I've done some cool things."

Safe to say it's been an active four years for Chambers. She has served as vice president of the Geography Club, where she volunteered for a number of environmental projects. She mentored fellow students in the Study Abroad Mentor Program and volunteered at the

Horticulture Center. When all is said and done, she will also have earned two minors: economics and geography. But, it was a campus internship that may have brought the most satisfaction.

"I interned at the Office of Sustainability last summer in 2020 and worked on the task force that is developing a sustainability strategic plan," Chambers said. "It's really cool helping make ISU become more sustainable; that's meant so much to me."

A Presidential Scholar, she's been honored as the commencement student speaker for the College of Arts and Sciences

after being recommended by Associate Professor of Geography Dr. Matthew Himley. Chambers had been his student and his teaching assistant, and he had mentored her and knew well the quality of her work.

"Emmi is a really phenomenal student," Himley said. "She's an excellent representative for the Department of Geography, Geology, and the Environment, and especially for our new major in environmental systems sciences and sustainability."

Himley offered congratulations on behalf of his colleagues.

"We in the Department of Geography, Geology, and the Environment couldn't be more proud of Emmi," he said. "We wish her all the best in her postgraduate career, and we know she will go on to do interesting and important work."

Chambers' career interests include water resource conservation, sustainable agriculture, and environmental justice. She hopes to do work that helps protect the environment by taking on climate change's effects on humans and ecosys-

tems. Her plans include eventually attending graduate school but not before gaining some professional experience.

"Working will help define what I want to do, so when I do go to grad school I'll be researching a topic I'm passionate about," she said. "I'd like to combine environmental and social issues that help people and the planet. I want to combine social sciences and environmental sciences."

Her interest in the planet was sparked at an early age tagging along to work with her mother, Jessica Chambers '93, director of Illinois State's Horticulture Center. The Chambers kids—Emmi and two younger brothers, Dylan, a sophomore at Illinois State and Johnny, a sophomore at U-High—spent a lot of quality time outdoors at Mom's work.

"It was great, and it's where my passion for the environment comes from," Emmi Chambers said.

In addition to her mother, the family Redbird legacy includes two grandmothers: Maria (Sparks) Roberts Ph.D. '81; and Wilma Chambers M.S. '94; and great-grandmother, Joanna Sparks '67, M.S. '76.

"It means so much to be following in the footsteps of my mom, both my grandmothers, and one of my great-grandmothers," Chambers said. "I've looked up to these women all my life. They graduated from ISU and went on to do amazing things. I'm honored to follow their legacies."

Growing up in Normal attending Metcalf and U-High adds up to 11 years of education at Illinois State. Chambers said she will miss it and never forget the dedication of her professors. She feels a deep connection to the place where she said she's grown so much.

"I have loved my time at ISU," she said. "In many ways, it was my home long before I started as a student here four years ago, and I'm so sad to leave now. Leaving is absolutely bittersweet, but ISU will always have an important place in my heart."

Congratulations, **GRADUATES!**

ESSS

Emmilene Chambers
Kristen Ohls
Jamie Willis

Geography

Jessica Abdelnour
Matthew Adelman
Adam Adrian
Jade Allen
Eduardo Amador
Dallas Askins
Olivia Bachtold
Tom Berard
Rebekah Bollin
Anna Bukowska
Jacob Burton
Sara Chamberlin
Logan Chapman
Dawson Council
Landon Council
Zachary Cranston
Nicole Derf
Bailey Estell
Luke Gallagher

Justin George
Joshua Gifford
Sydney Hamilton
Alan Haney
Seth Hardin
Sean Hopkins
Brian Hunt
William Jacobson
Shaun Johnson
Jack Kowalis
Hailey Machnikowski
Molly Mahoney
Leslie Mason
Jaime Merdinger
Grace Metz
Timothy Moore
Christian O'Connell
Trevor Partin
Nicolas Plaza
Patrick Rice
Colin Ringle
Emily Ryan
Aaron Sanders
Abigail Shaver
Max Smith

Ethan Stoneburner
Andrew Tondini
Taylor Udarbe
Matthew Vetter
Alexandra Wilson
Luke Wolter
Scott Zajac

Geology

Allison Beckett
Ryan Bessen
Kaitlyn Dooley
Victoria Edelman
Jacqueline Epperson
Marina Franco
Matthew Garee
Zachary Grosch
Grace Hill
Katarina Kaplarevic
Danika Mayback
Matthew Nemsick
Jarod Przybylski
Steven Racutt
Evan Ricchio-Hitchcock
Maria Rojo

Michael Rudolph
Ethan Schneider
Peter von Bun
Bryan Wahls
Leah Watters
Peter Welsh
Steven Young

Hydrogeology

Gare Ambrose-Igho
William Andrews
Dawit Asfaw
Jeremy Babin
Patience Bosompemaa
Ethan Conley
Abigail Heath
Preston Konop
Caitlin Noseworthy
Geno Persico
Elijah Schukow
Grace Sieggreen
Emmett Spooner
Tewodros Tilahun
Osahon Ukpebor
Jack Wassik

Geology students conduct summer research in Iceland after receiving university funding

By Dr. Tenley Banik

Current fourth-year geology students Riley Cox and Cameron Essex both received \$5,000 through Illinois State's Undergraduate Research Support Program to conduct research projects based in Iceland with Dr. Tenley Banik during summer 2021. Over nine days in Iceland in July, the group travelled over 1,300 miles, almost circumnavigated the island, and experienced unusually warm and dry field work conditions. Both students' projects are broadly related to understanding how silicic magmas form in Iceland.

Cox's project, "Investigation of Oxygen Isotopes in Icelandic Rocks to Uncover Continent-Forming Processes," required sampling of hyaloclastites from



Cameron Essex visits pingmúli volcano in Iceland.



Riley Cox takes notes on a hyaloclastite outcrop in south Iceland.

Continued on page 10

across Iceland. These rocks result from volcanic eruptions under ice and only appear in the geologic record in Iceland ~3 mya, coincident with the onset of major Northern Hemisphere glaciation. Cox will use the hyaloclastites' oxygen isotope compositions to assess whether later incorporation of hyaloclastite during crustal melting could be a factor in ultimately forming rhyolite magmas.

Essex's project, "Understanding Magma Formation at Þingmúli volcano, Iceland," delves into the history of a well-studied ~9 mya volcano in eastern Iceland with abundant rock data, but no zircon data. The objective of this

study is to examine the isotopic characteristics of zircons extracted from Þingmúli rocks to determine if the zircon crystals corroborate the role of fractional crystallization as the primary mechanism magma production that the existing rock data support.

Analytical work for both projects is pending, and students hope to present their findings in spring 2022.



Enjoying the mountaintop halfway through a 12-mile roundtrip sampling excursion in eastern Iceland.

Internship experience

Students majoring in geography and environmental systems science and sustainability complete a required professional internship experience prior to graduation. Following are stories from three interns who completed their practice during the past year.

Drew Schmidt

Hello all! My name is Drew Schmidt, and I am currently a senior geography social science education major, with a minor in environmental studies. As a



Drew Schmidt teaches an environmental education program designed to explore plant species and their position on landscapes during a rainy day in Schuyler County, Illinois.

student and future teacher, my passion lies in learning and spreading information and interest in environmental issues in addition to teaching students about the wider social and environmental context they live in. During the summer of 2021, I utilized the Department of Geography, Geology, and the Environ-

ment's internship program to hone and practice my skills as an educator, specifically relating to environmental education. My summer internship was conducted through Peace of Earth Lodge and Environmental Learning Center, located in the woods and hollows of west Central Illinois.

During the summer, I worked closely with two veterans of environmental education and conservation work, Tim and Pat Sullivan, who own and operate Peace of Earth. I spent the early weeks of my internship removing two aggressive invasive plant species—bush honeysuckles and garlic mustard—from the beautiful woodland found in west Central Illinois. I also worked extensively on an organic farming operation, tending to plants, removing pests, and producing organic compost. Some of the more physical aspects of my summer internship included an erosion control/walking path project, and hiking trail maintenance work.

My internship also allowed me to employ many of the skills I gained at ISU in practice. With a guiding hand from Pat, I planned, advertised, and conducted an environmental education program which was open to the public and focused on topography and plant life on the west Central Illinois landscape. This program accessed many of the skills I have learned through teaching classes at ISU, including lesson planning, material preparation, presentation

skills, and effective teaching methods. Additionally, I relied on knowledge gained from departmental classes to



Drew Schmidt poses with internship supervisors Pat and Tim Sullivan, owners and operators of Peace of Earth Lodge and Environmental Learning Center.

teach others to read the landscape through custom topographic maps.

This summer was a wonderful and valuable experience, and I would encourage others to make the most of their internship opportunities. I learned a lot and was able to put my skills to use in the field.

Alyssa Siebers

Hi all, my name is Alyssa Siebers and I'm a senior environmental systems, science, and sustainability major. This summer, I had the opportunity to complete an internship in North Carolina's beautiful Outer Banks.

I participated in an eight-week Research Experience for Undergraduates (REU) internship, funded by the



National Science Foundation, in which I was one of 10 interns chosen for the REU's first-ever program. We lived in a guesthouse in

the quiet and quaint town of Manteo on Roanoke Island, just 10 minutes away from the Outer Banks' tourism hub. We studied at the Coastal Studies Institute also located on the island, enjoying the diverse landscape surrounding the campus as well as the sustainably crafted building and all it had to offer.

Collectively, we were mentored by professors from either Eastern Carolina University, Clemson University, or the University of Puerto Rico at Arecibo. We were each given a project created by our mentor(s) that allowed us to assess the ways in which North Carolina's coast is vulnerable or resilient to climate change. I had the privilege of working with Dr. Rebecca Asch, head of Asch Fisheries Oceanography Lab at Eastern Carolina University, where we worked together analyzing fishery data. My project specifically focused on evaluating whether two commercially important fish species were being drastically impacted by increasingly intense hurricanes affecting the United States' coastal waters. We found that one species was more resilient to hurricanes, whereas the other species' health and landings decreased following hurricanes.

My mentor and I are planning to expand this research to include many more fish species native to eastern coastal waters so that we can better assess the health of fisheries and help to protect the fishing industry from further exploitation.

Krystina Wayne

My name is Krystina Wayne, I am a senior geography major pursuing my GIS certificate, and environmental studies minor at Illinois State University. This past summer, I had the opportunity to intern with the Village of Romeoville GIS Department.

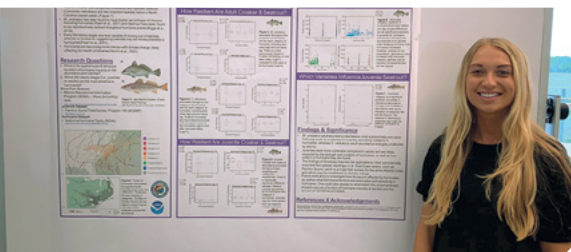
My experience as a GIS intern was helpful in preparing me for a career in geography. I spent most of my days out in the field with the public works department, locating b-boxes (Buffalo-type valve boxes) in town using an ArcGIS Collector and cartography.



Every day, we would go to a different neighborhood to collect the location of each b-box for every home or business. Over the course of the summer, I took GPS locations for over 1,000 b-boxes in town. Collecting this information for the public works department enabled them to create a database for each homeowner to identify their b-box, its location, and the material it's made of. This information was also needed for the public works department to locate the b-box when it is covered in vegetation or snow. Throughout the summer, I paid attention to the life skills that the water department employees shared with me through their stories.

The summer prior, I had the opportunity to intern with the Federal Emergency Management Agency (FEMA) Region 5. Through this internship, I was able to work with a team of GIS professionals to assist in disaster relief and mitigation. I spent most of the summer creating active disaster maps for Michigan during the heavy rain season. I listened to the projects that the GIS team was working on, such as creating a disaster plan of action for the Democratic National Convention.

I am grateful for my time with both the Village of Romeoville and FEMA. I feel prepared and excited to graduate in spring 2022 and bring along my experiences.



Alyssa Siebers presents her final poster during her internship's research symposium.



GEOGRAPHY SCHOLARSHIPS

Scholarship and Awards

Louis Miglio Scholarship

Rebecca Brangard
Sam Kupitz
Katelyn Sculthorp
Joseph Smith

Henry O. Lathrop & Arthur Watterson Memorial Award

Jessica Abdelnour
Matthew Huisman

George R. Means Geography Scholarship

Rachel Cantin
Luke Gallagher
Ryan Hogan
Zach Mueller

Margaret Means Endowment Stipend

Drew Schmidt

Eunice Blackburn Scholarship

Alex Olson

Excellence in Environmental Sustainability Award

Mary Bonomo
Sara Schelinski
Alyssa Siebers
Madison Steines

Joseph Fluder Excellence in Geography Award

Francesca Lewis
Drew Schmidt

Gamma Theta Upsilon

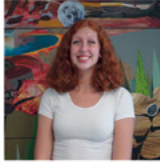
Axel Baumeister
Luke Gallagher
Krystina Wayne

Every year, the Geology and Hydrogeology Programs present student awards that reflect the characteristics we value in our programs. These values include being engaged in department activities, helping each other, working hard, valuing teaching, and excelling in research.

Announcing the Third Annual
**2020–2021 Geology & Hydrogeology
Award Winners**

**Trilobite Award:
Piper Thibeault**

To a first-year undergraduate student who has been trying hard and getting engaged in geology program activities.



**Lathrop-Watterson
Award: Matthew
Huisman**

To a second-year undergraduate student with outstanding academic achievement.



**Granite UTA Award:
Kyle True**

Given to an undergraduate student who has excelled in teaching and mentoring students and supporting the mission of teaching at ISU.



**Granite GTA Award:
Geno Persico**

Given to a graduate student who has excelled in teaching and mentoring students and supporting ISU's mission of teaching.



Miglio Award:

Rebecca Knarr and Katie Sculthorpe

To support promising ESSE majors as they student teach.



**Gold Star Award:
Aidan Krieger**

Given to an undergraduate student who has been involved in high-level research activities, including presenting at a national conference.



**Gneiss Person:
Riley Cox**

Given to an undergraduate student who is engaged in department activities, helps other students, and is overall a nice and positive person.



Gneiss Person:

Dawit Asfaw and Jerry Komar

These graduate students are engaged in department activities, help other students, and are overall nice and positive people.



Research Initiative Award:

Jake Riedel and Alhassan Sahad

For a promising research direction after the first year of graduate work.



**Research Achievement
Award: Caitlin
Noseworthy**

Given to a graduating M.S. student with a demonstrated ability to conduct impactful, high-quality research.



**Titanium Award:
Eli Schukow**

Given to an undergraduate or graduate student who has a solid work ethic, is fully committed, and just keeps going.





Dr. David Malone's GEO 290 students enjoying the annual trip to Baraboo and Devil's Lake, Wisconsin.

New scholarship opportunities introduced

By Dagmar Budikova

In 2020 the department introduced the Michael D. and Patricia A. Sublett Geography Professional Development Awards in support of professional development of students majoring in our geography programs. Four students received these awards in 2020-2021. This year, we are proud to announce similar opportunities for those majoring in the earth space science education and the environmental systems science and sustainability programs. These awards have been made possible through the generous gifts we received from two anonymous donors. Similar to the Sublett Awards, the purpose of these funds is to provide critical assistance for students facing financial hardship to ensure their ability to remain engaged in their studies and progress toward graduation. Each student may request up to \$500 per year. The Sublett family moved to

Bloomington-Normal in August 1970. Geographer Dr. Michael Sublett served as a professor in what was then the Department of Geography-Geology between 1970 and 2015. From 1978 to 1988, Sublett chaired the department. Patricia Sublett managed the University Registration Office from 1971 until 1978. Michael developed and implemented the Geography Internship Program in 1985 that geography majors complete prior to graduation to this day. Dr. Sublett also oversaw the publishing of the first 40 volumes of this yearbook, *Glacial Deposits*. The awards remain a testament

to the continued commitment of our donors to the success of our students and programs.



Kezon, Strobe are this year's Alumni Day honorees

By John Moody

One of the great traditions of Homecoming Week at Illinois State University is honoring the achievements of alumni on Alumni Day, which took place October 15. The Department of Geography, Geology, and the Environment paid tribute to two of its own by honoring Joseph Kezon '83 and Shane A. Strobe '08, M.S. '10.

"We could not be more proud of Joseph's and Shane's accomplishments and are grateful for their continued friendship, support, and the thoughtful mentorship they offer our students," said Department Chair Dr. Dagmar Budikova.

Joseph Kezon

Joseph Kezon works as Geographic Information Systems manager in the Office of Public Safety Administration for the city of Chicago, a position he's held since 2001.



Kezon, who earned a bachelor's degree in geography and a minor in geology, said his studies at Illinois State provided him with the basic

knowledge and tools of cartographic and remote sensing techniques. In addition, he experienced working in team environments to accomplish group projects. He also recalls the lasting influence of two faculty members.

"I became friends with professors John Foster and George Aspbury," Kezon said. "They were my mentors, and lifelong friendships were established over the years."

Kezon said Foster pushed him to complete his geology minor after receiving an A in Foster's hydrogeology class. Kezon worked with Foster on research, and the two became friends during that time. Aspbury encouraged Kezon to pursue the technical side of geography and was a great influence on setting the course for his career.

"After graduating from ISU, I

stayed in touch with both of these men," Kezon said. "I made it a point to stop in and visit with them several times a year, so we could keep up on our careers and life in general."

Kezon's work is complex and important as he is in charge of the GIS systems, databases, and websites for Chicago's police and fire departments, 911, and Emergency Management.

"Every day brings something new, and I look forward to providing useful informational products to my clients," Kezon said.

A Chicago native, Kezon has held a number of positions in several of the city's many agencies, including the Office of Emergency Communications, Business Information Systems, and the Chicago Police Department. He's had the honor of receiving the Special Achievement Award from the Environmental Systems Research Institute for his work on spatially enabling the police department's records management systems. He's also been a presenter at several international GIS conferences over the years, most notably in Melbourne, Australia; Panama City, Panama; and Abu Dhabi, United Arab Emirates. In addition, Kezon currently serves as treasurer and board member of the Geographic Society of Chicago.

Here's the best part of his job: "I have been in GIS for over 37 years now, and I am still learning new things."

Shane Strobe

Shane Strobe credits her Illinois State education with opening the door to her career.

"My time at ISU gave me the keys to enter the 'kingdom,'" Strobe said of her career path. "Without the degree, you won't get far in this industry."

A professional geologist licensed in Missouri, Kansas, and Utah, Strobe has done work for iconic industry brand names like ConocoPhillips, BP Oil, and Shell Gas. There's more to her work than looking at rocks, with about 80 percent of her time spent interpreting and communicating technical results

through reporting. Illinois State prepared her well for that aspect of the job.



"The most valuable classes I took—and what I use the most in this industry—were technical writing and statistics," she said. "If you

can't communicate results to laymen, you won't be very successful in any science field."

Strobe didn't begin her academic career until age 35 but found her path quickly and earned two Illinois State degrees: a bachelor's in geology and a master's in hydrogeology. She proved to be a good student, with her thesis on Midwest flooding being published in two peer-reviewed journals. A Pekin native, Strobe thought science would be the right fit for her so she loaded up on electives at a community college and found her way to geology.

"I was working full time waiting tables, tending bar, going to school full time, and raising a teenage son as a single mom," Strobe said. "I arbitrarily signed up for an intro to geology course and instantly fell in love."

Despite the challenges, she didn't let circumstances hold her back. At Illinois State, she found a personal touch from professors who genuinely cared about her future. The most influential was Budikova, who also serves as a professor.

"She was my advisor, mentor, and still my great friend," Strobe said. "Without her guidance and support I wouldn't be what I am today. She gave me some of the best professional advice I've ever gotten. I will be forever in her debt."

Strobe's message to current students is to remember the world is not perfect and to make the most of opportunities that come along.

"I consider my time at Illinois State as some of my best years and among the most important accomplishments of my life," she said.

2020-2021 Donors

THANK YOU!

Gifts were received between August 1, 2020 and November 30, 2021

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For more information, visit
Homecoming.IllinoisState.edu



View to the north of the hanging wall of the Clear Creek Thrust east of Buffalo, Wyoming.



Allison Beckett and Liam Eades describe the Cambrian Gallatin Formation at Steamboat Point.



Danika Mayback and Matt Nemsick map the Jurassic Sundance Formation near the South Fork Shoshone River.

Return to field camp

By Dr. David Malone

After running the Illinois State University Geology Field Camp annually for 50 years, we were unable to go in 2020 due to COVID restrictions. We are pleased to report that Field Camp 2021 was successfully completed because of the commitment of the ISU administration, faculty, staff, and students.

COVID restrictions kept the Mickelson Field Station and Black Hills State University facilities closed in 2021, so we based the entire, abbreviated four-week camp out of Sheridan College. Our traditional Stratigraphy field problem and the Amsden Creek and Steerhead mapping projects were still part of the curriculum, and we took two, four-day trips to the Absarokas to complete the Heart Mountain and



Jackie Epperson and Connor Chambers measure the Cambrian Flathead Sandstone at Steamboat Point.

South Fork mapping projects, returning to Sheridan at the conclusion of each to draft. We were unable to complete the mapping project at Rochford, but we did make several stops in the Black Hills Precambrian by Nemo and Rochford on our way to and from Wyoming. The field camp student roster included 17 ISU students.

In the field with students as the world shut down

By Dr. RJ Rowley

There were certainly signs as we departed in early March 2020 for our nine-day field trip to study historical and cultural landscapes in west Texas and southern New Mexico. We took necessary precautions to avoid crowded areas—not all

that difficult in this part of the country, plus we were camping the majority of our nights away from population centers. We paid close attention to news about this new coronavirus that had crept into a few parts of the country by

Although we had to deal with some hot temperatures, our students this year made the most of their experience. They kept a positive attitude, maintained COVID protocols, and performed as well as any group ever has. The planning for Field Camp 2022 is already underway, and I am looking forward to my 30th year of teaching it.

that time. To complicate matters further, no one really knew what this thing would become and how it would impact all of us. But, looking back 18 months later, I feel extremely fortunate to have spent a few days with a great group of

geographers-in-training learning about the meaning and impact of places and landscapes as the world sat on the cusp of immense change.

After traveling by van to this region, we spent two excellent days doing our class work. We studied border landscapes in El Paso, Texas. We connected with a geography alum who now lives in that city. We experienced indigenous sacred sites at Hueco Tanks. And, we observed characteristics of place identity in Dell City, Texas, and Carlsbad, New Mexico. It was around this time that the portents of change became wildly apparent. As we relaxed in Brantley Lake State Park after a long day of hiking in Carlsbad Caverns, the messages were flooding our phones: department emails asking faculty to think of contingencies given various scenarios of quarantine, canceled classes, and even the possibility of moving to remote instruction; news of other universities closing campuses and moving fully online; rumors from friends that ISU was closing, prompting students to ask me, "What happens if GIS goes online?" The next day, as we explored the weirdness that is Roswell, New Mexico, and the legacy of Billy the Kid in nearby Lincoln, ISU announced that spring break would be extended one week. Following that, we would go to remote instruction for the time being, "depending on evolving circumstances," President Larry Dietz had written.

Circumstances evolved. My students made plans for what they would do with an extra week of spring break, bonus days of fun that became impossible to even consider two days later when

the scope of the COVID crisis began to reveal itself. I made plans in my head for what my GIS class would look like with online delivery. In consultation with my students and other faculty leaders, however, we continued with our travels and our studies for this field class. Not knowing what to expect of what was supposed to be four more days before heading home—but knowing that circumstances would most certainly continue to evolve—I made changes to the itinerary. We were still able to visit a historical military camp at Fort Stanton, a mountain resort community in Ruidoso, a reservation on Mescalero Apache lands, and the unique natural and cultural landscapes in and around the Tularosa Basin at White Sands National Park, Cloudcroft, and Alamogordo (including the world's largest pistachio sculpture just north of that city).

As we pulled into our campground at Oliver Lee Memorial State Park on Thursday evening, we were greeted by a haunting indicator of just how much circumstances had evolved. "Campground will close as of tomorrow morning," read a sign at the entrance to the park. I once again adjusted and let the students know we would begin our drive home starting the following morning, foregoing an opportunity to see a ghost town near Magdalena, the Very Large Array made famous in the movie Contact, and Albuquerque. The students, of course, understood. We could all feel the need to go home and had a palpable sense of something unknown, scary and significant on the horizon.

We drove straight for two days. The mood in the van was mostly quiet, although we all smiled as we realized our alternate route home took us through the town of Corona, New Mexico, a geographic coincidence that wasn't lost on any of us. Our stops for gas and food deepened the unease. The looks on people's faces that we met at truck stops and restaurants told me that others were feeling it too. I had moved up our hotel stay in Oklahoma City to one day earlier, and when we arrived, the place felt like the ghost town we missed in New Mexico. Everyone had canceled reservations, the attendant told me. On our final leg of the trip through Route



Dr. RJ Rowley and several geography students stand atop an overlook on the Dog Canyon Trail in Oliver Lee Memorial State Park.

66 country in Missouri, I was once more struck with the urgency of the quickly evolving COVID situation, as two international students in the class realized that they would need to fly home to the U.K. the following day or risk being stuck in the U.S. for an undetermined amount of time. They made it home safe and sound, as did the rest of us.

Our final night camping in New Mexico has stuck in my brain this past 18 months. The group took a short walk up Dog Canyon, enjoying its isolated protection as we wandered through the riparian vegetation surrounding the arroyo. A few of us took a longer hike part way up the Dog Canyon trail to an overlook high above the Tularosa Basin. I could see the worry and fatigue in the faces of my students. But, I could also see that each of us recognized that, even for a few minutes, we stood apart from all that was changing. For that one, singular moment, the stress and worry about this constantly evolving situation and the accompanying fear of an unknown future seemed to dissipate into the blanket of clouds that overshadowed the valley. From this vantage there were no troubles down below, and we felt a quiet peace. As I think back on that week, it is this moment that I remember most.

In fact, in the weeks that followed, as I felt the intense weight of health, family, job, and personal pressures brought on by the pandemic, I often reflected on that moment in the desert with 10 geography students. I continue to hold on to the peace and serenity that overpowered the feeling that the world seemed to be spinning into total chaos.



Geography students from Dr. RJ Rowley's Spring 2020 New Mexico/West Texas course pose for a group photo in White Sands National Park.

