

JULY 2023

SPRING 2023

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GEOG

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Cover Photo: Jim Murphy in Chile, Summer 2023



WELCOME

A NOTE FROM GSG DIRECTOR JAMES MCCARTHY

Dear Geography Friends,

Greetings! I hope this finds you well and enjoying the start of the summer. I completed my term as Director on May 31, and want to take this last note to reflect on some of the major milestones and events of the past three years, and particularly the arc from the worst days of covid to the large, joyful, and very much in-person celebration of the GSG's centennial this April.

I began my term as Director on June 1, 2020, during what was in many years the worst period of the pandemic: we were working largely remotely, vaccines had not yet been developed, and we had no idea how long that state of affairs might continue. On top of that, two of the three staff positions in the department were vacant, and we had admitted a much smaller PhD cohort than usual given the budget effects and myriad uncertainties of the pandemic. Those long months of Zoom meetings and classes tested the communal relationships and dynamics so core to the GSG.

I am extremely grateful that Brenda Nikas-Hayes agreed to rejoin the department as the Department Administrator and Assistant to the Director early in my tenure as director: her knowledge of the GSG and of Clark, and relationships across both, were essential in enabling us to work successfully during the first year of the pandemic in particular. Brenda is retiring this summer, after three years in her current position and well over a decade with Clark and the GSG in multiple roles, and we wish her all the best in retirement. Brenda regards the GSG community as extended family, and as she steps out of her full-time role we say not goodbye, but until we see each other again.

Along with Brenda, I want to extend my deepest thanks to the other staff members in the department during my time as director: Beth Nugent, who calmly kept the department running as the sole staff member early in the pandemic despite being new to the GSG, and Yaa Poku and Aidan Giasson, who joined us in 2021 as the new Administrator of Degree Programs and Office Coordinator, respectively. Staff are critical to the everyday running of the GSG, and the energy, dedication, and insights as Clark alumnae that Yaa and Aidan have brought to the department have been transformative.

On the faculty side, I want to thank first Karen Frey, and then Mark Davidson, for serving as Associate Director during my tenure. I relied heavily on both for their experience, counsel, and willingness to take on additional work. I am also extremely pleased that, the challenges of the pandemic notwithstanding, we were able to hire five superb new faculty members over the past three years: Abby Frazier, who bravely joined us from Hawaii after a 'campus' interview conducted entirely over Zoom; Gustavo Oliveira and Max Ritts, who have brought our historic strength in human-environment geography up to the present in important ways; Hamed Alemohammad, who joined us as a faculty member complementing his role as the Director of the new Center for Geospa-

tial Analytics; and finally, Siobhán McGrath, an economic geographer who will be moving Durham University to join us as of this August.

The past few years have been eventful ones for our graduate students as well, with far too many individual grants, graduations, journal articles, and jobs to list here. The impacts of covid on graduate students were many and varied, ranging from truncated fieldwork and the need to revisit research designs, to limitations on crossing international borders for either work or family reasons. Two half-sized incoming Ph.D. cohorts, due in various ways to covid, have been felt in our seminar rooms, TA and RA lineups, and the Mezz. Thankfully, this fall's incoming cohort will start to restore the program to its historic size. To their great credit and as part of a national trend, the graduate students at Clark (with very significant leadership from within Geography) unionized, went on strike, and won a collective bargaining agreement with the university, all over the course of 2022. While we are all still learning how to work within the new framework, I am pleased and proud that they put their ideas into action and won a substantial, and long overdue, increase in their stipends and benefits.

Finally, we were able to celebrate the **100th anniversary of the founding of the Graduate School of Geography** at Clark – which officially occurred in 2021 – this April. It was a wonderful event with over 200 people in attendance, appreciated all the more after the deprivations of covid, and we were able to celebrate the truly incredible history of the GSG and its faculty and alumni over the past century in person from April 13-15. **Professor Kendra McSweeney** started things off with the Atwood Lecture on April 13, followed by two full days of panels, field trips, socializing, and a keynote address by **Professor Mona Domosh** that drew upon her experiences as a B.A., M.A., and Ph.D. graduate of Clark, a trustee of the University, a geography professor at Dartmouth College, and past president of the American Association of Geographers. I, and I think most in attendance, learned a great deal about the history of the GSG over the course of the event that made us even prouder to be part of the Graduate School of Geography at Clark. A particular high point was the announcement of the new **Roger E. Kasperson Graduate Fellowship in Geography**, created with a founding gift from **Professor Bonnie Ram**, which will honor the legacy of a major figure in the history of both the GSG and the field. I want to particularly thank President Fithian and Provost Royo, Sheri Davis from the President's office, the Geography staff, and our deeply engaged alumni – especially Alan Sharaf, Bret Halverson, Bonnie Ram, and Mona Domosh – for their many contributions to making the event a success. Pictures and links are available elsewhere in this newsletter.

I wish you all happy, restful, and productive summers.

—James McCarthy, Director

Leo L. and Joan Kraft Laskoff Professor of Economics, Technology and Environment

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Aerial view of an Arizona forest under restoration by The Nature Conservancy



CLIMATE CHANGE CURBING WESTERN FORESTS' ABILITY TO RECOVER FROM FIRES, SCIENTISTS FIND

Geography Professor Dominik Kulakowski co-authors study in PNAS

FROM [CLARKNOW](#), BY CLARK NEWS AND MEDIA RELATIONS

Warmer and drier climate conditions in western U.S. forests are making it less likely that trees can regenerate after wildfires, according to research published in the [Proceedings of the National Academy of Sciences \(PNAS\)](#) by a team including Dominik Kulakowski, a Clark University professor of geography and environmental science.

"Climate change is threatening forests globally not only by increasing fires and other disturbances, but also by creating climatic conditions under which some forests are not regenerating well," says Kulakowski, a co-author of the PNAS article, "Reduced Fire Severity Offers Near-Term Buffer to Climate-Driven Declines in Conifer Resilience Across the Western United States."

"Sometimes, inhibited regeneration can lead to different types of forests, and other times it can lead to ecological collapse with serious and dangerous consequences for ecosystem services that affect human wellbeing," he adds.

Forests are adapted to different types of fire across the West, but hotter and drier conditions in recent decades have intensified the way fires burn, resulting in more trees being killed. All of this can result in fewer seeds available for forests to regenerate after wildfires. Even when seeds are available, a warming climate is increasingly limiting the chances that seedlings can establish and grow.

"Climate change increasingly limits tree establishment after wildfires because seedlings can be killed by hot temperatures and dry conditions," says the study's lead author, Kim Davis, who completed the study at the University of Montana, and is now a research ecologist for the Forest Service at the Missoula Fire Sciences Laboratory.

The research also found that ecologically based forest management can partially offset climate-driven declines in tree regeneration by limiting fire-caused tree death, but only if action is taken quickly. This study provides timely information to optimize new state and federal initiatives to increase the pace of ecologically based forest management across millions of acres of Western forests.

Funding for the project was provided by [The Nature Conservancy](#), with additional support from the U.S. Department of the Interior, [North Central](#)



[Climate Adaptation Science Center](#), and the United States Geological Survey.

NEWLY RELEASED RESEARCH PREDICTS THE GREENING OF THE ARCTIC

Clark polar scientist is a lead author on 2022 Arctic Report Card

FROM [CLARK NOW](#), BY CLARK NEWS AND MEDIA RELATIONS

Clark University polar scientist Karen Frey understands that when people think of the Arctic, they typically envision "a really desolate, cold, white place." But a new report to which she has contributed predicts a warmer, wetter, stormier, and greener Arctic than previously imagined.

Frey is a lead author of the 17th annual Arctic Report Card, released Dec. 13 by the [National Oceanographic and Atmospheric Administration \(NOAA\)](#) at the American Geophysical Union in Chicago. The yearly report provides a detailed picture of how climate change is causing the once reliably frozen, snow-covered region to warm faster than any other part of the world and lists climate-driven events that have impacted the region this year, including a typhoon, smoke from wildfires, and increasing rain.

One of 147 scientists from 11 nations who contributed to this year's report, Frey is lead author of "Arctic Ocean Primary Productivity," a chapter she's led each time it has been included in the Arctic Report Card, dating back to 2011. The chapter focuses on phytoplankton — microscopic marine algae in Arctic Ocean seawaters, sometimes known as "the forests of the sea."

New to this year's report card are a chapter on precipitation and a comprehensive chapter about how dramatic environmental changes are felt by Arctic Indigenous people, and how their communities are addressing the changes.

Among the report's findings:

-Arctic annual air temperatures from October 2021 to September 2022 were the sixth warmest since 1900, continuing a decades-long trend in which Arctic air temperatures have warmed faster than the global average. The Arctic's seven warmest years since 1900 have been the last seven years.

-Arctic sea ice extent (coverage) was similar to 2021, and much lower than the long-term average. Multiyear ice extent, sea-ice thickness, and volume rebounded after a near-record low in 2021, but were still well-below conditions in the 1980s and 1990s, with older ice extremely rare.

-The Greenland Ice Sheet lost ice in 2022, the 25th consecutive year of ice loss. In September 2022, the Greenland ice sheet saw unprecedented late-season warming, creating surface melt conditions over 36% of the ice sheet

Karen Frey conducts research on board the Canadian vessel the Sir Wilfrid Laurier.

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on September 3, including the ice sheet's summit at 10,500 feet.

Another key finding, detailed in Frey's Arctic Report Card chapter, is that "much of the Arctic continued to show increased ocean phytoplankton blooms in 2022, as has occurred over the 2003-2022 satellite observation period.

Summer storms in 2022 in the Bering Sea may have been responsible for higher-than-average phytoplankton blooms due to increased vertical mixing of nutrients from deeper ocean waters to the surface."

Why should we care about these blooms? According to Frey, when the sea ice breaks up in the spring and reforms again in the autumn, it impacts photosynthesis in the ocean, which in turn, impacts the entire marine food chain.

Frey has recently been tracking the spread of poisonous algal blooms that pose a threat to sea life.

Watch [this video](#) on Karen Frey conducting research in the Arctic.

TONY BEBBINGTON AWARDED AND APPOINTED

The 2023 Martin Diskin Memorial Lectureship by The Latin American Studies Association was awarded to Professor Tony Bebbington.

Taken from the LASA website: "Dr. Martin Diskin was a vital member of the Latin American Studies Association and of Oxfam America. His passion towards the human rights movement and his guidance over grantmaking in Latin America proved to be invaluable. He was fervent about supporting justice and openly criticized the US foreign policy in Central America and Cuba. He demonstrated the value of being informed and strategic advocates. The Memorial Lectureship award is given to an outstanding individual who embodies Professor Martin Diskin's commitment to the combination of activism and scholarship."

In addition to the award, Tony Bebbington was appointed to the International Advisory Board of the Global Development Institute of the University of Manchester.

SOUNDING A WARNING

Clark geographer uses acoustics to confront environmental, political challenges

FROM CLARKNOW, [CHALLENGE. CHANGE. PODCAST](#), BY MELISSA HANSON

Geography Professor Max Ritts has listened to whale song on the north coast of British Columbia, using the sound to document species abundance and protect the area from the shipping industry. He's gone behind the scenes with an indigenous heavy metal band, which used lyrics to address social, environmental, and political concerns in their community. Ritts discovered that acoustics are an avenue to research the areas that interest him most, such as capitalism, colonialism, social rights, social justice, environmental rights, and environmental justice.

"Sound is a gateway into those issues," he says. "The prevail-

ing political concern that I have as a geographer is indigenous rights and indigenous justice, and how we can use unusual tools and processes to think about those relationships."

Listen and subscribe on [Spotify](#) or [Apple Podcasts](#). This episode features music by the band Gyibaaw. Ritts recommends "[Earth Sound Earth Signal](#)" by Douglas Kahn and "[Aurality](#)" by Ana María Ochoa Gautier to anyone interested in exploring these topics.

RODENTS, RAINFOREST LOSS, AND DISEASE: IS THERE A CONNECTION?

Geographer Florencia Sangermano is mapping scenarios for rainforest destruction vs. restoration in Brazil

FROM [CLARK NOW](#), BY MEREDITH WOODWARD KING

Clark geographer Florencia Sangermano is working with collaborators in Brazil to examine how habitat and biodiversity loss in the rainforest could affect rodent populations, possibly leading to the transmission of infectious diseases to humans.

[Funded](#) by the National Science Foundation, the research team — Sangermano; Paula R. Prist of [EcoHealth Alliance](#); and Leandro Reverberi Tambosi of Federal University of ABC in Brazil — also is examining whether restoring the forest could improve "biodiversity networks" — the interconnected world of diverse plant and animal species — that, in turn, might benefit human health, explains Sangermano, assistant professor of geography.



The agouti is one of many rodents found in the Brazilian rainforest. Across the world, rodents "are the most diverse order of mammals, with 42% of the global mammal biodiversity [and] the most important hosts of infectious diseases," according to EcoHealth Alliance.

Working out of the Geospatial Conservation Lab in Clark's Graduate School of Geography, Sangermano is creating digital maps that indicate how land and rodent populations in the Brazilian Atlantic Forest — which lies east of the Amazon — could change over the next 10 years, leading to increased health risks for humans.

"Our hypothesis is that a degraded ecosystem will have more diversity of rodents that carry a larger number of viruses known to pass to humans," she says. "Now humans are moving to these areas where they can come into

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contact with these rodents.”

Scientists have continued to focus on “spillover risks” since the COVID-19 pandemic, which, according to some studies, [started with sickened animals](#).

“The COVID-19 outbreak has shown us firsthand what is at stake,” according to EcoHealth Alliance. “EHA’s [work in Brazil](#) is designed to prevent exactly this kind of pandemic.”

Fragmented landscapes such as that in the Atlantic Forest “are hotspots for human-animal contact and can affect pathogen transmission patterns,” the scientists point out. “In fact, land-use change can be linked to more than 40 percent of emerging infectious diseases.”



Professor Sangermano straps an audio recorder to a tree at Wachusett Meadow in Princeton.

In particular, the Atlantic Forest “hosts a large diversity of rodents, who are the “most

important hosts of infectious diseases worldwide,” they add.

Using satellite data to project changes in land cover and rodent populations, the scientists are examining whether any alterations — such as restoring habitats and increasing biodiversity — could lead to more positive outcomes, with fewer disease risks for humans.

“Healthy biodiversity systems,” Sangermano notes, “have healthy animals and, in turn, healthy humans.”

WHAT CAN BIRDS TELL US ABOUT THE HEALTH OF HABITATS?

National Academy of Sciences names Professor Sangermano as Kavli Fellow, recognizing her ecoacoustics research

FROM [CLARK NOW](#), BY MEREDITH WOODWARD KING

The National Academy of Sciences [selected Geography Professor Florencia Sangermano as a Kavli Fellow](#) — an honor bestowed upon young scientists who have made recognized

contributions to science. Of the more than 6,200 Kavli Fellows since 1989, 18 have been awarded the Nobel Prize, and 323 have been elected to the NAS.

Sangermano was one of 13 scientists presenting at the three-day Fifth Israeli-American Symposium, organized by the National Academy of Sciences and the Israel Academy of Science and Humanities, in Irvine, California, last October, and one of 185 scientists presenting at the five U.S. and international Kavli Frontiers of Science symposia in 2022.

“This was a wonderful opportunity,” Sangermano said. “There were only three presenters in each session, and we presented to an audience that included multiple disciplines, from physicists to neuroscientists, so there was communication across all the sciences.”

The NAS recognized Sangermano’s research employing acoustics to monitor the health of ecosystems in Central Massachusetts — research she plans to expand to other ecosystems, including Brazil’s 330-million-acre [Atlantic Forest](#), home to 2,200 species of birds, mammals, reptiles, and amphibians.

For several years, she has tracked the sounds of birds, humans, and weather — called a soundscape — using speakers set up at multiple ecosystems across Massachusetts, including Massachusetts state forests, Mass Audubon wildlife sanctuaries, and private lands. Part of her research was recently [published](#) in the journal *Landscape and Urban Planning*.

“When you go to the doctor, you get your blood pressure taken or they check your heartbeat. In the same way, we can listen to sounds of the ecosystem and evaluate the ecosystem’s health,” Sangermano explained in her [Kavli presentation](#), “Linking Landscapes to Soundscapes: Uncovering the Relationships between Acoustic Diversity, Habitat Structure and Anthropogenic Pressure.”

“The question that we want to ask is: How are all these things connected, and how does that relate to the sounds we are listening to?”

Sangermano graphs the frequency, amplitude, and length of time of the sounds, transforming them into images. Alongside satellite images showing the relationships among indices indicating the health of habitats, along with human activity, she paints a picture of which ecosystems might be threatened — and how.

In her research, she uses metrics related to habitat quality, indicating whether forests are connected to each other or have become fragmented due to the construction of housing, businesses, and roads; how much green vegetation exists; the percentage of tree cover; and human impacts from traffic and lights. Areas with less human activity, more connected forests, and more trees were related to increased bird activity, which indicates healthier habitats, Sangermano said.

“When you have higher vegetation productivity, you have more food and more birds,” she noted.

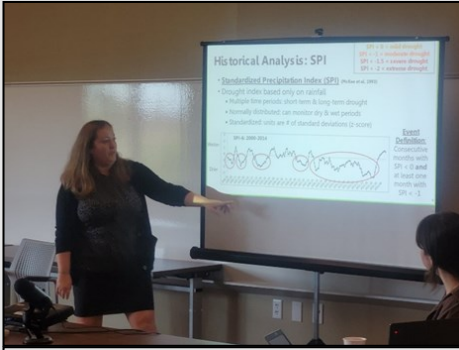
Indices depicting human activity indicate areas where backyards encroach upon woods, creating fragmented forests and spaces for bird predators like raccoons, foxes, larger birds, and pet cats; nighttime lights, which contribute to birds’ confusion over when to stop looking for food, bed down for the night, and conserve their energy; and traffic, which creates noise and keeps birds from communicating with each other about predators.

“As indicators of habitat quality, we can extrapolate them over space and create maps that indicate habitat quality over larger areas,” Sangermano explained in her symposium. “If we combine that information with the amount of change you have in an area, we can start making inferences about which areas we should prioritize for conservation.”

Sangermano is the second scientist from Clark University to be named a Kavli Fellow; Physics Professor Arshad Kudrolli was selected in 2003.

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GEOGRAPHY PROFESSOR ABBY FRAZIER HELPED LEAD A SERIES OF DROUGHT WORKSHOPS IN HAWAII



Prof. Abby Frazier presenting her drought research at the workshop on Maui.

FROM ABBY FRAZIER

In October, 2022. The four workshops, titled “Drought Monitoring and Knowledge Exchange” were held on four islands (Kauai, Oahu, Maui, and Hawaii Island) to engage the public and learn about drought monitoring tools and collaboration/ partnership

opportunities. The goals were to increase awareness of the US Drought Monitor, enhance drought monitoring and coordination, and build collaborations and encourage partnerships. Professor Abby Frazier presented on “Hawaii Drought Research and Resources” at all four workshops, and helped lead interactive discussions. The workshops were hosted by the National Drought Mitigation Center, USDA Southwest Climate Hub, Forest Service, Clark University, and East-West Center.

These workshops helped to highlight two new papers published by Professor Frazier in 2022 in the journal “Sustainability”:

“A Century of Drought in Hawai’i: Geospatial Analysis and Synthesis across Hydrological, Ecological, and Socioeconomic Scales” <https://doi.org/10.3390/su141912023>

“The Pacific Drought Knowledge Exchange: A Co-Production Approach to Deliver Climate Resources to User Groups” <https://doi.org/10.3390/su141710554>

The latter article belongs to the Special Issue: *Tropical Dry Forest Restoration in an Era of Global Change: Ecological and Social Dimensions*



The Pacific Drought Knowledge Exchange team on Kauai, including Abby Frazier (<https://www.soest.hawaii.edu/pdke/>).

DEFORESTATION IN THE AMAZON RAINFOREST: A BELLWETHER FOR HUMAN HEALTH

Protecting Indigenous lands can save \$2 billion in healthcare costs, Clark geographer's study shows

FROM [CLARKNOW](#), BY MEREDITH WOODWARD KING

If you’re wondering about future threats to human health, you might want to pay attention to what is happening to the Brazilian [Amazon](#), the world’s largest tropical rain forest and a hotspot of biodiversity, according to Florencia Sangermano, assistant professor of geography at Clark University.

Working with Paula R. Prist of [EcoHealth Alliance](#) and others, Sangermano is examining the links between deforestation and threats to human health. The researchers studied the effect of PM2.5 particulates — the fine particles — from forest fires on heart and respiratory diseases and the economic impact of these effects.

Over the past five decades, the Amazon has lost millions of acres of rainforest due to human activity, including forest fires used to clear the land for agriculture. These fires release noxious fumes containing fine particulate matter, which can lead to lung cancer, chronic bronchitis, stroke, and other serious health problems, Sangermano says.

Using 10 years of satellite data compiled and analyzed by Sangermano, the scientists discovered that the particulate matter can disperse over hundreds of miles, affecting people who live up to 310 miles away, according to their [study](#) recently published in Nature’s Communications Earth and Environment.

However, because forested areas have been shown to regulate and improve air quality, the scientists estimate that Indigenous territories — which have not yet been cleared— could absorb over 7,000 tons of these pollutants per year.

“Our work highlights Indigenous territories’ importance in avoiding over 15 million respiratory and cardiovascular cases, with around \$2 billion saved in healthcare costs,” Sangermano says. “The project has the potential to significantly impact the future of Indigenous territories, bolstering support for the legalization, protection and expansion of their lands.”

Brazil’s new president, Luiz Inácio Lula da Silva, [recently recognized Indigenous territories](#) in the Amazon rainforest.

VISUAL INVESTIGATIONS TRACKING THE CHINESE BALLOON FROM SPACE

FROM [THE NEW YORK TIMES](#), BY [MUYI XIAO](#), [ISHAAN JHAVERI](#), [ELEANOR LUTZ](#), [CHRISTOPH KOETTL](#) AND [JULIAN E. BARNES](#)

In early February, a giant white balloon was seen floating over U.S. skies, prompting speculation about its provenance and purpose. An exclusive analysis of millions of square miles of satellite imagery traces the balloon hours after its launch in China, across the Philippine Sea and then to North America. It also reveals that the balloon was remotely maneuvered at points on its journey.

The New York Times worked with the artificial intelligence company Synthetiaic to detect and analyze the Chinese balloon in satellite images captured by Planet Labs.

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This process was the first to track the balloon itself, not just its expected path based on weather projections.

The type of artificial intelligence that Synthetiaic uses to quickly detect small objects like a balloon in vast amounts of satellite imagery is a novel development, said Hamed Alemohammad, a professor at Clark University who specializes in geospatial analytics. "We are in the era that we are going to detect things and see things in satellite imagery that we couldn't think about five years ago or 10 years ago," he said.

METHODOLOGY – FINDING THE CHINESE BALLOON IN SATELLITE IMAGES

A satellite collects images of the Earth by taking pictures in

different wavelengths of light and stitching them together. The satellite photographs the same location on the ground from slightly different vantage points as it moves at high speeds overhead. An object like the Chinese balloon, floating somewhere between the satellite and the ground, looks like it is hovering over different parts of the Earth in each image.

This phenomenon, where an object looks like it is in different places depending on where you view it from, is called the parallax effect. To see how it works, hold your finger in front of you and close one eye, and then the other eye, while looking at it. Your finger appears to jump from left to right depending on which eye you keep open.

Based on this effect, Synthetiaic's founder, Corey Jaskolski, knew that the balloon would appear as several differently colored blobs in a satellite photo. He drew a sketch of what the balloon might look like and uploaded it to his company's image analysis platform, RAIC, which stands for rapid automatic image categorization. RAIC helped him to identify objects that resembled his sketch in satellite imagery provided by Planet Labs and the European Space Agency.

RAIC found the first satellite image of the balloon within two minutes. Using a [tool that models air parcel trajectories](#), Mr. Jaskolski narrowed down where else in North America it might have flown; RAIC then found the balloon six more times.

RAIC takes a novel approach to detecting objects in satellite imagery, Dr. Alemohammad, the satellite imagery expert, said. It uses an algorithm that doesn't have to be pretrained with lots of reference images for what an object looks like. It can find objects based on a single initial sketch, and users can quickly refine the results to "teach" it to be more accurate. Dr. Alemohammad said that this approach, combined with the availability of almost daily satellite images from Planet Labs, made the balloon's discovery possible.

It was harder for the model to estimate where and when the balloon might have been in Asia. So Mr. Jaskolski analyzed a massive volume of satellite imagery from the second half of January covering large parts of central and eastern China, North Korea, South Korea and Japan. RAIC found the balloon at five additional locations.

The balloon is photographed at the same location from separate vantage points just moments apart, making it possible to calculate its height. By layering two photographs so that their ground features align — like the river in the images above — Mr. Jaskolski measured the distance between the

balloon's apparent positions, known as the "parallax distance"

CAN AI FOUNDATION MODELS INCREASE MAPPING ACCURACY FROM SATELLITE IMAGERY?

Hamed Alemohammad, Associate Professor in GSG and Director of the Center for Geospatial Analytics (CGA), received a grant from NASA to explore the value of deploying AI Foundation Models on satellite imagery, and assess whether these models can learn the patterns in satellite imagery more accurately. The grant which totals \$150,360 has provided an opportunity for multiple PhD and Master's students to gain experience with AI applications for geospatial data.

Foundation models have gained major traction in the last 2



Project's summer team: Bottom row (left to right): Mike Cecil, Hamed Alemohammad, Rahebe Abedi, Fatemeh Kordi. Top row (left to right): Hanxi (Steve) Li, Maryam Ahmadi, Sam Khallaghi, Denys Godwin

years due to their capability to learn from massive amounts of data and be fine-tuned for downstream tasks more efficiently and accurately compared to classical AI models. These models are trained on unlabeled data which in many domains, including satellite imagery, are abundant. After this step, the pre-trained model is fine-tuned using a limited number of samples for specific downstream tasks. These tasks can include anything from segmentation, to regression and image classification. Using this approach, we can build models that can generalize to diverse types of problems in various geographies more efficiently by reducing the need for large labeled datasets.

This is the first project that is exploring the application of these models on satellite imagery, and the Clark team is collaborating with NASA IMPACT and IBM teams to implement it. The Clark team is in charge of evaluating three downstream tasks, namely 1) image segmentation for crop types, 2) image classification of land cover types, and 3) gap filling of cloudy scenes. The team is going to assess the performance of the foundation model compared to supervised baseline models for each of the downstream tasks.

NASA recognizes the immense potential of AI in harnessing the power of satellite imagery to address critical global challenges. The grant awarded to Dr. Alemohammad underscores the agency's priorities to advancing scientific research and innovation in this domain. The project's outcomes are expected to have implications for a wide range of applications in agriculture, environmental conservation, land cover mapping, urban planning, and disaster management.

GRADUATE STUDENT NEWS

STUDENTS HARNESS GIS TECHNOLOGY TO HELP WITH EARTHQUAKE RECOVERY EFFORTS IN TURKEY AND SYRIA

Mapathon event provides critical information to disaster agencies

FROM [CLARKNOW](#), BY JIM KEOGH

The horrific scenes emerging from the Feb. 6 earthquake that ravaged parts of Turkey and Syria left millions worldwide feeling powerless to help. Other than donating to a relief fund, what possible assistance could be provided from thousands of miles away?

Photo by Natalie Hoang '25



Thirty Clark University students gathered in the Jefferson GIS lab to answer that question.

The students staged a mapathon, using GIS (geographic information systems) technology to convert satellite imagery into maps showing the location of roads, buildings, bridges, and other features in the earthquake-impacted areas to aid relief organizations in their search-and-recovery efforts.

The mapathon was organized by Claudia Buszta and André de Oliveira Domingues, who are master's students in the GIS program coordinated by the Department of International Development, Community, and Environment and the Graduate School of Geography. The departments co-sponsored the event, providing funding for the evening's food.

No previous GIS experience was needed to do the mapping: de Oliveira Domingues and Buszta circulated among the participants to offer technical assistance, such as helping to identify the structures that show up as shadows and shapes in the satellite pictures.

Geography Professor John Rogan noted in an interview just prior to the event that the mapping response is being coordinated worldwide through Humanitarian Open Street Maps, an ongoing project to make digitized, high-resolution maps — similar to those you'd find on Google Earth — available for public use, including by relief agencies, from the Red Cross to the United Nations. He said it's valuable for those responding to the Turkey/Syria sites to have information on what roads and buildings exist in the affected areas (some of those structures may have been fragmented or collapsed) as they assess the conditions on the ground and plot their disaster-response strategies.

According to de Oliveira Domingues, Clark students learned about the need for crowd-sourced mapping assistance from Corey Dickinson '15, who is a consultant with the International Federation of Red Cross and Red Crescent Societies in Ankara, Turkey.

The mapathon participants looked for particular features in the satellite images, such as clusters of squares that may be identified as a neighborhood and major roadways that can be used for emergency services vehicles. When they had completed a certain map segment, the students then uploaded the information, which was analyzed and verified by mappers working with one of the coordinating groups.

At the time of this writing, de Oliveira Domingues and Buszta did not have the hard data of how much territory had been mapped on Monday night, but Rogan expects that the student team "created hundreds if not more data points" that will be key to relief and recovery efforts now and deep into the future.

The mapathon may even have opened the door to similar efforts in the future.

"We were blown away by the turnout, and it was so encouraging to see our community come together and support an important cause," Buszta said. "Many of the students that I talked to said that they are likely to participate in more online projects on their own, now that they know how to use the platform."

DOCTORAL STUDENTS WEIGH COSTS AND BENEFITS OF RENEWABLE ENERGIES

Dissertation research taps into emerging field in geography

FROM [CLARKNOW](#), BY MEREDITH WOODWARD KING

As the world expands the use of renewable energy to decrease fossil fuel emissions, Clark University's Graduate School of Geography is attracting students interested in researching the impacts on people, communities, and the land.

Over the past decade, several students have worked in the emerging field of "renewable energy geographies" research, advised by James McCarthy, the Leo L. and Joan Kraft Laskoff Professor of Economics, Technology and Environment and director of the Graduate School of Geography. "James has done a great job of understanding what his doctoral advisees' interests are and how those can be articulated or related to issues of energy transition," says William Westgard-Cruice, a fourth-year doctoral student currently working on his dissertation in Germany.

MADDY KROOT: ELECTRICITY TRANSMISSION THROUGH NORTHERN NEW ENGLAND

As a geography student at Dartmouth College, Maddy Kroot had a front-row seat to observe what happens when local people feel shut out of the process to develop renewable energy solutions.

For four years, she studied the public backlash against the planned Northern Pass, a 192-mile transmission line through New Hampshire that would have brought Canadian hydroelectric power to New England. The decade-long struggle — which ended in defeat just after she graduated in 2019 — had provided much material for her senior honors

GRADUATE STUDENT NEWS



New Hampshire residents helped defeat the Northern Pass project. Maddy Kroot's dissertation will compare the defeated Northern Pass plan with a similar proposed high-voltage transmission project in Maine. (Photo courtesy of Ammonoosuc Conservation Trust)

thesis, "Trees, Towers, and Energy Transitions: A Political Ecology of the Northern Pass Project."

"I realized that folks were contesting this power line because they saw that the benefits were going elsewhere — to Massachusetts, to meet its decarbonization goals — whereas the negative impacts were hyper-local," Kroot recalls.

Now a third-year doctoral student, Kroot realizes that she has only started to unpack the complex story of public responses to transmission development in northern New England.

At Clark, her dissertation will compare the defeated Northern Pass plan with a similar proposed high-voltage transmission project in Maine. She will examine how communities have questioned the impacts of transmission lines and contested the processes through which projects are planned and permitted.

In the emerging field of research on "renewable energy geographies," Kroot has found a niche.

"There really isn't a lot written about power lines in the literature," she says. "A lot of energy geographies is focused on the energy source itself, but not so much how it gets from point A to point B, even though that's really a central pillar of the Biden administration's infrastructure plans, and conflict over transmission lines is increasingly slowing or halting decarbonization plans."

This summer, Kroot will conduct research in Massachusetts, diving deeper, she says, into the "rationales that energy planners give for focusing on interstate transmission to meet the state's decarbonization goals."

Overall, her research has been guided by the need to understand: "How do we balance the need for public participation and accountability against the need to decarbonize fast?" she says. "I think that's so interesting, and it's going

to be the question for the times."

MARA VAN DEN BOLD: WIND POWER IN SENEGAL

Before starting the doctoral program at the Graduate School of Geography in 2016, Mara van den Bold spent

nine years at the International Food Policy Research Institute. As a senior research analyst, she worked in Washington, D.C., and spent time in Senegal, and Burkina Faso, focused on poverty, health, and nutrition issues.

That work informs her dissertation research on just energy transitions in Senegal, notably how to ensure equity in the development and implementation of renewable energy projects.

"Renewable energy is interesting because it's an issue that no one is against, but it does have these local-level implications for communities," she explains. "That kind of tension brought together my interest in climate change, and my interests in land, and control over land."

Van den Bold is focused on the impact of Parc Eolien Taiba N'Diaye (PETN), an onshore wind project about 55 miles northeast of Dakar, and the largest wind power project in West Africa. Opened in 2020, the nearly 159-megawatt project is expected to increase Senegal's power capacity by 15 percent and provide energy for 2 million people.

"I'm looking at the reasons why Senegal is moving toward renewable energy, and how it's doing that, and who's involved," she says. "I'm looking at the question of: Does the way in which Senegal is pursuing renewable energy have any adverse implications with regard to justice and equity, specifically for local communities near these big projects?"

Climate change mitigation, she discovered, is not the main motivator in Senegal's desire to decrease its reliance on fossil fuels. Instead, the country wants to curb its decades-long dependence on oil imports and lower the high prices people pay for electricity.

By 2030, Senegal seeks an energy mix that includes 50 percent domestic natural gas and 30 percent solar and wind

power. To become more independent, the country is building out its natural gas infrastructure, and has eight large-scale solar projects in addition to the Taiba N'Diaye wind park.

Overall, the country faces a "tricky" situation, she says. "Senegal has this grand vision for becoming an emerging economy by 2030, but it has to do that by increasing equity between urban and rural areas while becoming energy-independent."

WILLIAM WESTGARD-CRUISE: OFFSHORE WIND ENERGY IN THE NORTHEASTERN U.S. AND EUROPE

William Westgard-Cruise grew up in Philadelphia, has two degrees from Utrecht University in the Netherlands, and has traveled widely in the United States and abroad, giving him a transnational perspective on his research focus: the global political economy of renewable energy. His work as a labor and environmental activist has shaped his understanding of the economic and political power dynamics at play as countries and multinational corporations scramble to build massive renewable energy projects.

Westgard-Cruise is now focused on researching and writing his dissertation about the industrialization of the offshore wind energy sector in the U.S. Northeast and Europe. He currently is a visiting researcher in the Institute of Geography at the University of Bremen in Germany, and he spent last summer as a visiting research fellow at the City University of New York School of Labor and Urban Studies.

"My particular emphasis is on how the industry is becoming increasingly fragmented across sites and countries," Westgard-Cruise says.

When wind energy was first developed in Europe, the industry popped up in clusters around Denmark and northern Germany. "Now they are spreading to different countries," he explains. "Not only are companies building offshore wind farms, but they are producing components for wind energy at more and more sites around the world."

Ultimately, he says, "we have to understand that companies are doing what is most profitable for them; sustainability is secondary. But there can be changes made that are both profitable and sustainable, such as making blades recyclable."

UNDERGRADUATE STUDENT NEWS

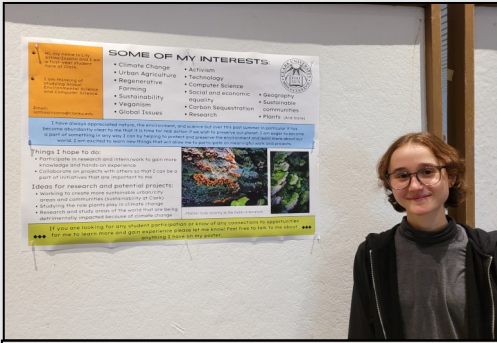
CUGA MAKES ITS RETURN!

The Clark Undergraduate Geography Association, CUGA, was officially reinstated in the spring semester. During the Covid-19 pandemic, the student-run club lost much of its steam, resulting in the club being dissolved.

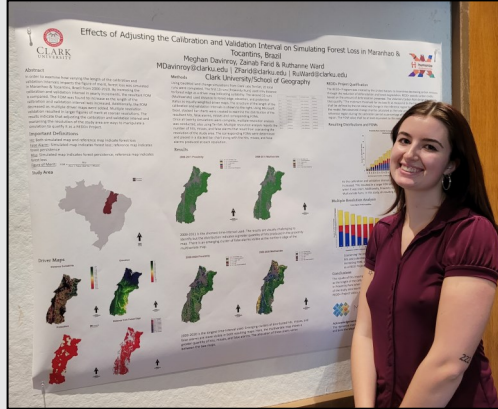
To reinstate a club, at least 10 students needed to register as members and 4 students needed to serve as E-Board members.

The E-Board members, otherwise known as the CUGA Council, are Ruthanne Ward, Lily Attias-Inzano, Finnegan Wertz, Angela Ruan, and Liam Kennedy.

Finnegan Wertz, member of the CUGA Council, presenting his Honors Thesis at ClarkFest Spring 2023.



Lily Attias-Inzano, member of the CUGA Council, presenting her research interests at the Practicing Geography Week Fall 2022 student poster session.



Ruthanne Ward, member of the CUGA Council, presenting her ClarkFest poster at the Practicing Geography Week Fall 2022 student poster session.

CLARK @ AAG 2023

2023 AAG ANNUAL MEETING

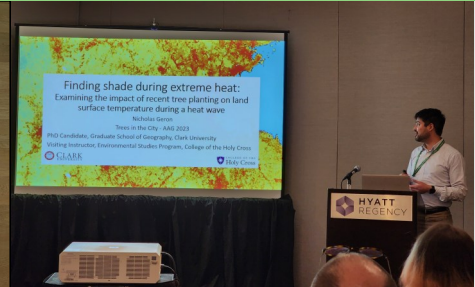
The first in-person 2023 Annual Meeting since the covid-19 pandemic was held in Denver, Colorado. Faculty, students, alumni and Staff attended both in person and virtually to present and reconnect!



The Clark Party, held at Earl's Kitchen and Bar, was a huge hit! The GSG community was eager to get back together to celebrate and catch up with peers old and new.



Ph.D. Alumni Stephen Young '97, Katie, spouse of Dexter, and Dexter Locke '17.



Ph.D. Nick Geron presenting his research in front of the AAG audience and his Holy Cross students.

Left Picture:



(L-R) Graduate students Aiyang Zhang, Anna Zhu, Vanchy Weizhi Li, and Madeline Regenye, MS-GIS '23.



Ph.D. alumna Ibipo Johnston-Anumonwo '87 with Staff Yaa Poku '17 and Aidan Giasson '21 MPA '22.



ALUMNI NEWS

PHENOMENOLOGICAL PERSPECTIVES ON PLACE, LIFEWORLDS, AND LIVED EMPLACEMENT, DAVID SEAMON, PH.D. '77

David Seamon, Geography PhD 1977, has published *PHENOMENOLOGICAL PERSPECTIVES ON PLACE, LIFEWORLDS, AND LIVED EMPLACEMENT*, a collection of his past writings published in Routledge's series, "World Library of Educationists." The volume includes 18 chapters dealing with various aspects of place, place experience, and place meaning. Seamon is Professor of Environment-Behavior and Place Studies in the Department of Architecture at Kansas State University, Manhattan, Kansas.

PAUL ALLMAN SIPLE: WIND CHILL

Arctic explorer was the world's foremost expert on human survival in extreme temperatures

FROM CLARKNOW POP QUIZ



The following is excerpted from "Changing the World: Clark University's Pioneering People, 1887-2000" (Chandler House Press, 2005), by former president Richard P. Traina.

Paul Allman Siple appeared on the cover of the [Dec. 31, 1956, edition of Time magazine](#), his face framed by the hood of a heavy winter parka.

He had recently been selected to lead the extraordinary 1957 International Geophysical Year expedition to the

Antarctic, which involved 65 international scientists and explorers. That was no surprise, because no one, as scientist or explorer, knew more about the Antarctic than he did at that time. The famous explorer Admiral Richard Byrd put it simply, describing Siple as "a born scientist and the best-equipped man there is for this kind of work." By the winter of 1957, Siple had spent more time at the South Pole than any other individual — almost six years, including seven journeys — obtained his doctoral degree in geography at Clark University, developed the concept of wind chill, named the Clark Mountains in the Antarctic, and become the world's foremost expert on human survival in extreme temperatures.

During World War II, Siple served as chief of the Climatology and Environmental Protection Section of a military planning division of the United States Army. Some years later, he was director of Basic Science Research for the U.S. Army General Staff and leader of the Army's Winter Environment Team. During these years, he vigorously promoted, although unsuccessfully for more than



Paul Siple, Ph.D. '39, on an expedition to the South Pole.

seven costly years, the thermal-barrier-boot and the cold-weather parka. According to a later Pentagon profile on Siple, as many as 10 divisions were lost on the western front in Europe due to trench foot, and the Yalu River retreat during the Korean War was as much due to "frost bite as enemy bullets." Ultimately, the Pentagon was converted to Siple's ideas and declared him a winner: "In simplest terms, he is responsible for seeing to it that the Army can fight, that new weapons will work, in any environment in the world." He even developed a clothing almanac, employing "a color matching key to show what sorts of apparel to wear in overseas climates any month."

The Pentagon gave him its Distinguished Service Award. Additionally, Siple received three Congressional Medals of Honor for his work on polar expeditions and the Royal Geographical Society's Patrons Medal, plus a variety of other scholarly and scientific awards.

JOHNSON, PH.D. '15, SAVAGE, PH.D. '96, OBERHAUSER, PH.D. '88, AND GILBERT, PH.D. '93 PRESENT IN BARCELONA, SPAIN

At the [International Conference on Crisis, Recovery and Gender: Feminist Spatial Perspectives](#) in the summer of 2022. They were the only Americans that attended the conference, pictured on the right.



DR. YOSEF GOTLIEB, PH.D. '91, AT THE WORLD MEETING OF THE BORDERLANDS STUDIES ASSOCIATION

In February 2023 in Eilat, Israel, where he presented a paper on possibilities for a trans-border framework for ameliorating intergenerational poverty, environmental degradation and climate change vulnerability in the Central American Dry Corridor. He also moderated a session on Covid-19 impacts on South America.

At the Israel Geographical Association Annual Conference held at Hebrew University, Dr. Gotlieb presented the analysis of Israel's performance on the Sustainable Development Goals. A presentation on the same subject was given at the Green Jerusalem

English-speakers February.



Dr. Yosef Gotlieb at the Society for Borderlands Studies Conference, Eilat, Israel. Photo credit: Eyal Segal

Fund in

DEPARTMENT NEWS

HONORING PROFESSOR ROGER E. KASPERSON



Roger Kasperson, professor emeritus of geography, spent more than 50 years as a pillar of the Clark community, joining us first as an undergraduate student then later as a professor of geography, provost and vice president of academic affairs, and founder and director of the Center for Technology, Environment and Development. A leading figure in the fields of risk and hazard analyses, environmental sustainability and global environmental change, he was one of the first geographers elected as a Fellow of the U.S. National Academy of Sciences and author or co-editor of 24 books and monographs.

But despite his many accolades and accomplishments, Roger's proudest moments occurred when he was celebrating the success of his graduate students. The **Roger E. Kasperson Graduate Fellowship in Geography** will honor Roger's extraordinary legacy of teaching and mentoring at Clark. The Kasperson Fellowship will provide financial support to graduate students building on his legacy of research.

To make a gift to the Kasperson Fellowship, please visit:

<https://alumni.clarku.edu/KaspersonFellowship>

DEPARTMENT NEWS

GRADUATE SCHOOL OF GEOGRAPHY EAGER TO CELEBRATE 100-YEAR ANNIVERSARY

Centennial event features panels that honor the past and embrace the future

FROM [CLARK NOW](#), BY CLARK NEWS AND MEDIA RELATIONS

The Clark University Graduate School of Geography is gearing up for a memorable celebration that will honor its 100-year legacy as a transformational force in the world of geography.

The centennial event, to be held April 13–15, features a robust series of discussions that are open to the campus community and public, including panels and talks that will examine the significance and leadership of the Graduate School of Geography in society and in the discipline, take stock of where the GSG is today, and anticipate its future role in addressing many of the most urgent issues facing the world.

“I have been tremendously heartened by the response to the conference,” said James McCarthy, chair of the Graduate School of Geography. “Alumni have been saying really kind and generous things about how much Clark Geography meant to them, and how instrumental and foundational it was for their careers.”

McCarthy said he’s looking forward to reconnecting with retired faculty, many of them prominent in their field, and former Clark doctoral students.

“Many of us have had the opportunity to work with tremendous Ph.D. students who are among the best in their discipline. It’s one of the big draws of being a faculty member in the School of Geography,” he said. “A number of our former students will be back on campus, and some will be serving on panels. It’s always nice to hear what they’re doing now and how it connects with what they studied at Clark.”

Panelists will discuss the study of Black geographies, an area pioneered by Clark alum Bobby Wilson, Ph.D. ’74. They will examine the GSG’s long and influential history in understanding human-environment interactions, including field-defining contributions to the analysis of environmental risks and hazards, human transformations of the Earth, and the connections between development and the environment that are central to the field now known as political ecology.

Other panels will delve into the GSG’s signal contributions, leadership, and ongoing work in the areas of feminist geography, urban geography, and GIScience and earth systems science, particularly in an era of accelerating climate change. Another panel will examine the contributions of GSG faculty, students, and alumni to public policy. The schedule will also include ample opportunities for informal discussions among alumni, former and current faculty and students, and other friends of the GSG.

“It was fun for us to pull these panels together, but also challenging when, in some cases, you’re trying to cover 100 years of work in a specific area,” McCarthy said. “I’m happy with what we came up with, and I think these will all be rich, interesting discussions — but at an event like this, there will also be plenty of time for informal discussions as well as static and dynamic media presentations. We’ll certainly cover as many bases as we can.”

The celebration will kick off on April 13 with the Atwood Lecture, presented by Kendra McSweeney, professor and distinguished scholar of geography at The Ohio State University. McSweeney, whose research is centered on human-environment interactions and cultural and political ecology, has made influential analytical contributions to understanding the socio-ecological dynamics and impacts of drug trafficking through Central America.

Clark President David B. Fithian ’87 and Provost Sebastián Royo will deliver remarks at the April 14 dinner. Clark Trustee and Dartmouth College geography professor Mona Domosh ’79, M.A. ’83, Ph.D. ’85 — a former president of the American Association of Geographers — will give the keynote address at the April 15 luncheon.

April 15 will feature a tribute to the influential legacy of the late Roger Kasperson ’59, longtime professor and researcher with the Graduate School of Geography and the George Perkins Marsh Institute.

“Roger’s work has fed directly and powerfully into contemporary conversations related to climate change — in areas like adaptation, risk and hazards, sustainability, and resilience,” McCarthy said. “His research continues to be incredibly relevant and applicable as we try to work through the problems related to climate change. He was very much a major figure in this field.”

The Graduate School of Geography turned 100 in 2021, but the pandemic forced the postponement of an official event to mark the occasion. Among the many achievements the GSG will finally have the opportunity to celebrate next month: it has been one of the top Ph.D.-granting geography departments in the United States for the past 100 years; is consistently ranked among the top 10 geography graduate programs by the National Research Council; and has had numerous faculty members inducted into the National Academy of Sciences, the American Academy of Arts and Sciences, and the American Association for the Advancement of Science.

ROGER KASPERSON RECALLED FOR HELPING ‘PUT CLARK ON THE MAP’

Tribute to renowned geographer help during GSG 100th celebration

FROM [CLARK NOW](#), BY JIM KEOGH

Roger Kasperson was known internationally as a giant in the study of risk analysis and communication, global environmental change, sustainability science, vulnerability, and resilience, among other areas. From Moscow to Beijing, Stockholm to Potsdam, Washington to New York, his counsel was sought on issues of deep urgency and complexity affecting wide swaths of people.

But during a moving tribute to the late Clark geographer, who died in 2021, speakers also recalled Kasperson as the most unassuming “giant” imaginable — humble, thoughtful, compassionate, and, with his trademark fishing cap atop his head, ever ready to cast a line into the water.

A tribute to Kasperson, moderated by Robert Johnston, director of the George Perkins Marsh Institute, was held April 15 inside a packed Grace Conference Room as part of the

DEPARTMENT NEWS

Graduate School of Geography centennial celebration. A roster of speakers, as well as audience members, remembered a colleague, mentor, and friend who worked diligently to ensure that science was used for the betterment of society, that Clark University was strengthened, and that individuals in his sphere were always uplifted.

Kirstin Dow, Ph.D. '96, Carolina Trustees Professor in the Department of Geography at the University of South Carolina, recalled that Kasperson often addressed major policy challenges by recruiting "kindred spirits" from diverse disciplinary backgrounds — including sociologists, economists, geographers, psychologists, and others — to consider diverse perspectives and possible solutions. He was particularly concerned with the human dimensions of decision-making — for instance, regarding the location of radioactive waste disposal sites. Who are the influential voices making the decision of where waste is disposed, he wanted to know. What is acceptable and tolerable risk, and is that risk voluntary, safe, and fair?

Sam Ratick, professor emeritus of the Graduate School of Geography and former director of the George Perkins Marsh Institute, noted that Kasperson "was responsible for my being at Clark and having a career here." When Kasperson was asked to advise the agency overseeing the siting of radioactive waste disposal facilities in New York state, he emphasized the need for extensive public participation in the decision-making process — a novel approach at the time. At Kasperson's urging, the process required "responding to reasonable comments," which meant giving full and respectful attention to the residents' concerns and recommendations, Ratick said. He recalled a resident disagreeing with the agency's stance, but thanking them for taking his opinion into consideration.

"Roger and Clark were inseparable," noted former colleague Susan Hanson, distinguished professor emerita and former GSG director. She spoke of Kasperson growing up on a Northboro, Massachusetts, farm and coming to Clark in 1955 as a scholarship athlete (he earned his Clark degree in 1959). She recalled his long service to the University, which began in 1968 as an assistant professor of geography and government, progressed through a series of positions of increasing responsibility — including dean of the college and provost. His co-founding with fellow professors Robert Kates and Christopher Hohenemser of the Center for Technology, Environment, and Development (later to become the George Perkins Marsh Institute), in tandem with the creation of the accompanying research library (named in honor of his late first wife, research professor Jeanne X. Kasperson), helped "put Clark on the map," she said.

Kasperson took his administrative duties seriously, always with an eye toward making Clark a better place for students and faculty, Hanson said. "As provost, he was always impeccably honest and compassionate. These [administrative] roles took Roger away from his research, but they did not put a dent into his accomplishments."

Former GSG director and distinguished research professor Billie Lee Turner, who is the Regents Professor and Gilbert F. White Professor of Environment and Society at Arizona State University, said Kasperson was always intent on pressing

against the frontier of "what sustainability science could be," noting that some of his most-cited work came toward the end of his career.

Echoing Dow's recollection of Kasperson as a collector of expertise and opinions, Turner said the geographer was a master at "bringing people together to think through all the angles." One of his abiding memories, he laughed, was of Jeanne passing Roger notes during some of these lively dialogues.

Audience members reflected on Kasperson's kind and caring nature — exemplified in the encouragement he gave to students and colleagues — and the informal demeanor that made him always approachable. Sharon Krefetz, professor emerita of political science, was interviewed by Kasperson in 1973 as an aspiring professor applying to teach a new course. When she described the course outline, "He listened, and he made me feel so confident," she remembered. "He said, 'You have this just the way it should be.'" Twenty years later, Krefetz was serving as dean of the college when Kasperson was provost, which required frequent collaboration. His thoughtful and encouraging attitude hadn't changed. "His listening was what most impressed me," she said.

Just before the event ended, a former graduate student of Kasperson's from the 1980s remarked that the only thing missing from the day was a photo of the legendary professor in his favorite pose, with his feet on the table and his fishing cap on his head.



Former Clark professors Susan Hanson and Billie Lee Turner share memories of Roger Kasperson.



(L-R) Professor Yuko Aoyama, Professor Emeritus Larry Lewis and his spouse, Barbara Lewis, and Viola Johnson with her spouse, Professor emeritus, Douglas Johnson.

COMMENCEMENT

CONGRATULATIONS, CLASS OF 2023!

PH.D.

WENJING JIANG
"Transforming China's Countryside: Politics and Practices in the Transfer of Agricultural Land Use Rights" (McCarthy)

SURENDRA SHRESTHA
"Surface Biophysical and Vegetation Changes in Response to Wildfire and Reforestation with Implications to Climate Forcing" (Williams)

LEI SONG
"Combining spatially-explicit simulation of animal movement and earth observation to reconcile agriculture and wildlife conservation" (Estes)

MS-GIS ACCELERATED DEGREE PROGRAM

ALEK FRASER
RYAN FREED
EMILY HELTZEL
DAVID HENRIQUES
CALEIGH McLAREN
MADÉLINE REGENYE
ASHNA SIDDHI

GLOBAL ENVIRONMENTAL STUDIES

LYDIA BARNES+
LUCY FLEMING*+
ELLIOT HARRIS+
JULIA KEANE
GRACE RUMOWICZ+
ALANA SACKS+
CALEB SILTLER
CARRIE WINEGLASS
PIETER VANDERBRUG

GEOGRAPHY

KEN BAIRD*
ESHA BHARADWAJ*+
RACHEL COSKEY+
EMMA DOANE+
RYAN FIASCONARO*
LUCY FLEMING*
DANIELLE HALL*+
JON HAYES
LARA JORDAN*
MAX LUTZ
LIAM KENNEDY+
AARON KIRSHENBAUM+
MEHER KOVOOR+
MAX MARINACE
ANDREW NIEHAUS
NOAH ROWAN+
RYAN SHUMEYKO
ALLISON STAPLES

ALIA TANG+
HUY THAI+
LIAM TOBIN+
WILLIAM VERDE
RUTHANNE WARD*+
MIAOJING MINA WEI+
FINNEGAN WERTZ *+

ENVIRONMENTAL SCIENCE

NATHAN ABREU-CRUZ
ABBY BEILMAN*+
OLIVIA BLANEY
MADI BRADY
NICOLE BUCKLEY*
REBECCA CARRILLO
JILL CASS
SOPHIE DIDIER
VANESSA ERWIN
APPLE GOULD-SCHULTZ*+
LAUREN HOLMES
SARAH HUGHES*
LILY KAPLAN
LIAM KREIBICH+
MAX LUTZ+
CARLY MOLLIN+
NICHOLAS MORROW
MAX RINGOLD
BERNAVE TWYMAN

+GAMMA THETA UPSILON MEMBERS
*STUDENTS THAT GRADUATED WITH HONORS



Environmental Science graduates Sarah Hughes, Abby Beilman, and Apple Gould-Schultz

UNIVERSITY AWARDS

PAUL P. VOURAS SOCIAL SCIENCE AWARD
RYAN FIASCONARO
FINNEGAN WERTZ

HOWARD BONAR JEFFERSON AWARD
ALIA TANG

DEPARTMENT AWARDS

ELLEN CHURCHILL SEMPLE AWARD
DANIELLE HALL

CLARK LABS GIS EXCELLENCE AWARD
LARA JORDAN

LINDA ROTH MEMORIAL ACTIVIST SCHOLAR AWARD
ALANA SACKS

STRABO AWARD
WYNNIE GROSS

NATIONAL COUNCIL FOR GEOGRAPHIC EDUCATION EXCELLENCE OF SCHOLARSHIP AWARD
MONICA STEMERMANN

PETER J. CONDAKES SUMMER RESEARCH FELLOWSHIP AWARD
SHRADHA BIRDIKA

GLOBAL ENVIRONMENTAL STUDIES OUTSTANDING STUDENT AWARD
LUCY FLEMING

MARCIA V. SZUGDA-EMANI MEMORIAL ENVIRONMENTAL SCHOLARSHIP AWARD
RYAN SHUMEYKO

ENVIRONMENTAL SCIENCE EXCELLENCE IN RESEARCH AWARD
ABBY BEILMAN

ENVIRONMENTAL SCIENCE EXCELLENCE IN PRACTICE AWARDS
APPLE GOULD-SCHULTZ
SARAH HUGHES

ENVIRONMENTAL SCIENCE ACADEMIC EXCELLENCE AWARD
JILL CASS



Ryan Shumeyko, the recipient of the Marcia V. Szugda-Emani Memorial Environmental Scholarship Award, and Dr. Srinivas Emani, Ph.D. '01, principal donor of the scholarship, at the 10-year anniversary memorial celebration and reception in Marcia Szudga-Emani's memory.



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