Center for
Geospatial Analytics

Awards Ceremony

Monday, February 5, 2024

NC State University
Raleigh, North Carolina

Welcome to the fifth annual awards ceremony for the Center for Geospatial Analytics!

Today, we honor the achievements by the exceptional students, faculty and staff at our Center in 2023.

Thank you and congratulations for all that you do as a member of our community!

Our Community

Honors & Achievements

Geospatial Analytics Ph.D. Students

Jenna Abrahamson
Luke Allen
Randi Butler
Emma Butzler
Grace Choi
Elyssa Collins**
Rebecca Composto
Raja Das
Christopher Dunstan
Eamon Espey*
Mark Feinberg
Mollie Gaines
Xiaojie Gao**
Louis Goodall
Nick Grokhowsky
Isabel Gutierrez*
Caitlin Haedrich
Truffaut Harper
Izzi Hinks

Eli Horner
Jamie Huerta
Byron Ifediora**
Kate Jones
Kimia Karimi**
Gwen Kirschke*
Brit Laginhas
Margaret Lawrimore
Martine Mathieu
Rohith Matli**
Shannon McAvoy
Ian McGregor**
Katie McQuillan**
Erin O'Connell*
Uche Osia
Annie Paulukonis
Christina Perella
Deja Perkins
John Polo

Stacie Reckling
Pratikshya Regmi*
Shannon Ricci
Ariel Saffer
Felipe Sanchez
Andrew Shannon
Owen Smith
Titilayo Tajudeen*
Varun Tiwari
Laura Tomkins
Vishnu Mahesh Vivek
   Nanda**
Corey White**
Thom Worm
Alexander Yoshizumi

*First-year student
**2023 Graduate

Master of Geospatial Information Science & Technology (MGIST) Students

Qasim Adegbite
Kurt Baker II
Jon Beauchaine**
Daniel Behnke
Micaela Bozic**
Mat Bruhmuller*
Clayton Burleston
Bernadette Burton**
Angela Cline*
Blayne Compton
Chandler Cowell
Chase Crute*
Claire Daniels**
Purdeep Dhanoa**
Mike Doyle
Scott Ellis**
Drew Emerine*
Justin Erlick
Sarah Evans*
Summer Faircloth**
Evan Fisher*
Roderick Flannery**
Christian Fleming**
Andrew Freeland**
Kim Garrett**
Benjamin Grimes*
Jessica Hackman**
Desiree Haynes

Isabella Hile
Lavery Hoard**
Dallas Hoffman**
Megan Holycross
   Simmons*
Javed Hossain*
Grayson Hughes
Massimiliano
   Ignaccolo
Sabrina Inthisarath
Katie Ivins
Kat Kelly
Joseph Kepler
David Kist**
Yale
   Kodwo-Nyameazea**
Tyler Kriminger
Hannah Kyung
Scott Lawson**
Natalie Luftman**
Jacob Makens
Alex Mann**
Molly Mansfeld*
Ben Masters**
Jessie Matthews*
Khalil McGruder*
Rachel Miller
Tara Mitchell

Andrew Morrison
Kyle Noel**
Rick O'Hara
Michael O'Neill**
Jonathan Owens**
Skylar Penney*
Joe Phillippe
Nicole Port*
Trever Reeves
Cameron Renfro**
Taylor Richardson
Brandy Rivers
Will Rose
Andrea Sato
Macy Sawtelle**
Katie Scheip
Caroline Schnell
Tyler Shepherd
Blake Smith
Greyson Smith**
Derek Stanley**
Mark Starr
Mike Strunin**
Ashlyn Tickle*
Colby Traynor**
Benton Tripp
Joshua Turner
William Turner**

Hailey Tuttle**
Sophie Uthe
Margaret Vanderford
Chrysanthi Violaris
David Vorbach
Macy Watt
James Webber**
Devin Whitney**
Abby Wiese*
Reid Wilson
Caroline Wood**
Meg Woodburn*
Sky Young*
Hubert Yun**

*First-year student
**2023 Graduate

Research Assistants

Kunal Bhardwaj *(Architecture)*
Drew Bresingham *(Environmental Technology & Management)*
Brooke Cox *(Environmental Technology & Management)*
Evan Dadson *(Statistics, Mathematics)*
Cecilia Nottingham *(Environmental Sciences)*
Kayla Rondinelli *(Graphic Design)*
Sanay Shah *(Computer Science)*
Kris Wilson *(Statistics)*

Graduate Certificate in GIS Students

Qasim Adegbite
Faisal Alghamdi [a]
Izabela Alldredge
Darnell Allen
Melissa Amoabeng [c]
Erin Ansbro
Matthew Applegate
Meredith Artiaco
Raja Bandari
  Rajamanickam
  Viswanath [k]
Jens Beets [j]
Nicole Bernard
Nicole Biggins
Alex Bone
David Bolick
Micaela Bozic
Faith Bradshaw [j]
Lauren Briley [c]
Brynna Bruxellas [i]
Matt Buddendeck
Zakir Bulmer [f]
Clare Callahan
Isaac Carbajal
Olivia Caretti [b]
Elise Carroll
Syd Case [u]
Swarna Chowdhury [d]
Kristin Conner
Mark Davis

Anseme Dossou [g]
Lora Eddy
Henry Edmisten [g]
Garrett Elmo
Julia Embrey
Peter Falcone
Grace Fawcett
Jason Fennell
Hannah Ferguson Johns
Zachary Fields
Madison Findley
Jackie Fisher
Isaac Fleming
Kristen Fowler
Amanda Fox
Lisa Fraley-McNeal
Yufei Fu [v]
Avi Goldsmith [i]
Austin Gragson [s]
Ben Grasberg
Jerry Griffith
Papa Gueye
Jacob Gwyn
Brody Hall [u]
Zoe Hardee
Hallie Hartley
Desirae Haynes
Isabella Hile
Emma Hirschy
Jennifer Honeycutt
Gloria Hope

Rachel Jensen
Courtney Johnson [n r]
Michael Johnson
Grant Jones
John Kamanga
Angie Kealey [c]
Tasha King
LB LaForce
Nick Lefevre
Nick Lehman
Bobby Lloyd
Katie Lokey
Ashley Lynn [j]
Andrew Mackin
Liam Maher
Jacob Makens
Lucia Manatschal-
  Riedner [b]
Molly Mansfeld
Galen Marshall-Clark
Mark Massing [m]
Will McClure [b]
Kayleigh McHugh
Melissa McKay
Amanda McLamb
Sam McRee
Amanda Meeks
Nate Merrill
Stephen Metzger
Kathryn Milke
Jessica Miller

Hana Mintz
Danielle Mir
MO Moody
Ryn Moravec [e]
Brandon Morrissey [o]
Matt Mullen
Tony Nardo
Myleigh Neill
Cassie Newman [i]
Heidi Nicolson
Parks Nunnally
Joshua O'Neil
Seongmin Park [g]
Jackson Parker
Michelle Parker-Ortiz
Aidan Paul [q]
Austin Pessoa [h]
Emily Pierce [b]
Caci Powell
Jake Powell [l]
Chip Ralph
Nick Rebman

Gresham Redman
Joy-Lynn Rhoton [l]
Taylor Richardson
Lauren Riley
Corey Roberts
Will Rose
Jenny Sab
Christina Sachs [d]
Richard Saxton [e]
William Schmid
Sabrina Shaffer
Hannah Smith
Mimi Stephens [w]
Heather Summer
Aasta Thomas [t]
Lauren Thompson
Maddie Townsend
Joshua Wescott
Scott Whitemen
Jennifer Wiggen
Corey Williams
Rachel Williams

Aaron Woleslagle
Angela Wood
Shanna Wood
Lisa Wrede
Collin Yates [p]
Sednaur Yilmaz
Erin Ziegler

Major

[a] Civil Engineering

[b] Marine, Earth, & Atmos Sci

[c] Landscape Architecture

[d] Bio & Ag Engineering

[e] Parks, Rec, Tourism & Sport Management

[f] Comparative Biomedical Sciences

[g] Soil Science

[h] International Studies

[i] Crop Science

[j] Fisheries, Wildlife, & Conservation Biology

[k] Design

[l] Environmental Assessment

[m] Teaching - Science Ed

[n] Entomology

[o] Sociology

[p] Climate Change and Society

[q] Anthropology

[r] Forestry & Environmental Resources

[s] Educational Leadership, Policy & Human Development

[t] English

[u] Natural Resources

[v] Economics

[w] Environmental Engineering

Center for Geospatial Analytics Personnel

Zachary Arcaro	Assistant Director of Operations
Aaron Hipp	Associate Director of Social & Behavioral Science Applications
Chris Jones	Research Scholar
Shannon Jones	Research Software Engineer
Chris Johnson	Research Software Engineer
Rachel Kasten	Graduate Services Coordinator
Ross Meentemeyer	Center Director & Director of Graduate Programs (Ph.D.)
Helena Mitasova	Associate Director of Earth & Environmental Science Applications
Eric Money	Associate Director of Educational Innovation & Director of Graduate Programs (MGIST)
Vaclav (Vashek) Petras	Research Software Engineer
Anna Petrasova	Research Software Engineer
Georgina Sanchez	Research Associate
Benjamin Seliger	Postdoctoral Scholar
Makiko Shukunobe	Research Technologist
Megan Skrip	Science Communicator
Bill Slocumb	Research Associate
Stacy Supak	Associate Teaching Professor
Laura Tateosian	Associate Teaching Professor
Lois Utt	Executive Assistant
Raju Vatsavai	Associate Director of GeoAI & Computational Science Applications
John Vogler	Research Scholar

Center for Geospatial Analytics Faculty Fellows

Sankar Arumugam [a]
Jason Baker [f]
Perver Baran [b,*]
Eleni Bardaka [a]
Emily Berglund [a]
DelWayne Bohnenstiehl [c,*]
Ashly Cabas [a]
Caren Cooper [f,*]
Bethany Cutts [d,*]
Fernando Garcia Menendez [a]
Eric Edwards [e]
Joshua Gray [f,*]
David Hill [g]
Aaron Hipp [d,*]
Anders Huseth [c]
Daniela Jones [h]
Chris Jones [b,*]
Yu-Fai Leung [d]
Gustavo Machado [i,*]
Katherine Martin [f,*]
Helena Mitasova [c,*]
Natalie Nelson [h,*]

Stacy Nelson [f]
Daniel Obenour [a,*]
Peter Ojiambo [n]
Chris Osburn [c,*]
Krishna Pacifici [f]
Vaclav (Vashek) Petras [b]
Anna Petrasova [b]
Zhen Qu [c]
Bill Rand [j]
Brian Reich [k]
Jennifer Richmond-Bryant [f,*]
Georgina Sanchez [b,*]
Robert Scheller [f,*]
Laura Tateosian [b,*]
Adam Terando [l,*]
Mirela Tulbure [f,*]
Raju Vatsavai [m,*]
Jelena Vukomanovic [d,*]
Ben Watson [m]
Karl Wegmann [c,*]
Elsa Youngsteadt [l,*]
Sandra Yuter [c,*]

---

[a] Civil, Construction & Environmental
   Engineering
[b] Center for Geospatial Analytics
[c] Marine, Earth & Atmospheric Sciences
[d] Parks, Recreation & Tourism
   Management
[e] Agriculture & Resource Economics
[f] Forestry and Environmental Resources
[g] Landscape Architecture

[h] Biological & Agricultural Engineering
[i] Population Health & Pathobiology
[j] Business Management
[k] Statistics
[l] Applied Ecology
[m] Computer Science
[n] Entomology and Pathology
* Currently advising a Geospatial Analytics
   Ph.D. student

Student Awards & Honors

Jenna Abrahamson received a National Science Foundation Graduate Research Fellowship.

Rebecca Composto received a CGA travel award.

Raja Das received the 2023 J. Hoover Mackin Award for best PhD research proposal to the Quaternary Geology and Geomorphology Division of the Geological Society of America. He also received a Roy J. Shlemon Scholarship Grant from the Geological Society of America and a North Carolina ArcGIS User Group Graduate Student Scholarship.

Jeremy Davis received the G. Herbert Stout Student Award for Innovative Student Papers at the 2023 North Carolina GIS Conference.

Christopher Dunstan received a travel award to attend the 2023 Spatial Social Network Workshop.

Eamon Espey received a University Graduate Fellowship.

Kim Garrett was selected as the graduate student speaker at the Fall 2023 College of Natural Resources Commencement. She also won the Center's MGIST capstone poster competition in Fall 2023.

Xiaojie Gao received an Honorable Mention in the Graphics & Data Visualization category of the NC State 2023 Envisioning Research Contest.

Isabel Guitierrez received an Andrew Fellowship and a Diversity Enhancement Fellowship.

Caitlin Haedrich received a DELTA Grant through NC State.

Dallas Hoffman won the Center's MGIST capstone poster competition in Spring 2023.

Jamie Huerta was accepted to the 2022-23 Rachel Carson Fellows program.

Gwen Kirschke received a Goodnight Fellowship and a University Graduate Fellowship.

Margaret Lawrimore received a CGA travel award.

Shannon McAvoy received a CGA travel award.

Erin O'Connell was part of a team that won 2nd place in the Machine Learning track of the 2023 NC Plant Sciences Initiative Hackathon.

Uchenna Osia received the Stu Shea USGIF Scholarship. She was also accepted to the 2023 Yale Environmental Fellows program.

Pratikshya Regmi received a University Graduate Fellowship.

Christina Perella received a travel award to attend the International Association for Landscape Ecology - North American Regional Chapter Annual Meeting and also received a CGA travel award.

Felipe Sanchez received a travel award from the Comparative Medicine Institute. He also received a CGA travel award.

Andrea Saravitz received the G. Herbert Stout Student Award for Innovative Student Papers at the 2023 North Carolina GIS Conference..

Andrew Shannon received a CGA travel award.

Titilayo Tajudeen received a Mansour PhD Fellowship and was accepted to the 2023-24 Global Change Research Fellows Program.

Laura Tomkins received an Oustanding Oral Presentation Award from the American Meteorological Society Conference on Weather Analysis and Forecasting.

Corey White was accepted to the summer 2023 cohort of the RIoT Accelerator Program for startups.

Thom Worm received a CGA travel award.

Alexander Yoshizumi won the poster competition in the "Management & Policies" category at the 2023 CNR Graduate Research Symposium. He was also named NC State's 2023 Esri Innovation Program Student of the Year.

Student Leadership & Service

Geospatial Graduate Student Organization

Co-Presidents	Margaret Lawrimore & Andrew Shannon
Secretary	Christina Perella
Treasurer	Eli Horner
Distance Education Rep	Abby Wiese
External Rep	Louis Goodall
Geospatial Forum Chair	Felipe Sanchez
DEI Chair	Jenna Abrahamson
Social Chair	Emma Butzler
Marketing Chair	Truffaut Harper

CGA Teaching Assistants

Spring 2023

Qasim Adegbite
Emma Butzler
Justin Erlick
Papa Gueye
Isabel Gutierrez
Isabella Hile
Molly Mansfield
Rachel Miller
Pratikshya Regmi
Brandy Rivers
Heather Summer
Maddie Townsend
Margaret Vanderford
David Vorbach
Meg Woodburn
Macy Watt
Abby Wiese

Fall 2023

Micaela Bozic
Bernadette Burton
Emma Butzler
Syd Case
Raja Das
Jackie Fisher
Kim Garrett
Papa Gueye
Lavery Hoard
Isabella Hile
Prarthana John
Shannon McAvoy
Rachel Miller
Brandy Rivers
Mike Strunin
David Vorbach

Geospatial Analytics Degree Milestones

Preliminary Exams Completed & Admitted to Candidacy

Ariel Saffer (March 2023)

Shannon McAvoy (May 2023)

Brit Laginhas (May 2023)

Martine Matheiu (May 2023)

Isabella Hinks (August 2023)

Annie Paulukonis (September 2023)

Jenna Abrahamson (November 2023)

Caitlin Haedrich (November 2023)

Varun Tiwari (November 2023)

Dissertation Defended

Corey White (March 2023)

Byron Ifediora (March 2023)

Katie McQuillan (March 2023)

Elyssa Collins (April 2023)

Ian McGregor (May 2023)

Xiaojie Gao (June 2023)

Kimia Karimi (July 2023)

Faculty & Staff Awards

Center-Affiliated Grants Started 2023

Aaron Hipp, Kyle Bunds— Longitudinal Analysis of US Golf Course Value
Sponsor: US Environmental Protection Agency (EPA)
Award Amount (Period): $85,611 (1-5-2023 to 4-5-24)

Laura Belica, Jennifer Richmond-Bryant — Beginner-Intermediate Data
Management and GIS Training for OAQPS Staff North Carolina State University
Sponsor: US Environmental Protection Agency (EPA)
Award Amount (Period): $18,000 (4-1-2023 to 3-29-24)

Raju Vatsavai — AI-CLIMATE (AI Institute for Climate-Land Interactions,
Mitigation, Adaptation, Tradeoffs and Economy)
Sponsor: NC Department of Environmental Quality (DEQ)
Award Amount (Period): $95,529 (6-1-2023 to 5-31-28)

Chris Jones, Ross Meentemeyer, Yu Takeuchi — Automated Host Mapping Tool
for Spread Modeling and Field Operations Planning
Sponsor: Animal and Plant Health Inspection Service (APHIS)
Award Amount (Period): $129,176 (8-1-2023 to 7-31-24)

Chris Jones, Ross Meentemeyer, Yu Takeuchi — Eradication Analysis &
Decision Support Tool
Sponsor: Animal and Plant Health Inspection Service (APHIS)
Award Amount (Period): $148,559 (8-1-2023 to 7-31-24)

Chris Jones, Ross Meentemeyer, Vaclav Petras, Yu Takeuchi — Simulating
pest leakage and spatio-temporal propagule pressure to improve phytosanitary
program design and evaluation us
Sponsor: Animal and Plant Health Inspection Service (APHIS)
Award Amount (Period): $127,192 (8-1-2023 to 7-31-24)

Dan Obenour, Emily Berglund — Designing Model Protocols to Assess Impacts
to Receiving Waters that have Low Dissolved Oxygen
Sponsor: USDA - National Institute of Food and Agriculture (NIFA)
Award Amount (Period): $281,540 (8-1-2023 to 7-31-25)

Chris Osburn — Improved Quantification of Stormwater Dilution in Wastewater Treatment Facility Influent Using Organic Matter Fluorescence
Sponsor: NCSU Water Resources Research Institute
Award Amount (Period): $24,468 (9-1-23 to 8-31-24)

Helena Mitasova, Vaclav Petras, Anna Petrasova — POSE Phase II: Growing GRASS OSE for Worldwide Access to Multidisciplinary Geospatial Analytics
Sponsor: USDA - National Science Foundation (NSF)
Award Amount (Period): $1,499,987 (9-1-23 to 8-31-25)

Anders Huseth, Chris Jones, Ross Meentemeyer — Farm bill: Addressing Evolving Corn Earworm Management Challenges in Sweet Corn Grown in the Eastern USSponsor: USDA - National Institute of Food and Agriculture (NIFA)
Award Amount (Period): $549,991 (9-1-23 to 7-31-27)

Helena Mitasova, Mitas Lubos**, Vaclav Petras, Anna Petrasova** — Adaptation of the Path Sampling Water Flow Simulation Model for the Integration of Dynamic Soil Survey Data
Sponsor: USDA - Natural Resources Conservation Service (NRCS)
Award Amount (Period): $400,000 (9-29-23 to 9-30-26)

Georgina Sanchez — Chatham County: Demographic and Development Study
Sponsor: Lee-Moore Capital Company
Award Amount (Period): $72,500 (10-1-23 to 1-31-24)

Josh Gray, Jenna Abrahamson — Quantifying the ephemeral: integrating satellite observations with physical models to map daily inundation and capture short-term methane emissions
Sponsor: National Aeronautics & Space Administration (NASA)
Award Amount (Period): $50,000 (10-4-23 to 10-3-26)

Jelena Vukomanovic — Cultural landscapes climate change vulnerability assessments at Mid-Atlantic battlefield park units - CESU
Sponsor: US Dept. of the Interior (DOI)
Award Amount (Period): $500,000 (10-30-23 to 12-31-26)

Jelena Vukomanovic — The Long View: Development of a 500-year Climate Adaptation Planning Framework with the Eastern Band of Cherokee Indians
Sponsor: US Geological Survey (USGS)
Award Amount (Period): $497,083 (11-15-23 to 12-14-27)

Faculty & Staff Honors

Marcelo Ardon was named a University Faculty Scholar and received an Outstanding Teaching Award.

Caren Cooper was promoted to Professor.

Bethany Cutts received an Outstanding Extension and Engagement Award from NC State.

Aaron Hipp was promoted to Professor.

Anders Huseth was named a University Faculty Scholar.

Daniela Jones received an Educational Aids Blue Ribbon Award from the American Society of Agricultural and Biological Engineers.

Robert Scheller received an Outstanding Research Award from NC State.

Jelena Vukomanovic was promoted to Associate Professor with tenure.

Karl Wegmann received an Outstanding Teaching Award.

Center-Affiliated Publications (2023)

Atkins, R.M., **Wegmann, K.W., Bohenstiehl, D.R.** (2022). Channel head response to anthropogenic landscape modification: A case study from the North Carolina Piedmont, USA, with implications for water quality. *Earth Surface Processes and Landforms*, 48(2): 433-451. https://doi.org/10.1002/esp.5495

Bohnenstiehl, D.R. (2023). Automated cataloguing of American silver perch (Bairdiella chrysoura) calls using machine learning. *Bioacoustics,* 4:453-473. https://doi.org/10.1080/09524622.2023.2197863

Caldwell, P.V., **Martin, K.L.**, Mose, J.M., Baker, J.S., Warziniack, T.W., Constanza, J.K., Frey, G.E., Nehra, A., Mihiar, C.M. (2023). Forested watersheds provide the highest water quality among all land cover types, but the benefit of this ecosystem service depends on landscape context. *Science of The Total Environment*, 882: 163550. https://doi.org/10.1016/j.scitotenv.2023.163550

D'Agostino, E.M., Zhao, A.Y., Zewdie, H.Y., **Ogletree, S.S.**, Messiah, S.E., Armstrong, S.C., Skinner, A.C., **Hipp, J.A.**, Day, S.E., Konty, K.J., Neshteruk, C.D. (2023). Associations between neighborhood opportunity and indicators of physical fitness for New York City Public School Youth. *Childhood Obesity.* https://doi.org/10.1089/chi.2023.0079

Fidan, E., **Gray, J.**, Doll, B., **Nelson, N.G.** (2023). Machine learning approach for modeling daily pluvial flood dynamics in agricultural landscapes. *Environmental Modelling & Software*, 167: 105758. https://doi.org/10.1016/j.envsoft.2023.105758

Gao, X., McGregor, I.R., **Gray, J.M.**, Friedl, M.A., Moon, M. (2023). Observations of satellite land surface phenology indicate that maximum leaf greenness is more associated with global vegetation productivity than growing season length. *Global Biogeochemical Cycles*, 37(3): e2922GBB007462. https://doi.org/10.1029/2022GB007462

Gadiraju, K.K., **Vatsavai, R.R.** (2023). Remote sensing based crop type classification via deep transfer learning. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 16: 4699-4712. https://doi.org/10.1109/JSTARS.2023.3270141

Fidan, E., **Gray, J.**, Doll, B., **Nelson, N.G.** (2023). Machine learning approach for modeling daily pluvial flood dynamics in agricultural landscapes. *Environmental Modelling & Software*, 167: 105758. https://doi.org/10.1016/j.envsoft.2023.105758

Haedrich, C., **Petras, V., Petrasova, A.**, Blumentrath, S., **Mitasova, H.** (2023). Integrating GRASS GIS and Jupyter Notebooks to facilitate advanced geospatial modeling education. *Transactions in GIS,* 27(3): 686-702. https://doi.org/10.1111/tgis.13031

CGA affiliated student; ***CGA-affiliated faculty or researcher***, <u>CGA Alum (at publication)</u>

Holcomb, J.A., Mandel, R.D., **Wegmann, K.W.** (2023). The case for a lunar anthropocene. *Nature Geoscience*, 17:2-4. https://doi.org/10.1038/s41561-023-01347-4.

Holcomb, J.A., O'Leary, B., Darrin, A.G., Mandel, R.D., Kling, C., **Wegmann, K.W.** (2023). Planetary geoarchaeology as a new frontier in archaeological science: Evaluating site formation processes on Earth's Moon. *Geoarchaeology*, 38(5): 513-533. https://doi.org/10.1002/gea.21966

Ifediora, B., **Cutts, B.B.** (2023). Open and shut: Identifying activity patterns by volunteer organizations active in disaster using space-time permutation scan statistics. *International Journal of Mass Emergencies & Disasters*, 41(1): 174-185. https://doi.org/10.1177/02807270231171629

Inglis, N.C., **Vukomanovic, J., Petrasova, A., Meentemeyer, Ross, K.** (2023). Viewscape change highlights shifting drivers of exurban development over time. Landscape and Urban Planning, 238: 104833. https://doi.org/10.1016/j.landurbplan.2023.104833

Jouzi, Z., **Leung, YF, Nelson, S.** (2023). Characterizing the association between child malnutrition and protected areas in sub-Saharan Africa using unsupervised clustering. *Journal of Environmental Studies and Sciences*. https://doi.org/10.1007/s13412-023-00880-3

Jouzi, Z., **Nelson, A.C., Leung, Y.** (2023). Spatial heterogeneity of child malnutrition, proximity to protected areas and environmental variabilities in Zimbabwe. *GeoJournal*, 88:3773-3789. https://doi.org/10.1007/s10708-023-10842-5

Jones, K., **Vukomanovic, J.** (2023). Mapping South Florida daily fire risk for decision support using fuel type, water levels, and burn history. *Fire*, 6, 236. https://doi.org/10.3390/fire6060236

Karimi, K., Miller, J.W., **Sankarasubramanian, A., Obenour, D.R.** (2023). Contrasting annual and summer phosphorus export using a hybrid Baysean watershed model. *Water Resources Research*, 59(1): e2022WR033088. https://doi.org/10.1029/2022WR033088

Karlovska, L., **Petrasova, A., Petras, V.**, Landa, M. (2023). Redesigning graphical user interface of open-source geospatial software in a community-driven way: A case study of GRASS GIS. *ISPRS Journal of Geo-Information*, 12(9): 376. https://doi.org/10.3390/ijgi12090376

Kotlarz, N., Holcumb, D.A., Pasha, T., **Reckling, S.**, Kays, J., Lau, Y., Daly, S., Palani, S., Bailey, E., Guidry, V.T., Christensen, A., Berkowitz, S., Hoppin, J.A., **Mitasova, H.**, Engel, L.S., de los Reyes, F.L., Harris, A. (2023). Timing and trends for municipal wastewater, lab-confirmed case, and syndromic case surveillance of COVID-19 in Raleigh, North Carolina. *American Journal of Public Health*, 113(1). https://doi.org/10.2105/AJPH.2022.307108

CGAaffiliated student; ***CGA-affiliated faculty or researcher***, <u>CGA Alum (at publication)</u>

Laanisto, L., Jaksi, P., Harm, L., Hallikma, T., Kull, T., **Leung, Y.** (2023). GetDiv – a call for a global coordinated study on plant diversity changes on nature trails. *Journal of Ecotourism*. https://doi.org/10.1080/14724049.2023.2191894

Li, K., Blackhart, K., Miller, J., **Obenour, D.** (2023). An estuary stress index based on nekton relationships with thematic watershed stressors. *Ecological Indicators*, 154: 110678. https://doi.org/10.1016/j.ecolind.2023.110678

Mathieu, M.E., **Gray, J., Richmond-Bryant, J.** (2023). Spatial associations of long-term exposure to diesel particulate matter with season and annual mortality due to COVID-19 in the contiguous United States. *BMC Public Health*, 23: 423. https://doi.org/10.1186/s12889-023-15064-5

McCaffrey, K.R., **Paulukonis, E.A.**, Raimondo, S., Sinnathamby, S., Purucker, S.T., Oliver, L.M. (2023). A multi-scale approach for identification of potential pesticide use sites impacting vernal pool critical habitat in California. *Science of the Total Environment*, 857(1): 159274. https://doi.org/10.1016/j.scitotenv.2022.159274

McQuillan, K., Hwang, T., **Martin, K.** (2023). Extended growing seasons and decreases in hydrologic connectivity indicate increasing water stress in humid, temperate forests. *Agricultural and Forest Meteorology*, 338: 109525. https://doi.org/10.1016/j.agrformet.2023.109525

Mitas, O., Badal, R., Verhoeven, M., Verstraten, K., de Graaf, L., **Mitasova, H.**, Weijdema, W., Klijs, J. (2023). Tell me where to go: An experiment in spreading visitor flows in The Netherlands. *International Journal of Environmental Research and Public Health*, 20(8): 5441. https://doi.org/10.3390/ijerph20085441

Montgomery, K., Walden-Schreiner, C., **Saffer, A.**, **Jones, C.**, Seliger, B.J., Worm, T., **Tateosian, L., Shukunobe, M.**, Kumar, S., **Meentemeyer, R.K.** (2023) Forecasting global spread of invasive pests and pathogens through international trade. *Ecosphere*, 14(12). https://doi.org/10.1002/ecs2.4740

Ogletree, S.S., Huanj, J., Reif, D., Yang, L., **Dunstan, C.**, Osakwe, N., Oh, J.I., **Hipp, J.A.** (2023). The relationship between greenspace exposure and telomere length in the National Health and Nutrition Examination Survey. Science of the Total Environment, 901: 167452. https://doi.org/10.1016/j.scitotenv.2023.167452

Oloonabadi, S.A., **Baran, P.** (2023). Augmented reality participatory platform: A novel digital participatory planning tool to engage under-resourced communities in improving neighborhood walkability. *Cities*, 141: 104441. https://doi.org/10.1016/j.cities.2023.104441

CGAaffiliated student; ***CGA-affiliated faculty or researcher***, *CGA Alum (at publication)*

Ott, R.F., Scherler, D., **Wegmann, K.W.**, D'Arcy, M.K., Pope, R.J., Ivy-Ochs, S., Christi, M., Vockenhuber, C., Rittenour, T.M. (2022). Paleo-denudation rates suggest variations in runoff drove aggradation during last glacial cycle, Crete, Greece. *Earth Surface Processes and Landforms,* 48(2): 386-405. https://doi.org/10.1002/esp.5492

Petras, V., Petrasova, A., McCarter, J.B., ***Mitasova, H., Meentemeyer, R.K.*** (2023). Point density variations in airborne lidar point clouds. *Sensors*, 23(3): 1593. https://doi.org/10.3390/s23031593

Pharr, L.D., ***Cooper, C.B.***, Evans, B., Moorman, C.E., Voss, M.A., ***Vukomanovic, J.***, Marra, P.P. (2023). Using citizen science data to investigate annual survival rates of resident birds in relation to noise and light pollution. *Urban Ecosystems,* 26:1629-1637. https://doi.org/10.1007/s11252-023-01403-2

<u>Reckling, W.</u>, Levine, J., ***Nelson, S.A.C., Mitasova, H.*** (2023) Predicting residential septic system malfunctions for targeted drone inspections. *Remote Sensing Applications: Society and Environment*, 30: 100936. https://doi.org/10.1016/j.rsase.2023.100936

Sanchez, F., Galvis, J.A., Cardenas, N.C., Corzo, C., Jones, C., Machado, G. (2023). Spatiotemporal relative risk distribution of porcine reproductive and respiratory syndrome virus in the United States. *Frontiers in Veterinary Science*, 10: 1158306. https://doi.org/10.3389/fvets.2023.1158306

Sanchez, G.M., **Petrasova, A.**, ***Skrip, M.M.***, <u>Collins, E.L.</u>, **Lawrimore, M.A.**, ***Vogler, J.B., Terando, A., Vukomanovic, J., Mitasova, H., Meentemeyer, R.K.*** (2023). Spatially interactive modeling of land change identifies location-specific adaptations most likely to lower future flood risk. *Scientific Reports*, 13: 18869. https://doi.org/10.1038/s41598-023-46195-9

<u>Schrum, P.T.</u>, Jameson, C.D., ***Tateosian, L.G.***, Blank, G.B., ***Wegmann, K.W., Nelson, S.A.C.*** (2023). Curvature weighted decimation: A novel, curvature-based approach to improved Lidar point decimation of terrain surfaces. *Geomatics*, 3(1): 266-289. https://doi.org/10.3390/geomatics3010015

Shehata, M., Gentine, P., ***Nelson, N.***, Sayde, C. (2023). Optimization of the number and locations of the calibration stations needed to monitor soil moisture using distributed temperature sensing systems: A proof-of-concept study. *Journal of Hydrology*, 620A: 129449. https://doi.org/10.1016/j.jhydrol.2023.129449

<u>Smart, L.S.</u>, Seekamp, E., Van Berkel, D., ***Vukomanovic, J.***, Smith, J.W. (2023). Socio-spatial factors influence climate change adaptation decisions of rural coastal landowners. *Landscape Ecology*, 38: 4365-4383. https://doi.org/10.1007/s10980-023-01734-7

CGAaffiliated student; ***CGA-affiliated faculty or researcher***, <u>CGA Alum (at publication)</u>

White, C.T., *Petrasova, A., Petras, V., Tateosian, L.G., Vukomanovic, J., Mitasova, H., Meentemeyer, R.K.* (2023). An open-source platform for geospatial participatory modeling in the cloud. *Environmental Modelling & Software*, 167: 105767. https://doi.org/10.1016/j.envsoft.2023.105767

Youngsteadt, E., Terando, A., Costanza, J., *Vukomanovic, J.* (2023). Compact or sprawling cities: Has the sparing-sharing framework yielded an ecological verdict? *Current Landscape Ecology Reports*, 8: 11-22. https://doi.org/10.1007/s40823-022-00081-8

Vivek Nanda, V.M., **Baran, P., Tateosian, L., Nelson, S.A.**, Hu, J. (2023). Classification of tree forms in aerial LiDAR point clouds using CNN for 3D tree modelling. International Journal of *Remote Sensing*, 44(22): 7156-7186. https://doi.org/10.1080/01431161.2023.2282405

Vukomanovic, J., Smart, L.S., Koch, J., Dale, V.H., Plassin, S., Byrd, K.S., Beier, C., Wilson, M., Doyon, F. (2023). Translating stakeholder narratives for participatory modeling in landscape ecology. Landscape Ecology, 38: 2453-2474. https://doi.org/10.1007/s10980-023-01724-9

Wall, J., *Bohnenstiehl, D.R.*, Levine, N.S., Millahuser, J.K., McGill, D.E., *Wegmann, K.W.*, Melomo, V. (2023). A geospatial and archaeological investigation of an African–American cemetery in Raleigh, North Carolina, USA. *Archaeological Prospection*. https://doi.org/10.1002/arp.1921

Congratulations to our students with first-author publications this year:

Xiaojie Gao ('23) - *Global Biogeochemical Cycles*
Caitlin Haedrich - *Transactions in GIS*
Byron Ifediora ('23) - *International Journal of Mass Emergencies & Disasters*
Kate Jones - *Fire*
Kimia Karimi ('23) - *Water Resources Research*
Martine Mathieu - *BMC Public Health*
Katie McQuillan ('23) - *Agricultural and Forest Meteorology*
Felipe Sanchez - *Frontiers in Veterinary Science*
Corey White ('23) - *Environmental & Modelling Software*

Center Service

Thank you to our CGA committee members who served in 2023!

Steering Committee
Ross Meentemeyer (chair), Zac Arcaro, Aaron Hipp, Rachel Kasten, Helena Mitasova, Eric Money, Dan Obenour, Georgina Sanchez, Megan Skrip, Mirela Tulbure, Raju Vatsavai

Awards Committee
Rachel Kasten (co-chair), Stacy Supak (co-chair), Josh Gray, Ben Seliger

Development Committee
Zac Arcaro (co-chair), Georgina Sanchez (co-chair), Izzi Hinks, Eric Money, Megan Skrip, John Vogler

Education Committee
Eric Money (chair), Perver Baran, Rebecca Composto, Rachel Kasten, Helena Mitasova, Stacy Supak

Forum Committee
Ross Meentemeyer (chair), Rebecca Composto, Christian Fleming, Aaron Hipp, Eric Money, Vaclav Petras, Felipe Sanchez, Georgina Sanchez, Megan Skrip, Mirela Tulbure, John Vogler

Ph.D. Admissions Committee
Ross Meentemeyer (chair), Josh Gray, Rachel Kasten, Katie Martin, Helena Mitasova, Laura Tateosian, Mirela Tulbure, Raju Vatsavai

CGA Awards

The CGA Awards were created to honor members of the Center for Geospatial Analytics community whose efforts exemplify center ideals of collaboration, inclusion and excellence in research, teaching and service.

Advocate Award
Given to one student and one employee who demonstrates a commitment to equity and inclusion within CGA, on the NC State campus and/or in the community.

Beacon Award
Given to one student, one employee and one alum who shines a light on CGA in the wider scientific community through their research, partnerships and/or involvement in professional organizations.

Collaboration & Innovation Award
Given to a research team who collaborates across disciplinary boundaries to address environmental and societal challenges.

Creativity in Teaching Award
Given to one student and one faculty/staff member who creates an innovative learning environment (online and/or in a classroom) that engages diverse learners in the study of geospatial data science.

Gladys West Award
Given to a "hidden figure," one student and one faculty/staff member who consistently serves as a role model, helps others and exceeds expectations and who does not often receive recognition and/or does not hold a leadership position at the Center for Geospatial Analytics.

Interdisciplinary Advancement Award
Given to one student not enrolled in a CGA degree program who applies principles of geospatial analysis to address grand challenges requiring an interdisciplinary approach.

2023 CGA Award Winners

Award	Student	Employee
Advocate	Shannon McAvoy	Lois Utt
Beacon	Katie McQuillan	Katie Martin
Creativity in Teaching	Myleigh Neill	Stacy Supak
Gladys West	Izzi Hinks	John Vogler
Interdisciplinary Advancement	Andrea Saravitz	

Collaboration & Innovation
Geospatial Analysis for Environmental Change Lab:
Mirela Tulbure, Rebecca Composto, Mollie Gaines, Varun Tiwari, Vini Perin