MESSAGE FROM THE CENTER DIRECTOR

Welcome to the Center for Geospatial Analytics’ 2020-2021 annual report. This past year has been a challenging one for all of us, for many reasons, and I would first like to thank and applaud each and every person affiliated with our Center for their extraordinary efforts in these difficult times.

As operations at NC State University shifted in response to the COVID-19 pandemic, the Center for Geospatial Analytics was relatively spared compared to most campus units. The vast majority of classes offered by our Center had already been taught online (given the large enrollment in our online professional master’s and graduate certificate program), and most of our Center’s research did not involve field or lab work impacted by COVID-19 restrictions.

Nevertheless, each of us had to cope with new norms and unanticipated stressors, and we deeply appreciate the efforts of our faculty, staff and students who strived to sustain a supportive working and learning environment for their colleagues, mentees and peers.

In this report, I am pleased to share with you achievements by our Center this year as well as the plans and progress of the Center’s new Diversity Committee, chaired by University Program Associate Rachel Kasten. Our Center is resolved to do more, and do better, to make our data science anti-racist and our practices equitable and inclusive. We hope that you will share your feedback on these efforts.

Thank you, as always, for your support.

Dr. Ross Meentemeyer
Director of the Center for Geospatial Analytics
Goodnight Distinguished Professor of Geospatial Analytics
About the Center

At the Center for Geospatial Analytics, we push the boundaries of spatial data science to advance discovery and inform real-world decision-making.

Our world-renowned researchers collaborate across disciplines to answer pressing questions about the world and address challenges.

Our signature academic programs train new generations of geospatial data scientists and GIS professionals to tackle emerging issues and leverage new technologies.

Through research, teaching and consulting, our community of experts work closely with industry, government, nonprofit and other community partners to produce data-driven solutions to real problems.

Connect with Us

Website: geospatial.ncsu.edu
Phone: 919-515-4000
Social:
  NC State Center for Geospatial Analytics
  @NCSUgeospatial
Award-Winning Excellence

The Center for Geospatial Analytics administers five graduate programs (doctorate, professional master’s degree, graduate certificate and two graduate minors), and each year our graduate students impress us in new and different ways.

This past spring, our graduate students represented nearly half of the eighteen honorees of NC State’s Graduate Student Association inaugural infographic competition, including two first-place winners (sampling of winning entries pictured above); six of the Center’s winners were first-year Geospatial Analytics Ph.D. students, who had developed their infographics as part of the core doctoral program course GIS 715: Geovisualization, taught by Faculty Fellow Laura Tateosian.

Our Geospatial Analytics Ph.D. students also earned a record number of prestigious grants and fellowships this year that will support a substantial portion of their studies. Many of these awards were won by second-year students, and two were won by a single first-year student, Uchenna Osia!

Our professional master’s degree program in Geospatial Information Science & Technology (MGIST) was also honored this year with an inaugural Excellence in Assessment award from NC State University’s Graduate School.

STUDENT HIGHLIGHT

As a first-year Geospatial Analytics Ph.D. student, Uchenna Osia won two prestigious fellowships to support her social justice and data science research.

Half of her first-year stipend was supported by a GEM Fellowship, and the next three years of her studies will be fully funded by the National Science Foundation Graduate Research Fellowship Program. Her NSF GRFP research will evaluate how well existing data science methods work to overcome biases in automated decision-making systems and will create a “data mindfulness framework,” she explains, to enable “those using big data to account for the biases in their data without fear that it will cause algorithmic unfairness.” Her work will inform training in our Geospatial Analytics Ph.D. program and has the potential to transform data science training nationally through increased incorporation of data justice principles.
Ph.D. Program Continues to Grow

Launched in 2018 with its first cohort of students, our Ph.D. program in Geospatial Analytics is on track to reach steady-state enrollment in Fall 2021, with 44 total students. We welcomed our third cohort of 11 students in Fall 2020, and admitted the fourth cohort of 12 this past winter.

Our Center is committed to making the recruitment and retention of Black, Hispanic/Latinx and Indigenous students an explicit goal of the Ph.D. program, including increasing recruitment at Historically Black Colleges and Universities.

The number of minority applicants to the program increased again this past application season, with one-third of domestic applicants identifying as underrepresented minorities. One-third of the students beginning their Ph.D. in Fall 2021 are Black or Hispanic/Latinx, and more than half are women. The Ph.D. program’s recruitment efforts are led by University Program Associate Rachel Kasten, chair of the Center’s new Diversity Committee.

STUDENT HIGHLIGHT

One of our Ph.D. program’s newest alumni is Megan Coffer, who defended her dissertation in March 2021.

Coffer’s research focused on the use of satellite remote sensing to monitor water quality, including cyanobacterial blooms. She also developed an innovative automated workflow to map coastal seagrass extent using imagery from commercial satellites.

In 2020, she published a viewpoint article in Environmental Science & Technology about balancing privacy rights with satellite imagery resolution, which earned her a speaking invitation as an expert panelist for a POLITICO conversation titled “Out of This World: The Future of Satellite Imagery.” Her thoughts as a panelist were quoted by Space Policy Online.

2020-2021 Ph.D. students:

45% female
67% domestic
9% of domestic are from underrepresented groups

MEET OUR NEW PH.D. STUDENTS – FALL 2020

Adedoja Adeyeye
Luke Allen
Raja Das
Nick Grokhowsky
Caitlin Haedrich
Izzi Hinks
Brit Laginihas
Martine Mathieu
Uchenna Òsia
John Polo
Ariel Saffer
Diversity, Equity and Inclusion

The Center’s new Diversity Committee has several additional short- and long-term goals for the Center’s academic programs:

> Integrating diversity, equity and inclusion into Ph.D. and MGIST courses. Last year, the Ph.D. core course GIS 710: Geospatial Analytics for Grand Challenges, taught by Director Ross Meentemeyer, added a unit related to racism and bias in data and models; discussion of these topics will be expanded in additional courses.

> Potentially forming a graduate research assistant (RA) position dedicated to anti-racism in data science.

> Conceptualizing diversity beyond race/ethnicity and exploring how to be more inclusive of international students.

STUDENT HIGHLIGHT

As a member of the Esri Innovation Program, the Center for Geospatial Analytics can select one student each year to be NC State’s EIP Student of the Year. The honoree receives a cash prize, a certificate of award and a free Esri Press book. Their name is engraved on a plaque at the Center and entered in the worldwide EDC Student of the Year competition.

NC State’s 2021 EIP Student of the Year is Alex Reinwald, a Fall 2020 MGIST graduate. For his capstone service-learning project, he developed web mapping applications to help the City of Asheville advance a reparations resolution that addresses disenfranchisement of Black homeowners and businesspeople.

His analysis identified parcels of land that were acquired by the City through “urban renewal” projects in the 20th century in three historically Black neighborhoods. The tools he developed permit examining individual parcels and the historical boundaries that were established to determine who was eligible for low-interest loans and who wasn’t, which led to property loss.

Thank You
to Our 2020-2021 MGIST Capstone Service-Learning Partners:

- Bureau of Economic Geology
- City of Asheville
- Davie County IT/Utilities
- Clean Jordan Lake
- Environmental Defense Fund
- FHI 360
- GeoOwl
- Habitat for Humanity of Wake County
- ITRE
- NC Division of Parks and Recreation
- NC Emergency Management
- NC Office of State Archaeology
- North Carolina Alliance for Health
- NC State University
  - Center for Geospatial Analytics
  - College of Veterinary Medicine
  - Dept. of Entomology & Plant Pathology
  - Dept. of History
- New Light Technologies
- Pacific Northwest National Laboratory
- Pinecroft Sedgefield Fire District
- Recreation Resources Service
- The Nature Conservancy NC Chapter
- University of the West Indies
- US Geological Survey
- Town of Mount Pleasant, SC

2020-2021 MGIST students:

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Graduate Certificate students:

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<th>Female</th>
<th>Underrepresented Minority</th>
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<tbody>
<tr>
<td>51%</td>
<td>14%</td>
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MEET OUR 2020-2021 MGIST GRADUATES

Fall 2020

Harold Rogers
Kari Signor
Matthew Watts

Spring 2021

Eric Anderson
Andrew Boschen
Matt Conard

Chandler Fields
Brooke Hatcher
Justin Klein

Mandy Liesch
Benjamin Maxson
Kelsey Mills

STUDENT HIGHLIGHT

Graduating MGIST students competed in poster competitions to showcase their service-learning projects:

Fall 2020 winner: Alex Reinwald

Spring 2021 winner: Justin Oakley
RESEARCH

Expanding Impact

Thanks to an energetic group of Faculty Fellows and research staff, the Center for Geospatial Analytics’ research portfolio continues to expand.

This year, our Fellows and staff were involved in 80 Center-affiliated externally funded research grants totaling nearly $7.7 million in expenditures during the fiscal year.

We also welcomed three new Faculty Fellows who bring new expertise in public science, economics and plant disease to the Center.

Several Center research projects this year focused on tracking COVID-19, providing valuable information about the spatial nature of spread and helping North Carolina decision-makers better understand statewide infection.

Center research received considerable media attention, particularly new studies focused on the consequences of climate change. Our experts were consulted for their expertise by outlets ranging from local broadcast news to Fortune and Smithsonian Magazine.

54+ publications
29+ new affiliated grants
11+ publications with a student first author
$2.3+M new affiliated funding

MEET OUR NEW FACULTY FELLOWS

Caren Cooper
Eric Edwards
Peter Ojiambo
Tracking COVID-19

Spatial Patterns of Initial Spread

In June 2020, Assistant Teaching Professor Vaishnavi Thakar published research about the spread of COVID-19 during the initial outbreak in Washington state, using online news articles to analyze location information about new cases over time at a fine spatial scale.

“It took some time for COVID-19 to spread from the first case’s location in Washington state to locations further away,” Thakar says. “This indicates that implementing mitigation strategies such as strict social distancing measures during the initial stage of the outbreak could have helped curb the spread to distant locations.”

An animation Thakar created depicting space-time spread of COVID-19 in North Carolina counties received an honorable mention in the Faculty/Staff Video category of the 2020 NC State Research Image Contest.

Monitoring Wastewater for SARS-CoV-2

A team led by Associate Director of Geovisualization Helena Mitasova joined a large project overseen by the University of North Carolina at Chapel Hill and the North Carolina Department of Health and Human Services (NCDHHS) to monitor wastewater for SARS-CoV-2, the virus that causes COVID-19.

Non-infectious particles of the virus are shed in human waste, and detection in wastewater can help decision-makers better understand infection rates, especially because people who don’t show symptoms still shed particles in their waste.

Mitasova’s research group used geospatial techniques to extract sewershed properties and estimate the number of COVID-19 cases contributing to viral particles detectable in wastewater. A key outcome of the project was a decision analytics tool made operational in record time for NCDHHS, supporting decision-making with independent data on trends in infection statewide.

The research team modeled the travel time of wastewater from its source to treatment plants and created a decision-analytics tool that compared SARS-CoV-2 concentrations measured in wastewater to numbers of confirmed COVID-19 cases.
In the Press: The Spread of Ghost Forests

In September, a team led by Research Associate Lindsey Smart published their findings that saltwater intrusion from rising seas led to the spread of “ghost forest” across 15% of unmanaged public land on North Carolina’s Albemarle-Pamlico Peninsula between 2001 and 2014. Ghost forests are some of the most visually striking consequences of sea level rise, as freshwater-dependent trees die and are replaced by salt-tolerant shrubs and marsh. Smart’s research was covered by *International Business Times*, *Fortune*, *Climate & Capital Media*, WTOP News (DC Metro), WUNC, CBS 19 (Charlottesville), CBS (Baltimore), *The Southern Maryland Chronicle*, *The Columbian*, Gizmodo, *Smithsonian Magazine* (twice) and Coastal Review Online, among others.

In the Press: Fall Color and Climate Change

Also in September, research led by Geospatial Analytics Ph.D. student Nikki Inglis was published detailing the results of a combined land change and viewshed model developed to predict how views of aspen in the Colorado mountains are likely to change given future climate conditions. The study’s key finding: aspen decline due to climate warming is likely to be more pronounced in places visible from overlooks along scenic highways. Publication of the research coincided with peak leaf-viewing in Colorado, and its findings were covered by H2O Radio, Colorado Public Radio, Aspen Daily News, and NBC 9 (Denver).

Software Release: PoPS (Pest or Pathogen Spread)

In October, our developers announced the first stable release of the Pest or Pathogen Spread model (PoPS 1.0), the Center’s signature open source system for forecasting the spread of insect pests and disease and for testing control strategies. PoPS requires no spatial modeling experience to run and can be used to forecast the spread of practically any species.

Read more: [geospatial.ncsu.edu/news/tag/software-release](geospatial.ncsu.edu/news/tag/software-release)
Community Spaces, On Campus and Online

This year, the Center for Geospatial Analytics completed a major renovation to some of its key spaces, remodeling its main classroom and kitchen and creating a new conference room (pictured above, right) and offices for faculty.

We also gathered online in new ways, at virtual Geospatial Forum seminars, a second annual CGA Awards ceremony held on Zoom, and a new Race & Place seminar series created and hosted by the Geospatial Graduate Student Organization (GGSO).

The GGSO coordinated three virtual Lunch & Learn workshops, virtual game nights and a virtual holiday party to build community during the COVID-19 pandemic. And the Center’s new Diversity Committee held its first meeting online to begin planning next year’s initiatives, including finding new ways to highlight “diversity champions” at the Center.

With its walls gone, the Center’s newly renovated kitchen is now an open, welcoming space that encourages impromptu gatherings. The room also features more storage for reusable dishes and all new appliances, including a dishwasher.
Learning Together Virtually

This past spring, the GGSO hosted a four-part Race & Place seminar series intended to highlight research that contextualizes race by speaking to environmental justice, equity, diversity and inclusion in the geographical and geospatial sciences. Three of the four speakers were Faculty Fellows at the Center for Geospatial Analytics.

The Center’s Geospatial Forum series this year was held exclusively on Zoom and featured ten distinguished guest speakers as well as four students in the Center’s Geospatial Analytics Ph.D. program.

All talks were recorded and can be watched anytime on the Center’s YouTube channel: https://www.youtube.com/ncstatecenterforgeospatialanalytics

GEOSPATIAL FORUM SERIES 2020-2021

Dr. Jennifer Richmond-Bryant – NC State
Disparities in Air Pollution Burdens by Race and Income across the US

Dr. Stacy Nelson – NC State
Mr. Mickey Fearn – NC State (retired)
The Importance of Your Eco-System

Dr. Jennifer Richmond-Bryant – NC State
Disparities in Air Pollution Burdens by Race and Income across the US

Mr. Anthony Calamito – Enview
Modern Mapping Using AI and Live Location Data

Dr. Dustin Duncan – Columbia University
Applications of Geospatial Methods to Study Neighborhoods in Population Health and Health Disparities Research

Dr. Andrew Fox – NC State
Visualizing Community Assets and Threats to Inform Post-Disaster Recovery

Dr. Pankaj Agarwal – Duke University
Flood Risk Analysis on Terrains

Ms. Geri Miller – Esri
Geospatial Education in the Cloud: Today’s Workforce Skills

Dr. Anders Huseth – NC State
Source-Sink Dynamics and Landscape Drivers of Insect Pests in North Carolina Agroecosystems

Dr. Elizabeth Wentz – Arizona State University
Spatial Data Supporting Knowledge-based Decision Making for Community Resilience

Dr. Christopher Osburn – NC State
Geospatial Analysis, Coastal Water Quality and Carbon Cycling: a Biogeochemist’s Perspective

Dr. Sarah Gergel – University of British Columbia
Feeding People with Forests: Landscape Mosaics and Their Role in Nutrition

Race & Place Seminar Series

RACE & PLACE SERIES 2021

Dr. Bethany Cutts – NC State
Just Technological Enough: Planning for Transformative Disaster Resilience through Community-University Research and Action Partnerships

Mr. Mickey Fearn – NC State (retired)
The Importance of Your Eco-System

Dr. Jennifer Richmond-Bryant – NC State
Disparities in Air Pollution Burdens by Race and Income across the US

Panel Discussion, featuring:
Dr. Cutts,
Dr. Richmond-Bryant, and
Dr. Stacy Nelson – NC State
Celebrating Our Community

The Center held its second CGA Awards ceremony virtually in March, honoring community members whose efforts exemplify Center ideals of collaboration, inclusion and excellence in research, teaching and service.

This year, a new Interdisciplinary Advancement Award was created to recognize one student not enrolled in a Center degree program who applies principles of geospatial analysis to address grand challenges requiring an interdisciplinary approach. An alumni category was also added to the Beacon Award.

Congratulations to all of the honorees!

**Advocate Award**
Student: Josh Randall
Faculty: Bethany Cutts

**Beacon Award**
Student: Ian McGregor
Staff: Chris Jones
Alum: Christen McNamara Watts

**Creativity in Teaching Award**
Student: Gardner Pierson
Faculty: Laura Tateosian

**Interdisciplinary Advancement Award**
Student: Melinda Martinez

**Gladys West Award**
Student: Byron Ifediora
Staff: Megan Skrip

**Collaboration & Innovation Award**
Team: GAPS for High-Tech Teens

The Center’s Diversity Committee formed in Spring 2021 and includes students, faculty and staff. Among its initiatives for the upcoming year (see pg. 6) are plans to highlight “diversity champions” on the Center website and elevate DEI work happening at the Center.

The committee is currently working with the Geospatial Graduate Student Organization to host a W.E.B. Du Bois Data Visualization exhibit, the first event of November 2021’s GIS Week at NC State. The event will showcase visualizations (both physical and digital) that are either modern extensions of Du Bois’ work or products of original scholarship around racial equity and justice.

Read more: [https://www.gisweekatncstate.org/](https://www.gisweekatncstate.org/)
Publications (Not an exhaustive list)


Student Presentations
(Not an exhaustive list)

NC GIS, February 2021 (virtual)

Mathieu, M. Exposure to diesel particulate matter and COVID-19 mortality in the continental United States. [oral]

Schrum, P. FOSS Lidar reader and new “smart” decimation technique. [oral]

Vivek Nanda, V.M. Modeling trees with deep learning using aerial LiDAR and photos. [oral]

College of Natural Resources Graduate Research Symposium, March 2021 (virtual)

Coffer, M. Eyes in the sky support seagrass mapping in coastal environments. [poster]
Winner, Ph.D. student category: Land, Wildlife, Water and Forest System Management

Mathieu, M. Exposure to diesel particulate matter and COVID-19 mortality in the continental United States. [poster]

Perin, V. A multi-sensor satellite imagery approach to monitor on-farm reservoirs. [poster]
Winner, Ph.D. student category: Human Dimensions & Community Health

UCGIS Symposium, June 2021 (virtual)

Ricci, S. Assessment of visitation trends at North Carolina artificial reefs using high-resolution satellite imagery. [oral]
2nd Place: Lightning Talk Competition
Awards and Honors
(Not an exhaustive list)

Students

**Muyiwa Adeyeye** received a Diversity Enhancement Grant. He also won first place for the Outreach award in NC State’s Graduate Student Association PackPics infographic competition.

**Megan Coffer** received a USGIF scholarship and NC Sea Grant-NC Space Grant Graduate Student Fellowship. She won the Ph.D. student prize in the Land, Wildlife, Water and Forest System Management category of the College of Natural Resources Graduate Research Symposium. She was invited by POLITICO to serve as an expert panelist for a conversation titled “Out of This World: The Future of Satellite Imagery” about satellite data and privacy; her thoughts were quoted by Space Policy Online.

**Jack Cummings** was on the team awarded the Center’s Collaboration & Innovation Award.

**Xiaojie Gao** received a NASA FINESST Grant.

**Nick Grokhowsky** won second place in the Content category of NC State’s Graduate Student Association PackPics infographic competition.

**Caitlin Haedrich** was awarded a University Graduate Fellowship. She also won third place in the Content category of NC State’s Graduate Student Association PackPics infographic competition.

**Byron Ifediora** won the Center’s Gladys West Award.

**Nikki Inglis** won first place in the Impact category of NC State’s Graduate Student Association PackPics infographic competition. She won second place in the Graduate Student/Postdoc Graphics category of the 2020 NC State Envisioning Research Contest. She assisted the team that won the Center’s Collaboration & Innovation Award.

**Kate Jones** received a Joint Fire Science Program Graduate Research Innovation Grant.

**Laurel Krynock** was on the team awarded the Center’s Collaboration & Innovation Award.

**Brit Laginhas** won the Ecological Society of America’s George Mercer Award.

**Melinda Martinez** won the Center’s Interdisciplinary Advancement Award.

**Martine Mathieu** won third place for the Outreach award in NC State’s Graduate Student Association PackPics infographic competition.

**Ian McGregor** received a USGIF scholarship, NC Space Grant Graduate Research Fellowship and NASA FINESST Grant. He also won the Center’s Beacon Award.

Alum **Christen McNamara Watts** won the Center’s Beacon Award.

**Katie McQuillan** received a Nature Conservancy NatureNet Fellowship.

**Garrett Millar** was on the team that won the Center’s Collaboration & Innovation Award.

**Kellyn Montgomery** assisted the team that won the Center’s Collaboration & Innovation Award.

**Jaimie Nevins** was on the team awarded the Center’s Collaboration & Innovation Award.

**Justin Oakley** won the Center’s MGIST capstone poster competition in Spring 2021.

**Uchenna Osia** received a National Science Foundation Graduate Research Fellowship (NSF GRFP) and a GEM Fellowship.

**Vini Perin** received a NASA FINESST Grant. He also won the Ph.D. student prize in the Human Dimensions and Community Health category of the College of Natural Resources Graduate Research Symposium.

**Gardner Pierson** won the Center’s Creativity in Teaching Award.

**John Polo** won third place in the Impact category of NC State’s Graduate Student Association PackPics infographic competition.

**Josh Randall** received an Energy Data Analytics Ph.D. Fellowship. He also won the Center’s Advocate Award.

**Alex Reinwald** won the Center’s MGIST capstone poster competition in Fall 2020. He was also named NC State’s 2021 Esri Innovation Program Student of the Year.
Shannon Ricci received an NC Sea Grant-NC Space Grant Graduate Student Fellowship. She also won second prize in the Student Lightning Talk Awards at the 2021 UCGIS Symposium.

Ariel Saffer was awarded a University Graduate Fellowship. She also won third place in the Design category of NC State’s Graduate Student Association PackPics infographic competition.

Zach Tunstall won second place for the Outreach award in NC State’s Graduate Student Association PackPics infographic competition.

Faculty and Staff

Faculty Fellow Perver Baran assisted the team that won the Center’s Collaboration & Innovation Award.

Faculty Fellow Bethany Cutts won the Center’s Advocate Award.

Faculty Fellow Ryan Emanuel received an Alumni Association Distinguished Graduate Professorship. He was also a James E. Holshouser nominee.

Faculty Fellow Aaron Hipp was named Digital Media Editor of the Journal of Healthy Eating and Active Living.

Faculty Fellow Anders Huseth was inducted into the inaugural class of NC State’s Goodnight Early Career Innovators.

Research Associate Justyna Jeziorska was named a semi-finalist in the Education category for the 2021 Women to Watch in UAS Global Awards. She was also on the team that won the Center’s Collaboration & Innovation Award.

Research Scholar Chris Jones won the Center’s Beacon Award.

Faculty Fellow Daniela Jones was nominated for the Chancellor’s Creating Community Award for Outstanding Faculty.

Associate Director of Geovisualization Helena Mitasova was on the team that won the Center’s Collaboration & Innovation Award.

The Center’s professional master’s degree program in Geospatial Information Science & Technology (MGIST), overseen by Associate Director of Professional Education Eric Money, won an NC State Graduate School Excellence in Assessment Award. Eric also led the team that won the Center’s Collaboration & Innovation Award for the GAPS (Geospatial Applications for Problem Solving) for High Tech Teens program.

Faculty Fellow Natalie Nelson was selected by the US Department of Agriculture to serve as one of the 11 subject matter experts for the USDA’s Agriculture Innovation Agenda. She was also named a University Faculty Scholar, won an NSF Early-Career Development Program Award and was inducted into the inaugural class of NC State’s Goodnight Early Career Innovators.

Faculty Fellow Stacy Nelson was named a member of the board of directors of the North Carolina Wildlife Federation.

Research Software Engineer Vaclav Petras assisted the team that won the Center’s Collaboration & Innovation Award.

Research Software Engineer Anna Petrasova was on the team that won the Center’s Collaboration & Innovation Award.

Research Associate Justin Shedd assisted the team that won the Center’s Collaboration & Innovation Award.

Science Communicator Megan Skrip won the Center’s Gladys West Award.

Faculty Fellow Laura Tateosian won the Center’s Creativity in Teaching Award. She was also on the team that won the Center’s Assistant Teaching Professor Vaishnavi Thakar received a DELTA Rapid Design grant.

Research Scholar John Vogler won third place in the 2021 NC GIS conference poster competition.

Faculty Fellow Jelena Vukomanovic was nominated for the Chancellor’s Creating Community Award for Outstanding Faculty.
New Grants  (Not an exhaustive list)

Pls: Jean Ristaino, Qingshan Wei, **Christopher Jones**
Sensor Integrated Platform for Monitoring Phytophthora
USDA Animal and Plant Health Inspection Service (APHIS)
$338,322 (7-1-2020 to 6-30-2021)

**Pl: Josh Gray**
Development of Near Real-Time Land Surface Phenology Product by Fusing Geostationary Satellite and VIIRS Observations in Support of Agriculture and Land Management
South Dakota State University (Prime–National Aeronautics & Space Administration)
$8,098 (8-1-2020 to 7-31-2021)

Pls: **Ross Meentemeyer, Christopher Jones**
Automated Host Mapping Tool and Interface for Spread Modeling and Field Operations Planning
USDA Animal and Plant Health Inspection Service (APHIS)
$108,053 (8-1-2020 to 7-31-2021)

Pls: **Ross Meentemeyer, Christopher Jones**
Managing Tangible Landscape
USDA Animal and Plant Health Inspection Service (APHIS)
$110,080 (8-1-2020 to 7-31-2021)

**Pl: Jelena Vukomanovic**
Forecasting Fire Risk through Analysis of Past and Future Variability in Hydrologic Regimes & Integrate into South Florida Fire Danger Index
US National Park Service (Prime–US Dept. of Interior)
$74,800 (8-17-2020 to 8-31-2022)

Pls: **Ross Meentemeyer, Bill Slocumb**
Research and Development in Geographic Information Systems for the National Park Service, Interior Region One
US National Park Service (Prime–US Dept. of Interior)
$106,920 (8-24-2020 to 9-30-2021)

**Pl: Natalie Nelson**
Gulf Research Program Early-Career Research Fellowship
National Academies
$76,000 (9-1-2020 to 8-31-2022)

**Pl: Anders Huseth; Co-Pls: George Kennedy, Alper Bozkurt, Brian Reich, Natalie Nelson**
Unifying Biological and Environmental Data Streams to Monitor Emerging Lepidopteran Resistance to Genetically Engineered Crops
USDA National Institute of Food and Agriculture
$500,000 (9-1-2020 to 8-31-2024)

**Pl: Georgina Sanchez**
Mapping Future Flood Probability Following Climate Change
NC State University Sea Grant Program
$10,000 (10-1-2020 to 9-30-2021)
MGIST Capstones

**Fall 2020**

**Robert Carion**  
Modeling GeneXpert Deployment in Sylhet Division, Bangladesh  
FHI 360

**Curran Hellgeth**  
Optimizing Future GeneXpert Deployment in Yangon State, Burma  
FHI 360

**Laurel Krynock**  
Analyzing and Mapping the Impacts of Stormwater Runoff on Trash Accumulation along the Jordan Lake Shoreline  
Clean Jordan Lake

**Christopher McDonald**  
Identifying High-Risk Habitat Locations in The Eastern United States Due to Solar Farm Implementation  
The Nature Conservancy

**Ursula Moley**  
NCSU Center of Geospatial Analytics Geographic and Demographic Enrollment Trends  
Center for Geospatial Analytics

**Alex Reinwald**  
Visualizing the Impact of Urban Renewal on Black Asheville  
City of Asheville, NC

**Harold Hubert Rogers III**  
Using Oil and Gas production to find greenfield oil and gas residual Oil Zones of the Central Basin Platform of the Permian Basin  
Bureau of Economic Geology

**Kari D. Signor**  
Estimating the Abundance of Beached Sargassum Seaweed in the Barbados Using UAS  
University of the West Indies

**Matthew Watts**  
Evaluating Screening Tools for Elevation Derived Hydrography Accuracy Assessment  
United States Geological Survey

**Spring 2021**

**Eric Anderson**  
Determining Suitable Flood Mitigation Sites within the Northeast Cape Fear River Basin  
NC Emergency Management

**Andrew Boschen**  
Evaluation Climate Induced Risk Using a Multi Hazard Risk Map for Coastal North Carolina  
The Nature Conservancy

**Matt Conard**  
Thrips Dispersion and Risk from Grain to Cotton Agroecosystems  
NC State University Dept. of Entomology and Plant Pathology

**Chandler Fields**  
Geolocation and Identification of Urban Development in Mt. Pleasant, South Carolina  
Town of Mt. Pleasant, SC

**Brooke Hatcher**  
Facility Allocation and Identifying Potential Isolated Communities: A Disaster Response Scenario  
New Light Technologies

**Justin Klein**  
Spatial Recruitment and Talent Acquisition  
GeoOwl

**Mandy Liesch**  
A Machine Learning Decision Support Algorithm for Environmental Infrastructure in the Upper Mississippi River Basin  
Environmental Defense Fund

**Benjamin Maxson**  
Predicting Trash Levels on Roadways within the Jordan Lake Watershed  
Clean Jordan Lake

**William Meyers**  
Davie County Utility Water Network Management Tools  
Davie County IT/Utilities

**Kelsey Mills**  
Determining Endemic Disease Clustering of PEDV and PRRSV in Commercial Swine Facilities  
NC State College of Veterinary Medicine

**Dustin Murray**  
Pinecroft Sedgefield Geospatial Performance and Planning Analysis  
Pinecroft Fire Department

**Travis Newton**  
Designing Database Management and Web Applications to Monitor Mass Drug Administration for Neglected Tropical Diseases in Ghana  
FHI 360
Chase Nicholas
Evaluating Criticality Of Weight-Restricted Bridges To Agriculture in North Carolina
ITRE

Justin Oakley
SNAP Coverage and Disparities in North Carolina
North Carolina Alliance for Health

William Parrish
Assessing Recreation Resources and Needs Along the Overmountain Victory National Historic Trail
Recreation Resource Services, North Carolina State Parks

Heather Paxson
Using Geolocated Public Surveys to Record Shipwrecks Along the North Carolina Coast
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