

# MATTHEW J. SIRIANNI, Ph.D.

Office: Graham Bldg. Room 103B, Greenville, NC 27858 | Phone: (252)-328-6360 | Email: [siriannim20@ecu.edu](mailto:siriannim20@ecu.edu)

## EDUCATION

Ph.D. 2020, Geosciences, Florida Atlantic University

M.S. 2016, Geosciences, Florida Atlantic University

B.S. 2014, Environmental Geology, Bucknell University

## PROFESSIONAL EXPERIENCE

08/2023 to Present **Assistant Professor**, Dept. of Geological Sciences, East Carolina University, Greenville, NC

01/2023 to 08/2023 **Research Assistant Professor**, Dept. Geological Sciences, East Carolina University, Greenville, NC

11/2022 to 01/2023 **Adjunct Faculty**, Dept. of Geological Sciences, East Carolina University, Greenville, NC

07/2021 to 07/2022 **Staff Geologist**, Terracon Consultants Inc., Raleigh, NC

12/2020 to 06/2021 **Postdoctoral Fellow**, Dept. of Geological Sciences, East Carolina University, Greenville, NC

03/2020 to 12/2020 **Research Specialist**, Dept. of Geological Sciences, East Carolina University, Greenville, NC

06/2016 to 08/2019 **Geophysicist**, WrightPSM, Deerfield Beach, FL

01/2017 to 04/2018 **Instructor**, Dept. of Geosciences, Florida Atlantic University, Boca Raton, FL

08/2014 to 12/2020 **Teaching & Research Assistant**, Dept. of Geosciences, Florida Atlantic University, Boca Raton, FL

## PUBLICATION RECORD (\*Denotes Student Participation)

### Peer-Reviewed Publications

- 6) **Sirianni MJ**, Comas X, Mount GJ, Peirce S\*, Coronado-Molina C, and Rudnick D. (2023) Understanding peat soil deformation and biogenic gas dynamics across a salinity gradient in the southwestern Everglades. *Water Resources Research*. DOI: 10.1029/2021WR029683. (**Journal Article; IF: 6.2**).
- 5) Sirianni HM, **Sirianni MJ**, Mallinson DJ, Lindquist NL, Valdes-Weaver LM, Moody M\*, Henry B, Coli C, Rubino B, Peñalver MM, and Henne C. (2022). Quantifying recent storm-induced change on a small fetch-limited barrier island along North Carolina's Crystal Coast using aerial imagery and LiDAR. *Coasts*. DOI:10.3390/coasts2040015. (**Journal Article; \*\*IF: 4.1 MDPI Avg.**).
- 4) Zhang C, Brodylo, D\*, **Sirianni MJ**, Comas X, Douglas TA, Shoemaker WB, and Starr G. (2021). Mapping CO<sub>2</sub> fluxes of cypress swamp and marshes in the Greater Everglades using eddy covariance measurements and Landsat data. *Remote Sensing of Environment*. DOI:10.1016/j.rse.2021.112523. (**Journal Article; IF: 13.9**).
- 3) Shoemaker WB, Anderson FE, **Sirianni MJ**, and Daniels A. (2021). "Potential Accumulation of Soil Organic Matter from the Carbon Cycle within Greater Everglades Cypress and Pine Forested Wetlands". Wetland Carbon and Environmental Management. *AGU Monograph Series*. DOI:10.1002/9781119639305.ch20. (**Book Chapter**).
- 2) **Sirianni MJ**, Comas X, Coronado-Molina C, Rudnick D, and Mount GJ. (2020). Peat collapse in the southwestern Everglades: understanding the matrix level response to salinization and its implications for biogenic gas fluxes from peat soils. Proceedings of 18<sup>th</sup> International Conference on Ground Penetrating Radar. *SEG Expanded Abstracts*. DOI:10.1190/gpr2020-014.1. (**Conference Proceedings; IF: 0.3**).
- 1) **Sirianni MJ** and Comas X. (2020). Changes in physical properties of Everglades peat soils induced by increased salinity at the laboratory scale: implications for changes in biogenic gas dynamics and potential peat collapse. *Water Resources Research*. DOI:10.1029/2019WR026144. (**Journal Article; IF: 6.2**).

### Publications in Submission (\*Denotes Student Participation)

- 2) Sirianni HM, Richter J\*, **Sirianni MJ**, and Pettyjohn S\*. Shoreline classification maps and ground truth data for the Neuse River Estuary, North Carolina. Submitted to: *Scientific Data*. Manuscript #: SDATA-23-01826. (**Journal Article; IF: 8.5**)
- 1) **Sirianni MJ**, Comas X, Shoemaker WB, and Anderson FE. Methane gas ebullition dynamics from different wetland vegetation communities in Big Cypress National Preserve (Florida) are revealed using a multi-method, multi-scale approach. Submitted to: *Journal of Geophysical Research: Biogeosciences*. Manuscript #: 2020JG006086. (**Journal Article; IF: 4.4**).

## **Non-Refereed Publications**

- 2) **Sirianni MJ**. Near-Surface Geophysics Student Spotlights and Research Highlights. American Geophysical Union Near-Surface Geophysics Section Monthly Newsletter. July 2017 – January 2021. (*Newsletter*).
- 1) **Sirianni MJ**. Finding passion for science in the swamp. Coastal Voice. The Newsletter of the American Shore & Beach Preservation Association. February 2018. (*Newsletter*).

## **CONFERENCE ACTIVITY**

### **Convener**

- 2) Chair, Near-Surface Geophysics for Soil and Vadose Zone Structure and Processes, American Geophysical Union Fall Meeting, December 2021.
- 1) Chair, Near-Surface Geophysics General Contributions Poster Session, American Geophysical Union Fall Meeting, December 2017-2021.

### **Oral Presentations** (*\*Denotes Student Participation*)

- 15) Pezeshki E\*, **Sirianni MJ**, Moysey SM, Manda AK. "Using electrical resistivity tomography (ERT) to investigate the role of artificial channels on saltwater intrusion, Hyde County, NC." American Geophysical Union, San Francisco, CA, December 2023.
- 14) **Sirianni MJ**, Manda A, Moysey S, and Pezeshki E\*. "Saltwater intrusion in coastal NC agricultural fields." Coastal Challenges, Collaborative Solutions: Interdisciplinary Perspectives on Environmental Challenges and Solutions. ECU Symposium sponsored by Dept of Coastal Studies and Dept of Geography, Planning, and the Environment, Wanchese, North Carolina, March 2023.
- 13) **Sirianni MJ**, Sirianni HM, Mallinson DJ, Lindquist NL, Valdes-Weaver LM, Moody M\*, Henry B, Coli C, Rubino B, Peñalver MM, and Henne C. "Quantifying recent storm-induced change on a small fetch-limited barrier island along North Carolina's Crystal Coast using aerial imagery and LiDAR." American Association of Geographers, Denver, Colorado, March 2023. (*Invited*).
- 12) **Sirianni MJ**. "Disappearing Peat: Understanding mechanisms and implications of peat collapse in the Florida Everglades." Stan and Ann Riggs Professional Seminar Series, Department of Geological Sciences, East Carolina University, Greenville, North Carolina, February 2023. (*Invited*).
- 11) **Sirianni MJ**, Comas X, Shoemaker WB, Anderson FE. "Methane gas ebullition dynamics from different wetland vegetation communities in Big Cypress National Preserve (Florida) are revealed using a multi-method, multi-scale approach." Greater Everglades Ecosystem Restoration, Virtual, April 2021. (*Invited*)
- 10) Comas X, **Sirianni MJ**, Coronado-Molida C, Rudnick D. "Investigating mechanisms of soil matrix disturbance across a salinity gradient in the Everglades using hydrogeophysical methods at the field and laboratory scale: implications for peat collapse." Greater Everglades Ecosystem Restoration, Virtual, April 2021.
- 9) Zhang C, Brodylo D, **Sirianni MJ**, Comas X, Douglas TA, Shoemaker WB, Starr, G. "Mapping CO<sub>2</sub> fluxes of cypress swamp and marshes in the Greater Everglades using eddy covariance measurements and Landsat data." Greater Everglades Ecosystem Restoration, Virtual, April 2021.
- 8) Peirce S\*, Comas X, **Sirianni MJ**, Slater L, Reeve A. "Potential subsurface lithological controls on the anisotropic distribution of hydrophysical properties of *Sphagnum* peat soils in a northern peatland." GSA 2021 North-Central/South-Central Joint Online Section Meeting, April 2021.
- 7) Comas X, Gutierrez F, Zarroca M, Roque C, Sevil J, **Sirianni MJ**, Peirce S. "Investigating sinkholes related to a deep-seated interstratal karst in the Disney Wilderness Preserve (Florida) using an array of near-surface geophysical methods," American Geophysical Union, Virtual, December 2020.
- 6) Vecchio M, Comas X, **Sirianni MJ**, Salva Sauri M, Uriatre M. "Investigating the relationship between water content distribution in tabonuco trees and soil physical properties at the Luquillo Forest Dynamics Plot (Puerto Rico) using near-surface geophysical methods," American Geophysical Union, Virtual, December 2020.
- 5) **Sirianni MJ**, Comas X, Coronado-Molida C, Rudnick D, Mount GJ. "Investigating the effects of salinization in peat soils of the southwestern Everglades: implications for carbon fluxes and soil collapse during sea level rise," American Geophysical Union, San Francisco, California, December 2019.
- 4) Comas X, Brocard GY, Harrison EJ, Vecchio M, **Sirianni MJ**, Becker J, Wright W, Brantley S, McDowell WH. "Linking erosion rates and critical zone architecture using geophysical surveys at multiple spatial scales (Luquillo CZO, PR)," American Geophysical Union, San Francisco, California, December 2019.
- 3) **Sirianni MJ**, Comas X. "Characterizing influences of pulse-disturbance events on biogenic gas dynamics in Everglades peat soils." Greater Everglades Ecosystem Restoration, Coral Springs, Florida, April 2019. (*Invited*)

- 2) Comas X, **Sirianni MJ**, Coronado C, Rudnick D. “Using hydrogeophysical methods to understand disturbance in peat soils of the Everglades due to saltwater intrusion: from soil collapse to changes in biogenic gas dynamics.” Greater Everglades Ecosystem Restoration, Coral Springs, Florida, April 2019. (*Invited*)
- 1) **Sirianni MJ**, Comas X, Cooper H, Job M. “Investigating spatial variabilities in gas flux dynamics within Big Cypress National Preserve, FL using hydrogeophysical methods,” American Geophysical Union Fall, San Francisco, California, December 2016.

**Poster Presentations** (*\*Denotes Student Participation*)

- 22) **Sirianni MJ**, Sirianni HM, Moysey SM, Cataldo N\*, King B\*. “Towards the development of a drone-based frequency-domain electromagnetic mapping system for environmental monitoring.” American Geophysical Union, San Francisco, CA, December 2023.
- 21) **Sirianni MJ**, Moysey SM, Safari N\*, Horsman EM, Petersen-Perlman, O’Driscoll MA, Skibins J. “SCORE through WaterCorps: Scaffolding Community Outreach and Research Experiences to build the geoscience workforce.” American Geophysical Union, San Francisco, CA, December 2023.
- 20) Moysey SM, Hinckley BR, **Sirianni MJ**, Manda AK. “Comparison of stream discharge estimates obtained using in-situ tilt meters versus acoustic doppler current profilers (ADCP).” American Geophysical Union, San Francisco, CA, December 2023.
- 19) Moysey SM, Manda AK, Pezeshki E, **Sirianni MJ**. “Hydrogeophysical investigation of agricultural soil salinization in the eastern North Carolina coastal plain,” Universities Council on Water Resources & The National Institutes for Water Resources (UCOWR/NIWR) 2022 Annual Water Resources Conference, Greenville, South Carolina, June 2022.
- 18) Peirce S, Comas X, **Sirianni MJ**, Slater L, Reeve AS. “Investigating the anisotropic distribution of hydrophysical properties of *Sphagnum* peat soils in a northern peatland using ground-penetrating radar (GPR),” 19<sup>th</sup> International Conference on Ground Penetrating Radar (GPR2022), Golden, Colorado, June 2022.
- 17) **Sirianni MJ**, Comas X, Wright W, McClellan M, Soto H, Macfarlane M. “Geophysical characterization of dissolution structures in urban settings in South Florida,” American Geophysical Union, Virtual, December 2021.
- 16) **Sirianni MJ**, Moysey S, Bidy C, Briles S, Pezeshki E, Palochak T. “Hydrogeophysical investigations of saltwater intrusion in Eastern North Carolina,” East Carolina University, Water Resources Center, Research Reboot, February 2021.
- 15) **Sirianni MJ**, Comas X, Mount GJ, Peirce S, Coronado-Molina C, Rudnick D. “Understanding peat soil deformation and biogenic gas dynamics across a salinity gradient in the southwestern Everglades,” American Geophysical Union, Virtual, December 2020.
- 14) Vecchio M, Comas X, Turamuratova U, Brocard GY, Harrison EJ, **Sirianni MJ**, Becker J. “Non-invasive investigation of water content in trees using high-resolution ground-penetrating radar (GPR) measurements in the Luquillo Mountains (Luquillo Critical Zone Observatory, CZO),” American Geophysical Union, San Francisco, California, December 2019.
- 13) **Sirianni MJ**, Comas X, Mount GJ. “Using capacitively coupled resistivity and ground penetrating radar to investigate limestone bedrock heterogeneities under different subtropical wetland communities in Big Cypress National Preserve, Florida,” American Geophysical Union, Washington D.C., December 2018.
- 12) Comas X, Brocard GY, Harrison EJ, **Sirianni MJ**, Cornet C, Vecchio M, Wright W, Brantley SL, McDowell WH. “Near-surface geophysical methods at multiple scales of measurement to understand variation in erosion rates and water storage in the Luquillo CZO, Puerto Rico,” American Geophysical Union, Washington D.C., December 2018.
- 11) **Sirianni MJ**, Comas X, Shoemaker WB. “Characterizing Spatial and Temporal Variability in Methane Gas-Flux Dynamics of Subtropical Wetlands in the Big Cypress National Preserve, Florida,” American Geophysical Union (AGU), New Orleans, Louisiana, December 2017.
- 10) **Sirianni MJ**, Comas X, Shoemaker WB, Cooper HM, Job M, Cornett C, Schaffer L. “Investigating spatial variabilities in gas flux dynamics within Big Cypress National Preserve, FL using hydrogeophysical methods,” Greater Everglades Ecosystem Restoration, Coral Springs, Florida, April 2017.
- 9) Cooper HM, Zhang C, **Sirianni MJ**, “A geospatial approach for improving vertical accuracy of elevation models in Florida’s coastal Everglades,” American Geophysical Union (AGU), San Francisco, California, December 2016.
- 8) **Sirianni MJ**, Comas X. “The Effect of Increased Salinity and Temperature in Peat Soils from the Everglades: Implications for Biogenic Gas Production and Release Under a Sea Level Rise Scenario,” American Geophysical Union, San Francisco, California, December 2015.
- 7) **Sirianni MJ**, Comas X. “Investigating the Effects of Increased Salinity and Temperature on Carbon Gas Dynamics of Subtropical Peat Soils,” Greater Everglades Ecosystem Restoration, Coral Springs, Florida, April 2015.
- 6) **Sirianni MJ**, Jacob RW, Hayes BR. “Using Micro-Gravity Techniques to Map Alluvium Thickness and Pleistocene Location of the West Branch of the Susquehanna River Near Muncy, Pennsylvania,” American Geophysical Union, San Francisco, California, December 2013.

- 5) Kirby CS, **Sirianni MJ**. "Spatial Distribution of Inorganic Geochemistry of Marcellus Shale Flowback Waters," Geological Society of America, Denver, Colorado, October 2013.
- 4) Hayes BR, Newlin JT, Kochel RC, Jacob RW, Gutelius M, **Sirianni MJ**, Reese, SP. "Geomorphic Investigations of the Lower West Branch of the Susquehanna River, North-Central Pennsylvania," Geological Society of America, Denver, Colorado, October 2013.
- 3) Kochel RC, Muhlbauer J, Hancock Z, Rockwell D, **Sirianni MJ**, Hayes BR. "The "Gravel Flood": Coarse-Grained Sediment Transport in Gravel Bed Streams During Tropical Storm Lee in North-Central Pennsylvania (September, 2011)," Geological Society of America, Charlotte, North Carolina, November 2012.
- 2) Hancock Z, Kochel RC, Muhlbauer J, Rockwell D, **Sirianni MJ**, Hayes BR. "Geomorphic Impact of Catastrophic Flooding from Tropical Storm Lee (September, 2011) in Gravel-Bed Streams of the Appalachian Plateau, North-Central Pennsylvania," Geological Society of America, Charlotte, North Carolina, November 2012.
- 1) Rockwell D, Kochel RC, Muhlbauer J, Hancock Z, **Sirianni MJ**, Hayes BR. "Basin-Scale Influence on the Geomorphic Impacts of the Tropical Storm Lee Flood (September, 2011) in North-Central Pennsylvania," Geological Society of America, Charlotte, North Carolina, November 2012.

## **TEACHING AND ADVISEMENT**

### **University Courses Taught**

#### East Carolina University

- 1) Directed Independent Study (Drone Geophysics), GEOL4601, Instructor of Record, undergraduate, in-person, 1 student, offered one time (Developed and delivered all course material, no TA support)

#### Florida Atlantic University

- 1) Environment and Society, EVR2017, Instructor of Record, undergraduate, in-person, 50 students, offered three times (Developed and delivered all course material, no TA support).

### **Professional Teaching Interactions**

#### East Carolina University

- 1) WaterCorps, Faculty Supervisor, undergraduate/graduate, in-person, 10-15 student employees per semester.

#### Florida Atlantic University

- 3) Solid-Earth Geophysics (GLY4451), Graduate Teaching Assistant, undergraduate, in-person, 25 students, offered five times (Delivered all laboratory material).
- 2) Structural Geology (GLY4400), Graduate Teaching Assistant, undergraduate, in-person, 25 students, offered three times (Delivered all laboratory material).
- 1) Weather and Climate (MET2010), Graduate Teaching Assistant, undergraduate, in-person and fully online, 50 students in-person and 100 students online, offered three times (Delivered all in-person laboratory material; Supervisor of online course delivery).

#### Indiana University of Pennsylvania

- 1) Field Experience in Carbonate Geology Hydrogeophysics (GEOS408), Graduate Teaching Assistant, undergraduate, in-person, 30 students, offered once (Supervised undergraduate students and co-delivered material).

#### Bucknell University

- 1) Physical and Environmental Geology (GEOL203), Undergraduate Teaching Assistant, undergraduate, in-person, 25 students, offered one time (Delivered all laboratory material).

### **Advising**

#### Doctoral Students

- 1) Elnaz Pezeshki (2023-Present), PhD Integrated Coastal Studies, East Carolina University. Coastal watershed climate adaptation: increasing coastal watershed resilience to storm-induced soil salinization using a novel concept for capillary valves. (*Co-Advisor w/ Dr. Stephen Moysey*).

#### Masters Students

- 2) Blake King (2023-Present), MS Geology, East Carolina University. Drone geophysics for agricultural saltwater intrusion. (*Co-Advisor w/ Dr. Alex Manda*).
- 1) Maxwell Florey (Graduated 2021), MS Geoscience, Florida Atlantic University. Changes in physical properties of the peat soil matrix across a salinity gradient in the Everglades: Implications for accelerating peat collapse during sea level rise. (*Committee Member*).

## **SYNERGISTIC ACTIVITIES**

### **Professional Service**

- 9) Lead Planner, AGU Near-Surface Geophysics Section and Hydrogeophysics Technical Committee Social Event, American Geophysical Union, September-December 2023.
- 8) Early Career Representative, Near-Surface Geophysics Section Executive Committee, American Geophysical Union, January 2021 – Present.
- 7) Industry Representative, AGU-NSF Near Surface Geophysics Center Development Workshop, American Geophysical Union and National Science Foundation, Funded by NSF Award#: 2139353, March 2022 – April 2022.
- 6) Planning Committee Member, Student and Early Career Conference, American Geophysical Union, June 2019 – January 2020.
- 5) Student Representative, Near-Surface Geophysics Section Executive Committee, American Geophysical Union, July 2017 – January 2021.
- 4) Workshop Convener, “Working with Communities to Solve Local Challenges,” Student and Early Career Conference, American Geophysical Union, December 2019.
- 3) Conference Volunteer, Greater Everglades Ecosystem Restoration, April 2017; 2019.
- 2) Conference Volunteer, American Shore and Beach Preservation Association National Coastal Conference, October 2017.
- 1) Student Member, American Shore and Beach Preservation Association Student and Young Professionals Committee, American Shore and Beach Preservation Association, 2017.

### **Company/University Service**

- 9) Geological Sciences Department Representative, ECU Open House, East Carolina University, October 2023.
- 8) Saltwater Intrusion Project Faculty Mentor, WaterCorps, East Carolina University, October 2023-Present.
- 7) Pettigrew State Park Project Faculty Mentor, WaterCorps, East Carolina University, January 2023-Present.
- 6) Director, WaterCorps, East Carolina University, November 2022-Present.
- 5) Committee Member, Community Involvement Committee, Terracon-Raleigh, January 2022-July 2022.
- 4) Tar River Clean Up, Pirates on Water, East Carolina University, April 2021.
- 3) Geosciences Department Volunteer, Explore FAU, October 2017; 2018.
- 2) Graduate Student Representative, Department of Geosciences, 2017.
- 1) Undergraduate Student Mentor, The Mentoring Project, 2017; 2018.

### **Community Outreach**

- 6) Volunteer, Tar River Community Science Festival, East Carolina University, October 7<sup>th</sup>, 2023.
- 5) STEM@Starlight 3MT Presentation, ECU Research, Economic Development, & Engagement and North Carolina Biotechnology Center, East Carolina University, September 25, 2023.
- 4) Hands-On Hydrology Learning Activity, Lab RATS After School Program, NC Museum of Natural Sciences - A Time for Science, Greenville, NC, March 2<sup>nd</sup>, 2023.
- 3) Guestgrammer Series, Social Media Outreach on Instagram, American Geophysical Union, 2018; 2019.
- 2) Event Supervisor, Florida Science Olympiad, February 2017.
- 1) “Understanding the Drivers Behind Climate Variations and Their Implications,” Sunday Afternoons at Manatee Lagoon, Manatee Lagoon – An FPL Eco-Discovery Center, Riviera Beach, FL, October 2016.

### **Journal Referee**

- 6) Geophysical Research Letters (1)
- 5) Water Resources Research (4)
- 4) Journal of Geophysical Research: Biogeosciences (2)
- 3) Geophysics (1)
- 2) Journal of Geophysical Research: Solid Earth (1)
- 1) Earth’s Future (1)

## **GRANTS AND SCHOLARSHIPS**

### **Submitted (Total = \$100,000)**

- 1) A geophysical study on driving mechanisms of soil salinization in North Carolina’s coastal farmlands, Submitted Preproposal to Geoscientists without Borders®, PI: Mine Dogan, co-PIs: Matthew Sirianni and Alex Manda, \$100,000.

**Funded (Total = \$228,610)**

- 11) Investigating drivers and processes of soil salinization and saltwater intrusion in coastal agricultural communities of eastern North Carolina, NC Sea Grant, PI: Alex Manda, co-PIs: Stephen Moysey and Matthew Sirianni, \$150,000.
- 10) WalkTEM Equipment Upgrade, Submitted to East Carolina University - Water Resources Center Equipment Fund, PI: Matthew Sirianni, co-PIs: Stephen Moysey, Alex Manda, and Eric Horsman, \$15,810.
- 9) The influence of coastal dynamics on freshwater wetland hydrology on Shackleford Banks: An evaluation of freshwater availability for ecosystem services, National Park Service – Focused Natural Resource Assessment, PI: Matthew Sirianni, co-PIs: Mike O’Driscoll and Sean Charles, \$60,000, 05/2024-04/2026.
- 8) Virtual Conference Attendance Grant, Department of Geosciences, Florida Atlantic University, \$150, December 2020.
- 7) Geosciences Graduate Student Endowed Scholarship Fund, Department of Geosciences, Florida Atlantic University, \$900, April 2019.
- 6) Conference Travel Grant, Department of Geosciences, Florida Atlantic University, \$850, December 2018.
- 5) Walter and Lalita Janke Innovations in Sustainability Science Research Fund, Florida Atlantic University, “The effect of increased salinity in peat soils from the Everglades: Implications for biogenic gas production and release under a sea level rise scenario,” \$5,000, June 2016.
- 4) Conference Travel Grant, Department of Geosciences, Florida Atlantic University, \$400, December 2015.
- 3) Graduate Research and Inquiry Program (GRIP) Grant, Florida Atlantic University, “Investigating the effects of increased salinity and temperature on carbon gas dynamics of subtropical peat soils,” \$1,500, April 2015.
- 2) Conference Travel Grant, Department of Geology, Bucknell University, \$500, December 2013.
- 1) Katherine Mabis McKenna Environmental Internship Program, Bucknell University, “Spatial analysis, quality control, and geochemical insights into flowback water from hydraulic fracturing of the Marcellus Formation, Pennsylvania,” \$3,500, December 2012.

**Unfunded (Total = \$40,000)**

- 3) Grant A. Harris Fellowship, METER Group, Inc., “Investigating salinity-induced pore dilation in peat soils of the Everglades and its role in peat collapse,” \$10,000, January 2020.
- 2) Grant A. Harris Fellowship, METER Group, Inc., “Using capacitance probes for characterizing the spatial and temporal variability in production and release of greenhouse gases from subtropical wetlands in Big Cypress National Preserve, Florida,” \$10,000, March 2018.
- 1) ForEverglades Fellowship, Everglades Foundation, “The effect of increased salinity and temperature in peat soils from the Everglades: Implications for biogenic gas production and release under a sea level rise scenario,” \$20,000, July 2015.

**CERTIFICATIONS**

Remote Sensing Certificate, Florida Atlantic University, 2016  
FAA Part 107 Remote Pilot  
Department of Interior Motorboat Operator Certification [*Primarily for airboat operation*]  
HAZWOPER 40-Hour Certification  
First Aid / CPR / Bloodborne Pathogens Certification

**PROFESSIONAL DEVELOPMENT**

ECU Writing Accountability Group, August 2023 - Present  
Introducing Geophysics for Urban and Near-Surface Applications (IGUaNA) Teaching Workshop, August 2023.  
ECU TEDI Bear Training, June 2023.  
ECU Green Zone Training, March 2023  
ECU Research Mentoring Network, January 2023 - Present

**PROFESSIONAL MEMBERSHIPS/AFFILIATIONS**

American Geophysical Union  
American Association of Geographers  
National Center for Faculty Development and Diversity