

Megan Coffe

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EDUCATION

North Carolina State University, Center for Geospatial Analytics, Raleigh, NC 2018 – present
Ph.D. Candidate (Intended Spring 2021), Center for Geospatial Analytics, Current GPA: 3.9
Advisors: Dr. Helena Mitasova and Dr. Blake Schaeffer

North Carolina State University, College of Sciences, Raleigh, NC 2015 – 2017
M.S. Marine, Earth and Atmospheric Science, May 2017, GPA: 3.9
Graduate Certificate, Geographic Information Systems (GIS), May 2017
Advisor: Dr. Erin Lee Hestir

Meredith College, Raleigh, NC 2011 – 2015
B.S. Mathematics, Minors in Statistics and Psychology, May 2015, GPA: 3.4

RESEARCH EXPERIENCE

U.S Environmental Protection Agency (EPA), Office of Research and Development
ORISE Research Fellow with Dr. Blake Schaeffer 2017 – Present
I contribute to two main research projects. The first uses satellite remote sensing from MERIS and OLCI to assess the status of Cyanobacterial harmful algal blooms (cyanoHAB) for inland lakes across the United States. The second uses commercial remote imagery to identify the extent of seagrass beds in coastal waters and estimate their carbon storage.

North Carolina State University, Center for Geospatial Analytics
Research Assistant with Dr. Joshua Gray 2017
I contributed to a research project using continuous change detection and classification (CCDC) to identify deforested regions across Indonesia and determine what land cover replaced these regions.

North Carolina State University, Department of Marine Earth and Atmospheric Science
Graduate Research Assistant with Dr. Erin Lee Hestir 2015 – 2017
I analyzed the relationship between environmental variables and CO₂ flux from Arctic wetlands using a statistical model combining micrometeorological flux tower data and satellite observations.
Undergraduate Research Assistant with Dr. Sandra Yuter 2014 – 2015
I contributed to a project to create a more realistic and informative three-dimensional representation of thunderstorm structure to supplement existing schematics. This was achieved through the remote operation of two research radars located near Denver, CO during a one-month period.

TEACHING EXPERIENCE

North Carolina State University, Department of Marine Earth and Atmospheric Science
Teaching Assistant 2015 – 2017
Introduction to Weather and Climate Laboratory (MEA 135) with Dr. Brian Eder

RELEVANT SKILLS

Environmental data science, remote sensing image processing, geospatial analytics and visualization in R
ENVI/IDL and ArcGIS (proficient) as well as experience in Python and MATLAB
Scientific instrumentation and data processing including satellite data, weather radar, weather stations,
micro-meteorological flux towers, field spectroscopy, and GPS
Excellent oral and written communication skills developed through presentation of scientific results,
development of research proposals, and university guest lectures
Effective leadership and supervision in academic and non-academic settings

HONORS AND AWARDS

EPA Mason Hewitt Award for GIS Technical Excellence	2019
Coastal and Estuarine Research Federation student travel award	2019
Center for Geospatial Analytics Travel Award	2019
NC Graduate School Travel Award	2019
Accepted to NSF fully-funded CyberGIS weeklong workshop at University of Illinois	2019
NC State University Graduate Fellowship	2018
NCAEP David Griffin Environmental Scholarship	2017
Graduate Climate Conference Travel Award	2016
Meredith College Research & Travel Grant Recipient	2014 – 2015
NCAA Woman of the Year, Nominee	2015
Alpha Kappa Alpha Educational Advancement Foundation Award, Recipient	2014
The National Mathematical Contest in Modeling, Honorable Mention	2015
National Student Athlete Award, Honoree	2013 – 2015

PUBLICATIONS

- Coffer, M.** (2020). Balancing privacy rights and the production of high-quality satellite imagery. *Environmental Science and Technology*. doi:10.1021/acs.est.0c02365.
- Schaeffer, S., Lebreton, C., Werther, M., Salls, W., **Coffer, M.**, Stelzer, K., & Urquhart, E. (2020). Validation of chlorophyll-a in US lakes with blended inland water algorithms. *International Journal of Remote Sensing*. (In review).
- Coffer, M.**, Schaeffer, B., Zimmerman, R., Hill, V., Jiang, L., & Islam, K. (2020) An investigation into the usability of commercial satellite imagery for seagrass mapping. *Remote Sensing of Environment*. (In review).
- Coffer, M.**, Schaeffer, B., Darling, J., Urquhart, E., & Salls, W. (2020). Quantifying national and regional cyanobacterial occurrence in US lakes using satellite remote sensing. *Ecological Indicators*. 111. doi:10.1016/j.ecolind.2019.105976.
- Jianyong, W., Hilborn, E., Schaeffer, B., Urquhart, E., **Coffer, M.**, Lin, C., & Egorov, A. (2020). Acute health effects associated with satellite derived cyanobacteria in a drinking water reservoir in Massachusetts. (In review).
- Salls, W., Schaeffer, B., Keith, D., Urquhart, E., **Coffer, M.**, Seegers, B., Binding, C., & Stumpf, R. (2020). An initial validation of the Maximum Chlorophyll Index (MCI) for the Sentinel-2 satellites across U.S lakes. *International Journal of Remote Sensing*. (In review).
- Coffer M.** & Hestir, E. (2019). Variability in trends and indicators of CO₂ Exchange across Arctic wetlands. *Journal of Geophysical Research: Biogeosciences*, 124, 1248-1264. doi:10.1029/2018JG004775.
- Coffer, M.**, Schaeffer, B., Urquhart, E., Darling, J. & Salls, W. (2018). A Method for Quantifying the Number of U.S. Lakes with Cyanobacterial Harmful Algal Blooms Using Satellite Remote Sensing. *Proc. SPIE 10767, Remote Sensing and Modeling of Ecosystems for Sustainability XV, 1076709*. doi:10.1117/12.2319669.

SELECT PRESENTATIONS (*CANCELLED DUE TO COVID-19)

- ***Coffer, M.**, Schaeffer, B., & Mitasova, H. (March 2020). Mapping seagrass with commercial seagrass imagery. *15th Annual NC State University Graduate Student Symposium*. Raleigh, NC.
- *Schaeffer, B., **Coffer, M.**, Salls, W., Whitman, P. & Lebrasse, M. (May 2020) Green stuff from space Part 2! *NASA HQ Applied Sciences Program*. Washington, DC.
- ***Coffer, M.** (May 2020). Processing WorldView-2 imagery for seagrass extraction in the Chesapeake Bay. *Exploring Satellite Image Integration for the Chesapeake Bay Submerged Aquatic Vegetation Monitoring Program*. Annapolis, MD. **Invited speaker.**
- Coffer, M.** (December 2019). Mapping seagrass with WorldView-2 and RapidEye. *Exploring Satellite Image Integration for the Chesapeake Bay Submerged Aquatic Vegetation Monitoring Program*. Gloucester Point, VA. **Invited speaker.**

- Coffer, M.**, Schaeffer, B., Salls, W., Zimmerman, R. & Hill, V. (November 2019). Monitoring algal blooms using high-spatial resolution satellite imagery. *Coastal and Estuarine Research Federation Biennial Meeting*. Mobile, AL.
- Coffer, M.** (September 2019). Processing commercial satellite imagery for water quality applications. *Seagrasses & Neural Networks Workshop at NASA Ames*. Mountain View, CA. **Invited speaker.**
- Coffer, M.**, Schaeffer, B. & Urquhart, E. (August 2019). Cyanobacteria Assessment Network (CyAN). *WWAO-WSWC Technology Transfer for Western Water Management Workshop*. Irvine, CA.
- Schaeffer, B., Johnston, J., Urquhart, E., **Coffer, M.**, Salls, W., & Seegers, B. (June 2019) Green stuff from space! *NASA HQ Applied Sciences Program*. Washington, DC.
- Coffer, M.** (June 2019). An update on CyAN cyanobacterial metrics and drinking water applications. *U.S. EPA Office of Water*. Washington, DC.
- Coffer, M.**, Schaeffer, B. & Mitsova, H. (March 2019). Assessing the frequency of cyanobacterial blooms in waterbodies across the United States. *14th Annual NC State University Graduate Student Symposium*. Raleigh, NC. **3rd Place Winner.**
- Coffer, M.**, Schaeffer, B., Darling, J., Urquhart, E. & Salls, W. (December 2018) Assessing the Impact of Cyanobacterial Harmful Algal Blooms on Drinking Water Intakes Across the United States. *AGU Fall Meeting*. Washington, DC.
- Coffer, M.**, Schaeffer, B., Urquhart, E., Darling, J. & Salls, W. (August 2018). A Method for Quantifying the Number of U.S. Lakes with Cyanobacterial Harmful Algal Blooms Using Satellite Remote Sensing. *SPIE Annual Conference*. San Diego, CA.
- Coffer, M.**, Schaeffer, B., Urquhart, E., Darling, J. & Salls, W. (May 2018). Using Satellite Data to Monitor the Impacts of CyanoHAB Events on Drinking Water: A Texas Case Study. *Stormwater Conference*. South Padre Island, TX. **Invited speaker.**

TECHNICAL SUPPORT

Technical support provided for city of Salem, OR for breach of cyanobacteria at drinking water intake. Support led to 2018 Oregon cyanotoxin monitoring rule allowing the use of satellite imagery for evaluating the potential risk of a cyanobacterial bloom event.