

Matthew Walter

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EDUCATION

- University of Delaware** 2020-present
Current PhD student
Research Assistant for the Department of Geography and Spatial Sciences
- University of Delaware** 2018-2020
MS in Geography
Teaching Assistant for the Department of Geography and Spatial Sciences
- University of Delaware** 2014-2018
BA in Environmental Studies (Minor in Public Policy)
Graduate Certificate in Geographic Information Systems (GIS)

RESEARCH EXPERIENCE

- Research Assistant** 2018-2020
Dr. Pinki Mondal
Earth Observation for Sustainable Ecosystem and Livelihood (EASEL)
University of Delaware, Newark, Delaware, USA
Mapped wetlands and other land covers in the State of Delaware using Landsat and Sentinel 1 Synthetic Aperture Radar (SAR) data. Developed an index for assessing wetland stress using remotely sensed data using land cover, vegetation, and hydrologic information. Mapping land cover and climate change impacts in the Delmarva Peninsula using 1-meter National Agriculture Imagery Program (NAIP) data.
- GIS and Remote Sensing Work** 2018-2020
Dr. Nina David
University of Delaware, Newark, Delaware, USA
Managed GIS data related to public policy such as zoning, urban expansion, and land cover data in Lancaster County, PA. Maintained databases and performed geospatial analysis to quantify land cover change and the effectiveness of inter-municipal plans on urban development.
- GIS and Remote Sensing Work** 2019-2020
Dr. Sabrin Beg
University of Delaware, Newark, Delaware, USA
Created time series Normalized Difference Vegetation Index (NDVI) and night light maps and datasets for Tehsils in Pakistan and farms in Bangladesh using Moderate Resolution Imaging Spectroradiometer (MODIS), Visual Infrared Imaging Radiometer Suite (VIIRS), Climate Hazards Group Infrared Precipitation with Station Data (CHIRPS), and Defense Meteorological Satellite Program (DMSP) data.

Remote Sensing Work 2019-2020
University of Delaware, Newark, Delaware, USA

Assisted PhD student in creating a supervised land cover classification of cities in Bangladesh and analyzing land cover change to monitor urban development using Landsat data.

Research Assistant 2014-2018
Department of Geography, University of Delaware

Assisted PhD student in monitoring forest ecohydrology in Wilmington, Delaware by setting up stemflow and throughfall collectors, collecting throughfall and stemflow water samples, measuring Leaf Area Index with the LI-COR LAI 2000 plant canopy analyzer, and attending public outreach events.

PUBLICATIONS

Walter, M., Pinki, M. 2019. A Rapidly Assessed Wetland Stress Index (RAWSI) Using Landsat 8 and Sentinel-1 Radar Data. *Remote Sensing* 11(21), 2549, doi: 10.3390/rs11212549.

TEACHING EXPERIENCE

Introduction to GIS 2020
Run lab section in various topics of geographic information science (GIS) and assist students in troubleshooting weekly labs. Grade GIS lab assignments and assignments, aid in creating assignments and maintaining course website.

Know Your Satellites 2019
Helped to develop a graduate level course in remote sensing by creating scripts in Google Earth Engine with remote sensing applications such as filtering imagery, classifications, normalized difference indices, and raster calculations, and creating remote sensing labs for Google Earth Engine. Assisted in teaching the course by managing course site, providing feedback and advice for students remote sensing research projects, assisting students in writing and debugging codes in JavaScript within the Google Earth Engine Platform, provide technical demonstrations for specific remote sensing workflows, and grading coding assignments and research projects.

Proseminar in Environmental Science 2019
Assisted in teaching senior undergraduate students by managing the course website, creating and grading assignments, lecturing and providing professional development advice for students in topics such as CVs, resumes, and cover letters.

Conservation: Natural Resources 2018
Assisted in teaching by creating assignments and exams for various topics in environmental science (pollution, water quality, food scarcity, climatology, etc.), grading assignments, and working with students to understand materials.

OTHER EMPLOYMENT

Biological Aide

2014-2020

Delaware Division of Fish and Wildlife

Department of Natural Resources and Environmental Control (DNREC), Smyrna, DE

Educated children on aquatic ecosystems by teaching 5th grade field trips, running educational programs for children, creating educational materials such as posters, activities, and lesson plans, and providing information at a nature center. Worked in Hunter Education and Land Acquisition filing and updating GIS data and recording hunter data.

ORAL PRESENTATIONS

American Association of Geographer's Annual Meeting

2020

A Rapidly Assessed Wetland Stress Index (RAWSI) Using Landsat 8 and Sentinel-1 Radar Data

Middle States American Association of Geographer's Annual Meeting

2019

A Rapidly Assessed Wetland Stress Index (RAWSI) Using Landsat 8 and Sentinel-1 Radar Data

Delaware Environmental Institute – Pitch 90

2019

Wetland Stress and Remote Sensing – 90 second research talk

POSTER PRESENTATIONS

Delaware Data Science: DARWIN Computing Symposium

2020

Machine Learning and Cloud Computing for Environmental Research

Delaware Wetlands Conference

2020

Using Satellite Data to Quantify and Map Wetland Stress

Data Science Symposium – University of Delaware

2019

Using Satellite Data to Quantify and Map Wetland Stress

GIS Day – University of Delaware

2019

Using Satellite Data to Quantify and Map Wetland Stress

American Association of Geographer's Annual Meeting

2019

Analyzing the Health of Wetland Buffers in Delaware using Land Cover

Delaware Environmental Monitoring Summit

2019

Analyzing the Health of Wetland Buffers in Delaware using Land Cover

Graduate Students' Forum for Research and Creative Works

2019

Analyzing the Health of Wetland Buffers in Delaware using Land Cover

Human and Climate Series III: Water Management and Policy

2019

Analyzing the Health of Wetland Buffers in Delaware using Land Cover

Delmarva GIS Conference 2018
Using GIS to Measure the Effectiveness of Inter-Municipal Planning

RESEARCH GRANTS

Dr. John R. Mather Graduate Research Fellowship 2019

AWARDS

Department of Geography and Spatial Sciences 2020
2019-2020 Teaching Excellence Award

Award for Outstanding Graduate Student Paper 2019
Middle States American Association Geographer's

First Place Poster, Human and Climate Series III: 2019
Water Management and Policy: Local and Global Perspectives Symposium

Special Merit Award in Environmental Studies 2018

ADDITIONAL SKILLS

Coding Languages

Python, JavaScript, Fortran, R, Matlab

Geospatial Analysis

ArcMap, ArcGIS Pro, ArcGIS Online (proficient)

QGIS (basic)

Google Earth Engine (proficient)

ENVI (moderate)

ArcGIS Python scripting (moderate)

Jupyter notebooks and Google Collaboratory (moderate)

R Studio (basic)

Leaflet (basic)

Fragstats (moderate)

Quantitative Data Analysis

Python (proficient)

Matlab (basic)

Excel (proficient)

JMP (moderate)

Fortran (basic)

Wetland Monitoring

Wetland and watershed delineation (basic)
Delaware Wetland Rapid Assessment (basic)

Other Technical Skills

Microsoft Word and PowerPoint (proficient)
Adobe Photoshop and Illustrator (moderate)
Adobe Premiere and After Effects (basic)