EBONY WILLIAMS

PHD STUDENT

ebs.williams@outlook.com | (571) 528-4289 | Austin, Texas, 78712 | linkedin.com/in/ebony-williams

EDUCATION

Ph.D. in Geological Sciences | The University of Texas at Austin *Aug 2023 – Present*
Dissertation Topic: *TBD*

M.S. in Geological Sciences | The University of Texas at Austin *Aug 2021 – Aug 2023*
Thesis Topic: *Coastal surface water-groundwater interactions*
Advisor: M. Bayani Cardenas
Cumulative GPA: 3.9/4.0

B.S. in Geology | James Madison University *Aug 2015 – May 2019*
Concentration in Environmental Engineering
Minors in Mathematics and Astronomy
Cumulative GPA: 3.4/4.0

Relevant Coursework: Groundwater Hydrogeology, Physical Hydrology, Advanced GIS, Geostatistics, Aqueous Geochemistry, Hydrogeology, Environmental Soil Science, Earth Surface Processes, Stratigraphy Structure and Tectonics, Mineralogy, Numerical Computer Algorithms, Differential Equations, Calculus (I-III)

RESEARCH EXPERIENCE

Graduate Researcher | The University of Texas at Austin, Austin, TX *Aug 2021 – Aug 2023*

- Thesis: Multi-scale Thermal Mapping of Submarine Groundwater Discharge in Coastal Ecosystems of Volcanic Islands
- Employed thermal NASA satellite products, UAS (drone) remote sensing, distributed temperature sensing, and point measurement sensing to identify and quantify submarine groundwater discharge in the Philippines

NASA DEVELOP National Program Researcher | Science Systems Applications Inc *Sep 2020 – Apr 2021*

DEVELOP Node: NASA Langley Research Center
Spring 2021: Fairfax Water Resources

- Project: Estimating Urban Flood Susceptibility, Historical Flooding Extent, and Land Cover Change in Fairfax County, Virginia to Aid in Flood Mitigation
- Researched alongside NASA Scientists, and Fairfax County Department of Public Works and Environmental Services Stormwater Management Planners and Coordinators, and GIS Analysts
- Utilized NASA Earth observation data to quantify impervious surface and urban tree canopy change in Fairfax County, VA using ArcGIS Pro 2.7
- Created a random forest classification model in RStudio 1.4 to predict flood susceptibility in Fairfax County, VA
- Developed a workflow for mapping urban historical flooding using the Hydrologic Remote Sensing Analysis for Floods (HYDRAFloods) toolkit using the Google Earth Engine Python API

DEVELOP Node: NASA Goddard Space Flight Center
Fall 2020: Gila Water Resources

- Project: Modelling the Impacts of Post-fire Restoration Methods on Vegetation Recovery in the Gila National Forest
- Researched alongside NASA Scientists, United States Forest Service (USFS) Hydrologists, Soil Scientists, and Ecologists
- Utilized remote sensing data to draw relationships between post-fire treatment methods and vegetation recovery in the Gila National Forest
- Developed a random forest regression model in Google Earth Engine to quantify the success of vegetation regrowth given different treatments and predictor variables

Research Assistant | James Madison University, Harrisonburg, VA *Oct 2018 – Oct 2019*

- Worked alongside USGS scientists, JMU Professors, and local cave enthusiasts to map the Monterey SE Quadrangle, in Highland County, VA.
- Recorded hundreds of data points and measurements at multiple site locations.
- Created a geologic map using ArcGIS and Adobe Illustrator, based on interpretations of the data collected
- Published an updated map that corroborated and refuted some areas of previously published maps

PRESENTATIONS

Williams, E.L., Kratt, C., Rodolfo, R., Lapus, M., Lardizabal, R., Bangun, A.S., Nguyen, A., Tyler, S., Cardenas, M.B., May 2023, *Multi-scale Thermal Mapping of Submarine Groundwater Discharge in Coastal Ecosystems of Volcanic Islands*, Master's Thesis Oral Presentation delivered at Jackson School of Geosciences "Master's Friday" Seminar.

Williams, E.L., Kratt, C., Rodolfo, R., Lapus, M., Lardizabal, R., Bangun, A.S., Nguyen, A., Tyler, S., Cardenas, M.B., December 2022, *Multi-scale Thermal Mapping of Submarine Groundwater Discharge in Coastal Ecosystems of Volcanic Islands*, Oral Presentation delivered at the American Geophysical Union Fall 2022 Conference.

Williams, E.L., March 2021, *Estimating Urban Flood Susceptibility, Historical Flooding, and Land Cover Change in Fairfax County, Virginia to Aid in Flood Mitigation Planning*, NASA DEVELOP Spring 2021 Closeout Presentation, Virtual.

Hietpas, K.R., Ochoa-Madrid, E.K., **Williams, E.L.,** Spencer, O.M., March 2021, *Estimating Urban Flood Susceptibility, Historical Flooding, and Land Cover Change in Fairfax County, Virginia to Aid in Flood Mitigation Planning*, NASA DEVELOP Spring 2021 Closeout Presentation, Virtual.

Grover, H.S., **Williams, E.L.,** Levin, D.L., Pantle, T., November 2020, *Modelling the Impacts of Post-fire Restoration Methods on Vegetation Recovery in the Gila National Forest*, NASA DEVELOP Fall 2020 Closeout Presentation, Virtual.

Mangum, H. E., **Williams, E. L.,** April 2019*, Bedrock Mapping of the Monterey Southeast Quadrangle in Highland County, Virginia*, James Madison University Geology & Environmental Science Student Research Symposium, Harrisonburg, V.A, Oral Presentation.

HONORS, AWARDS, & SCHOLARSHIPS

Fellowship in Hydrogeology, from Jackson School of Geosciences, for supporting hydrogeology students during summer semester. *2023*

Off Campus Research Award, from Jackson School of Geosciences, for supporting thesis/dissertation fieldwork. *2022*

Graduate Student Research Grant, from The Geological Society of America, for supporting MS thesis/ PhD dissertation research. *2022*

Graduate School Mentoring Fellowship, from The University of Texas Graduate School, for conducting research under close advisement of a mentor. *2021*

NASA DEVELOPer of the Term Award, from NASAS DEVELOP National Program, for notable project contributions. *2021*

W. Cullen Sherwood Award, from JMU Dept. of Geology & Environmental Science, for outstanding academic achievement. *2019*

Philip R. Cominsky Award, from JMU Dept. of Geology & Environmental Science, for outstanding service to the department and university. *2019*

W.A. Tarr Award, from JMU Chapter Sigma Gamma Epsilon, for meritorious work in the Earth Sciences. *2019*

Geology Field Course Scholarship, from JMU Dept. of Geology & Environmental Science, for supporting JMU Geology Field Camp work in Ireland. *2018*

Dean's List, from James Madison University, for earning a GPA of 3.5 or above while carrying a course load of at least 12 graded credit hours. *2017 – 2019*

ADDITIONAL EXPERIENCE

Climate & Water Teaching Assistant | The University of Texas at Austin, Austin, TX *Aug 2023 – Present*

- Co-develop lab introduction PowerPoints, lab and homework assignments scalable to 100 students
- Organize field trip to campus outdoor learning center and co-develop field trip modules that give students hands on field experience in climate and water data acquisition

Geology Teaching Assistant | The University of Texas at Austin, Austin, TX *Aug 2022 – May 2023*

- Prepared and lectured introductory geology material to over 100 undergraduate students
- Proctored lecture and lab exams, graded lab assignments, and provided out-of the classroom support via office hours and review sessions

Hydrogeology Field Camp Student | The University of Texas at Austin, Austin, TX *May 2022 – June 2022*

- Assessed hydrogeologic and hydrogeochemical conditions in a riverine aquifer and coastal aquifer system
- Received training on multiple hydrogeologic field methods such as electrical resistivity surveys, pump tests, well-logging and water sampling, and stream gauging
- Wrote reports on the hydrogeology and geochemistry of a riverine aquifer system outside of Austin, and a coastal aquifer system in Port Aransas

Geology Teaching Assistant | James Madison University, Harrisonburg, VA *Jan 2018 – May 2019*

- Explained difficult concepts inside and outside of the classroom using samples, models, and sketches to over 200 students in introductory and upper-level geology courses
- Supported faculty agendas to ensure student learning by holding review sessions, grading varying assignments, proctoring exams, and prepping/organizing samples
- Assisted in field courses by providing guidance to students sketching and interpreting stratigraphic sections and providing transportation to field sites

Ireland Field Camp Student | James Madison University, Harrisonburg, VA *May 2018 – June 2018*

- Collected and interpreted bedrock data spanning the western edge of Ireland to map different lithologies of four different areas using micro and macro-observations
- Conducted several hydrogeologic, geochemical, and geophysical field experiments with partners
- Quantified surface and groundwater flow within the Gort Kinvara catchment basin, and presented findings and conclusions to JMU professors
- Utilized different software/remote sensing such as ArcGIS, Strabo Spot, Agisoft Metashape, and LiDAR

Planetarium Educator & Space Camp Counselor | John C. Wells Planetarium, Harrisonburg, VA *Sep 2015 – May 2018*

- Engaged audiences of 40 plus people with personalized 'star talks'; pointed out features of interest on the dome and answered questions
- Honed interpersonal skills by meeting new visitors and forming relationships
- Set up and positioned solar telescope for guests to safely view the sun
- Facilitated different activities such as model scale solar system, moon phases, Mars rover creation, etc., for elementary and middle school aged kids

UNIVERSITY LEADERSHIP & SERVICE

Social Chair | JSG Graduate Student Executive Committee *2023*
University of Texas, Austin

Open House Facilitator | Office of Admissions *2019*
James Madison University

Treasurer | Sigma Gamma Epsilon *2018 – 2019*
James Madison University

Secretary | Geology Club *2018 – 2019*
James Madison University

Secretary | Association for Women Geoscientists *2018 – 2019*
James Madison University

Geology Facilitator | Geology Club partnered with the Edith J. Carrier Arboretum *2018*
James Madison University

Dormitory Tour Guide | Office of Residence Life *2017 – 2018*
James Madison University

"Expanding Your Horizons" Facilitator | School of Professional & Continuing Education *2017*
James Madison University

Star Party Facilitator | John C. Wells Planetarium *2017*
James Madison University

PROFESSIONAL ASSOCIATIONS

Member | American Geophysical Union (AGU) *Aug 2022 – Present*

Member | Geological Society of America (GSA) *Jan 2022 – Present*

SKILLS

Programming – Intermediate to advanced skills in Python geospatial applications, including Jupyter Notebook and Google Earth Engine API

Communication – Intermediate skills and experience in grant proposal writing, detailed thesis writing, conference presentations, and informal oral and written communication

Extracurricular – Certified PADI Open Water Diver

Geospatial – Advanced skills in ArcGIS Pro, Google Earth Engine; Intermediate skills with Pix4D, Agisoft Metashape, and ENVI

Languages – Novice speaker, reader, and writer in *Korean* and *Spanish*

Last Updated: 8/30/2023