Mia Teresa Tuccillo

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Based in Chicago, IL, on the unceded homelands of the Council of Three Fires — Ojibwe, Odawa, and Potawatomi Nations — the Miami, Ho-Chunk and Menominee nations, and on homelands of other Indigenous peoples made invisible by the cruelties of European settler-colonialism.

Northwestern University Department of Earth & Planetary Sciences
Technological Institute: 2145 Sheridan Road, Evanston, IL 60208-3130

Updated: December 2022

EDUCATION

Sept. 2020 – Present	Ph.D. Candidate in Earth & Planetary Sciences, Northwestern University
Sept. 2016 – May 2020	B.A. in Biogeochemistry *Cum Laude*, Wellesley College *Minor: Jazz and World Music*

RESEARCH INTERESTS

Organic biomarkers, sedimentary pigments, Arctic and Antarctic research, current & past climates, limnology, (paleo)ecology, environmental justice & advocacy, water security in Arctic regions.

RESEARCH PROJECTS

Paleoclimate and Paleoproductivity Study Using Cyanobacterial & Algal Pigment Biomarkers in Arctic Lakes of Northwest/Southwest Greenland (Present)

Graduate Student Investigator, Northwestern University
Advised by *Dr. Yarrow Axford, Ph.D.* | Dpt. Earth & Planetary Science
HPLC-MS analysis of cyanobacterial pigments to reconstruct primary production regimes and characterize lake ontogeny through dynamics of aquatic biota.

Characterizing Transport & Deposition of Organic Carbon in a Floodplain of the Upper Sangamon River, Robert Allerton Park, Monticello, IL (2020-21)

Graduate Student Investigator; Secondary Project, Northwestern University
Advised by *Dr. Neal E. Blair, Ph.D.* | Dpt. Earth & Planetary Science/Civil & Environmental Engineering
Organic geochemical analysis of sources, residence time, and deposition of organic carbon in floodplains using chemical and isotopic biomarkers, in conjunction with the Critical Interface Network (CINet) and in pursuit of *Ph.D. Candidacy.*

Identifying the Deep Chlorophyll Maximum (DCM) in Lake Baikal's Northern Basin (2019)

Undergrad. Student Investigator, Wellesley College Lake Baikal Research Program
Advised by *Dr. Marianne Moore, Ph.D.* | Irkutsk & *Bolshie Koty* Field Station, Russia.
Quantifying chlorophyll & dissolved oxygen to identify a DCM in the vertical water column.

Modeling the Ecological Niche of *Alliaria petiolata* through Soil Nutrient Analysis and Statistical Frameworks (2017–2019)

Undergrad. Student Research Assistant, Wellesley College
Advised by *Dr. Alden Griffith, Ph.D.* | NSF Research Award #1655541
Analytical chemistry/spectrophotometric analysis of soil nutrients and greenhouse experimentation with environmental conditions successfully modelled the ecological niche of Garlic Mustard, an invasive plant species. Press coverage available here (p. 4).

Lichen as a Passive Biomonitor for Atmospheric Deposition of Pollutants (2019)

Undergrad. Student Investigator, Wellesley College
Advised by *Dr. Daniel J. Brabander, Ph.D.* | Geosciences Dpt. at Wellesley College
Analyzing multi-species lichen samples (X-ray Fluorescence & Scanning Electron Microscopy) for heavy metals to quantify industrial influence on air quality.

RESEARCH FIELD EXPERIENCE

Thule U.S. Airbase, Northwest Greenland (2022): Collection of Lake Sediments, Surface & Atmospheric Waters, and Plant Material for a Paleoclimate Modern Calibration Study.

Graduate Student
Advised by *Dr. Yarrow Axford* & *Dr. Magdalena R. Osburn* | Northwestern University
In fulfillment of NSF Award # 2002515
Length: ~2 weeks

Crystal Lake, Illinois, U.S.A. (2021, 2022): Lake Sediment Coring.

Graduate Student
Advised by *Dr. Yarrow Axford* | Quaternary Sediment Lab, Northwestern University
Collaboration with Ph.D. students: *Aidan Burdick, Peter K. Puleo, & Bailey C. Nash*.
Length: ~4 days 2021, 1 day 2022

Lake Baikal, Siberia, Russia (2019): Lake Sediment Coring, Water Sampling, Cultural Immersion (including spoken language).

Undergraduate Student
Advised by *Dr. Katrin Monecke, Ph.D.* | Dpt. Geosciences, Wellesley College
Collaboration with Institute of the Earth's Crust, Irkutsk, Siberia.
Length: ~1 month

Glacier National Park, Montana, U.S.A. (2017): Ecological demographic study (organism census) of an alpine desert shrub (*Smelowskia calycina*).

Undergraduate Student
Advised by *Dr. Alden Griffith, Ph.D.* | Dpt. Environmental Studies, Wellesley College
Length: ~2 weeks

Cape Cod, Massachusetts, U.S.A (2017): Ecological demographic study (organism census) of *Bromus tectorum* grasses in Coastal Dune Populations.

Undergraduate Student
Advised by *Dr. Alden Griffith, Ph.D.* | Dpt. Environmental Studies, Wellesley College
Length: ~2 days

TEACHING EXPERIENCE & PROFESSIONAL DEVELOPMENT

Undergraduate Teaching in STEM: MOOC CIRTL Course Completion (2022)

Course Certificate of Completion for an 8-week online, asynchronous course on research-backed approaches to teaching STEM in undergraduate institutions. Topics included crafting learning objectives, collaborating within higher education learning communities, addressing and anticipating student misconceptions, assessments, and more. Designed a lesson plan for course fulfillment.

NU - Geopaths Academic Mentorship Training Completion (2020)

Two-session, 5-hour training for graduate students to develop better approaches for mentoring high school students in STEM. Via the Northwestern University Geopaths Program (NSF Award # 2023263).

Teaching Assistant Experience at Northwestern University

2021: EARTH106 – The Ocean, The Atmosphere and Our Climate; *Dr. Neal E. Blair*
NU-Geopaths Summer Program for High School Students; *Dr. Suzan van der Lee*
2023: EARTH105 – Climate Catastrophes in Earth History; *Dr. Matthew T. Hurtgen*

OUTREACH & SERVICE

Northwestern University Mentoring Opportunities for Research Engagement (MORE) (2022-Present)

Ph.D. Student Panelist & Mentor for Chicago-area High School Students
Contributed to "REACH," a "science outreach group consisting of graduate students seeking to inspire students to pursue STEM careers. The group holds virtual and in-person discussions with high school students across Illinois at different points throughout the school year. Panels of 3-4 graduate volunteers present on topics such as STEM careers and education, their own research (at a level accessible for high school students), and applying to STEM programs." Personal REACH panel experience at:

1. William Fremd High School (Palatine, IL), 2022.
2. Chicago Math and Science Academy (Chicago, IL), 2022.

Northwestern University "NU-Geopaths" Summer Research & Mentorship Program (2021)

Program TA & Mentor for Two High School Students
TA responsibilities include programming/curriculum development, administrative organization, scheduling, and facilitating mentor and mentee experiences (June 21-July 9); website:
Mentor responsibilities include guiding two high school students through a self-designed research project focused on constructing and coding DIY "DataLoggers," collecting real-time environmental data, and characterizing evapotranspiration during various weather events.

URGE (Unlearning Racism in Geoscience) Northwestern University Pod (2021)

Northwestern University Pod Member
Contributed to bi-weekly meetings to discuss curriculum designed by race theorists in the Geosciences funded by the National Science Foundation and Woods Hole Oceanographic Institute. Curriculum included devising plans for implementing anti-racist strategies in the within the Northwestern Dpt. of Earth and Planetary Sciences and in the field at large. More at:
https://urgeoscience.org/

District 65/EvanSTEM 6th Grade Climate Action Project Mentoring Program (2021)

Graduate Student Mentor for a 6th-Grade Student.
Serving as a guide and facilitator to support a 6th grade student to complete their Climate Action Project by creating a schedule, setting expectations, and encouraging enthusiasm and persistence. Duration: once a week for 2.5 months.

Northwestern University GeoEquity Student Organization (2021-Present)

Outreach and Fundraising Organizer
Student organization aiming to cultivate inclusion and diversity, and to build actively anti-racist culture and structures in the Northwestern University Department of Earth and Planetary Sciences, local, and academic community. More at: https://www.earth.northwestern.edu/about/geoequity.html

Environment California, Oakland, CA, 2018

Canvasser, *Office Intern*
Collecting donations to support a campaign working to ban polystyrene (Styrofoam) in Alameda County. Clerical work, contacting public officials, street petitioning.

Clean Water Action, Oakland, CA, 2018

Canvasser, *Community Organizer*
Canvassing to close loopholes in the U.S. Clean Water Rule and to protect subsistence fishers in the San Francisco Bay. Collecting letters of support for public officials and donations; distributing educational materials to the public.

FELLOWSHIPS & AWARDS

Northwestern University Earth and Planetary Sciences COHEN Graduate Service Award (2022)

Granted for contributions and service to the department through management of and mentorship in the NU-Geopaths program in Summer 2021, and participation in other justice-oriented initiatives in the Earth and Planetary Sciences Department.

Madeline Albright '59 Institute of Global Affairs Fellowship (2020)

3-week program of lectures resulting in giving a 30-minute presentation to Secretary Madeleine Albright titled: "Women's Involvement in Conflict Resolution in Afghanistan" (Collaboration with Wellesley College students: *Carolyn Price '20, Grace Wong '21, Ify Nwolah '21, Laïssa Alexis '20*). Travel grant was awarded but not collected due to COVID-19. Fellow profile available here.

Stanford Calderwood Prize in Public Writing (2019)

Awarded annually to exceptional student writing in the Sciences, Humanities, and Social Science nominated by instructors and selected by an oversight committee. Read the winning essay here.

Wellesley College Dorothy Thorndike '75 Fellowship (2017-18)

Year-long internship-fellowship in Wellesley College Botanic Gardens, aimed at connecting the community to plants, nature, and the environment. Personal work summary here (p. 12).

Wellesley College Undergraduate Summer Research Program Stipend (2017)

Wellesley College Environmental Studies Department-sponsored research assistantship program for current undergraduate students. Specific project involved modelling the ecological niche of *Alliaria petiolata*; see above under "Research Projects."

Wellesley College Undergraduate Summer Research Poster Presentation Recognition for Best Poster Design (2017)

Monetary prize awarded for best poster design at Wellesley College research symposium.

CONFERENCES

American Geophysical Union (AGU) Conference – Chicago, IL (2022)
ArcticNet Conference – Toronto, Ontario, Canada (2022)
American Quaternary Association (AMUQA) – Madison, WI (2022)
Ruhlman Research Conference at Wellesley College (x2; 2017, 2019)

- Poster Presentation (2017): "Comparing Reduction Methods of Nitrate to Nitrite for Spectrophotometric Analysis of Soil Samples." Abstract available here (p. 61).
- Poster Presentation (2019): "Lichen: A Passive Biomonitor for Atmospheric Deposition of Heavy Metal Pollutants." Abstract available here.

SKILLS

Software: Microsoft Office, Google Office.
Coding Languages: R (proficient), Python (intermediate).
Laboratory Equipment & Analysis:

- High Performance Liquid Chromatography (HPLC).
- GeoTEK Sediment Core Scanner, with Magnetic Susceptibility (MS), Hyper-Spectral Imaging Spectrophotometry, and X-Ray Fluorescence (XRF) Detectors.
- Elemental Analyzer (EA) & Isotope Ratio Mass Spectrometry (IRMS).
- Cuvette Spectrophotometry & Biotek Multi-mode Well Reader.
- Fourier Transform Infrared Reflectance (FTIR)
- Geochronology techniques including C-14, Pb-210, and Cs-137 radiometric chronometry.

Certificate in Applied Data Analysis from Wellesley College (2017)

Quantitative Analysis Institute at Wellesley College (in R).

LANGUAGE PROFICIENCY

English (fluent).
Spanish (proficient; native speaker).
Russian (conversational; student for 2 years intensive Russian Language).