

Allegra Tashjian

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Overview

I use techniques from radiogenic and stable isotope geochemistry and aqueous geochemistry to study Earth surface processes, with emphases on enhanced rock weathering (ERW), climate change, and carbonate chemistry.

Education

Northwestern University, Evanston, IL **Sept. 2022 - Present**

PhD Candidate, Department of Earth and Planetary Sciences, GPA 4.0

Advisor: Dr. Andrew Jacobson

The George Washington University, Washington, D.C. **Jan. 2021 - May 2021**

Audited a graduate-level biology seminar of William H. Schlesinger's *Biogeochemistry*

Carleton College, Northfield, MN **Sept. 2016 - June 2020**

Bachelor of Arts in Geology, GPA: 3.57

Advisors: Drs. Mary Savina and Dan Maxbauer

Publications

Rich, R.L., Mueller, P., Fuß, M., Gonçalves, S., Ostertag, E., Reents, S., Tang, H., **Tashjian, A.**, Thomsen, S., Kutzbach, L. Jensen, K, and Nolte, S., 2023, Design and Assessment of a Novel Approach for Ecosystem Warming Experiments in High-Energy Tidal Wetlands: *Journal of Geophysical Research: Biogeosciences*, v. 128, p. e2023JG007550, doi:10.1029/2023JG007550.

Research Projects

Evaluating CO₂ Sequestration Under Varying Climate and Fertilization Practices: A Novel Enhanced Rock Weathering Experiment **Sept. 2023 - Present**

Graduate Student Investigator, Northwestern University

Advised by *Dr. Andrew Jacobson, Ph.D.* | Dpt. Earth and Planetary Sciences

Combines radiogenic isotopic tracers and carbonate analyses to study mineral weathering, pedogenic carbonate formation, and CO₂ sequestration

Precipitation Mechanisms of Amorphous Calcium-Magnesium Carbonate Minerals **Apr. 2023 - Present**

Research Collaborator alongside PI *Rob Ulrich* (UCLA) and Drs. *Andrew Jacobson* (Northwestern University), *Clara Blattler* (The University of Chicago), *Anna Waldeck* (Penn State)

Project Role: High precision $\delta^{44/40}\text{Ca}$ analysis via TIMS of experimentally precipitated APMC samples

Did the Deccan Traps Eruptions Cause Ocean Acidification? **Sept. 2022 - Present**
A Ca-Sr multiproxy investigation

Graduate Student Investigator, Northwestern University

Advised by *Dr. Andrew Jacobson, Ph.D.* | Dpt. Earth and Planetary Sciences

Application of a Ca-Sr isotope multiproxy ($\delta^{44/40}\text{Ca}$, $\delta^{88/86}\text{Sr}$, and $^{87}\text{Sr}/^{86}\text{Sr}$) to study incidents and causes of ocean acidification before and during the Cretaceous-Paleogene boundary event

Professional Experience

Biological Science Technician, *Smithsonian Environmental Research Center* **Aug. 2020 - Aug. 2022**

- Completed electronics prototyping for ecosystem manipulation experiments (project details [here](#)); maintained and repaired experimental infrastructure
- Developed algorithmic scripts and interactive web applications in the R programming language to analyze marine and coastal environmental data
- Proposed and led an investigation into plant-hydrology interactions at the Global Change Research Wetland (GCRew), a Chesapeake Bay tidal salt marsh

NSF REU Biogeochemistry Intern, *Smithsonian Environmental Research Center* **June 2019 - Aug. 2019**

- Conducted a research project investigating the effects of warming and increased atmospheric CO₂ on tidal wetland soil biogeochemistry
- Prepared reagents, analyzed porewater samples, measured soil methane flux, and collected soil cores and plant phenological data
- Used regression analysis techniques to analyze data

Awards and Honors

NSF Graduate Research Fellowship Program – Honorable Mention **Apr. 2024**
Mac Hyde Brownfield Scholarship Recipient, *Minnesota Brownfields* (\$2,000) **Oct. 2019**

Grants

Northwestern Buffett Institute Conference Travel Award, **June 2023**
Northwestern University (\$1,000)
Department of Earth and Planetary Sciences Travel Grant, **May 2023**
Northwestern University (\$400)
The Graduate School Conference Travel Grant, *Northwestern University* (\$600) **May 2023**

Professional Development

Urbino Summer School in Paleoclimatology, *Urbino, Italy* **July 2023**
The CDR Academy, *North American Carbon Program (Virtual)* **Oct. – Dec. 2022**
National Estuarine Research Reserve Instrumentation Training, *Virtual* **May 2021**

Teaching

Teaching Assistantships, *Northwestern University* **Sept. 2023 – Dec. 2023**

- Courses: Earth System History
- Held office hours and one-on-one meetings with students seeking extra assistance

Teaching Assistantships, *Carleton College* **Jan. 2019 - June 2020**

- Courses: Abrupt Climate Change; Paleobiology; Climate Change in Geology
- Assisted with instruction of course material, grading, and preparation of laboratory experiments for classes of 15-30 students
- Helped coordinate and participated in two lake sediment coring expeditions

Outreach

Speaker, Science with Seniors, *Northwestern University* **Aug. 2023 - Present**

Mentor, Northwestern University GeoPaths **Feb. 2023 - Present**

- Designs individual research project curricula for high school interns
- Provides guidance and mentoring

Co—Director, Northwestern University GeoPaths **Feb. 2023 – Aug. 2023**

- Worked alongside co-directors to recruit high school students for paid geoscience research internships
- Built annual program curricula for high school mentees and assessed program performance

Volunteer, Expanding Your Horizons Chicago **Feb. 2023**

- Assisted in outreach and fundraising to support an annual STEM symposium for middle school girls

Member, Northwestern GeoClub Outreach Division. **2022 - Present**

- Works with graduate students to plan and organize STEM-focused volunteer opportunities in the Chicagoland area

Skills

Computer: R; Python; Arduino; Bash programming; GitHub; LoggerNet; CRBasic; Microsoft Office; Adobe Illustrator; Adobe InDesign

Language: Native English speaker, conversational French

Conference Presentations

Tashjian, A., Rich, R., Jensen, K., and Nolte, S., 2022, Design and Assessment of Marsh Ecosystem Response to Increase Temperature (MERIT): an ecosystem warming experiment in a high-energy tidal wetland: Abstract GC42J-0832 presented at 2022 Fall Meeting, AGU, Chicago, IL, 12-16 December.

Tashjian, A., Noyce, G., and Megonigal, J.P., 2020, Examining the Effects of Elevated Atmospheric CO₂ and Warming on Soil Redox Potential: Abstract 13-1 presented at Geological Society of America North Central Section Meeting, 54th, Virtual, 18-19 May.

Tashjian, A., Noyce, G., and Megonigal, J.P., 2019, Climate Change in the “Wetland of the Future”: Examining the Effects of Elevated Atmospheric CO₂ on Soil Redox Potential: Abstract 79 presented at 2019 Carleton College Student Research Symposium, Northfield, MN, 18 Oct.

Portis, J., **Tashjian, A.**, Uttley, H., and Moltchanova, A., 2017, Gender Innateness and Social Exclusion: Presented at 2017 Carleton College Student Research Symposium, Northfield, MN, 20 Oct.