Sydney Riemer

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EDUCATION

2022–Present **Yale University** (New Haven, CT, USA)
Ph.D. in Earth & Planetary Sciences, June 2027 (Expected).
Dissertation: "Investigating Changes in Mid-Paleozoic Phosphorus Weathering and Methods of Phosphorus Sequential Extractions."
Adviser: Professor Lidya Tarhan

2018–2020 **Ben-Gurion University** (Beer-Sheva, Israel)
Master of Science in Earth & Environmental Sciences, December 2020.
Thesis: "Modeling the Impact of Bioturbation on the Sulfur Isotope Record."
Adviser: Professor Gilad Antler

2014–2018 **Johns Hopkins University** (Baltimore, MD, USA)
Bachelor of Arts in Earth & Planetary Sciences with Honors, May 2018.
Earth & Planetary Sciences Senior Thesis: "Evaluating Morphological Differences Between Two Microbial Mat Morphotypes as a Tool for Studying the Geological Record."
Adviser: Professor Maya Gomes

APPOINTMENTS

2021–2022 **Wastewater Research Analyst**
Kando Environmental Services (Israel).

2020–2021 **Hydrogeology Lab Technician**
Weizmann Institute of Science (Rehovot, Israel) Department of Earth & Planetary Sciences.

PEER-REVIEWED PUBLICATIONS (Published and in preparation)

Riemer, S., Moller, S.R., Ellefson, E., Dewing, K., Sperling, E.A., Blake, R.E., Tarhan, L.G. (*In prep.*). Refining SEDEX for optimal separation of authigenic and detrital apatite in sedimentary rocks.

Riemer, S., Moller, S.R., Ellefson, E., Dewing, K., Melchin, M., Blake, R.E., Planavsky, N.J., Sperling, E.A., Tarhan, L.G. (*In prep.*). Earliest vascular land plants did not increase phosphorus weathering.

Lee, S., Moller, S.R., Chappel, A.R, **Riemer, S.**, Dhiman, G., Blake, R.E., Morrison, E.S. (2026). Purification techniques for oxygen isotope analysis of inorganic phosphate across environmental matrices: A cross-discipline review. *Journal of Environmental Management* 397, 128187, doi.org/10.1016/j.jenvman.2025.128187

Riemer, S., Turchyn, A.V., Pellerin, A., Antler, G. (2023). Digging Deeper: Bioturbation increases the preserved sulfur isotope fractionation. Frontiers in Marine Science 9, 1039193. doi.org/10.3389/fmars.2022.1039193

He, C., Horst, S.M., **Riemer, S.**, Sebree, J.A., Pauley, N., Vuitton, V. (2017). Carbon monoxide affecting planetary atmospheric chemistry. *Astrophysical Journal Letters* 841(2), L31, doi.org/10.3847/2041-8213/aa74cc

AWARDS

Project Funding

2024 **Early Research Grant** $2,500.
Awarded by Yale University Institute for Biospheric Studies to support dissertation research.

2024 **Early Research Grant** $3,000.
Awarded by Yale University Institute for Biospheric Studies to support dissertation research.

2023 **Dean's Emerging Scholars Research Award** $2,000.
Awarded by Yale University to support dissertation research.

2023 **Charles A. & June R.P. Ross Research Grant**, $2,652.
Awarded by Geological Society of America to support dissertation field research in the Canadian Arctic.

2023 **Student Research Grant** $1,100.
Awarded by Society for Sedimentary Geology to support dissertation field research in the Canadian Arctic.

Fellowships

2018–2020 **M.Sc. Scholarship,** $32,000.
Awarded by Ben-Gurion University for M.Sc. studies and research.

2018–2019 **M.Sc. Scholarship,** $18,000.
Awarded by the Interuniversity Institute for Marine Sciences in Eilat for M.Sc. studies and research.

2017 **Research Experiences for Undergraduates Fellowship,** $6,000.
Awarded by the National Science Foundation to undertake project "Structure Elucidation of Marine Picocyanobacteria-Derived Fluorescent Dissolved Organic Matter" at Chesapeake Biological Laboratory.

Honors

2023 **Excellence in Teaching Prize**, $1,000.
Awarded by Yale University Dept. of Earth & Planetary Sciences "for an outstanding contribution to the department teaching process."

2022 **Bateman Award**, $2,000.
Awarded by Yale University to outstanding graduate applicants.

2019 **Certificate of Excellence in M.Sc. Studies**
Awarded by Ben-Gurion University for outstanding graduate students.

INVITED TALKS

3/14/2019 Weizmann Institute of Science, 12th Student's Conference for Environmental, Earth and Planetary Sciences

PUBLISHED AND PRESENTED ABSTRACTS

Riemer, S., Moller, S.R., Ellefson, E., Dewing, K., Sperling, E.A., Blake, R.E., Tarhan, L.G. (2026). Refining SEDEX for optimal separation of authigenic and detrital apatite in sedimentary rocks. *Goldschmidt Abstracts*.

Ellefson, E., Melchin, M., Dewing, K., Arnold, P., Haeri Ardakani, O., **Riemer, S.**, Gill, B.C., Gouwy, S., Leslie, A., Tarhan, L.G., Sperling, E.A. (2025). New high-resolution chemo- and bio-stratigraphic records through the Ordovician–Devonian Cape Phillips and Bathurst Island formations (Bathurst Island, Nunavut, Canada). *Geological Society of America Annual Meeting Abstracts and Programs.*

Riemer, S., Moller, S.R., Ellefson, E., Dewing, K., Melchin, M., Blake, R.E., Planavsky, N.J., Sperling, E.A., Tarhan, L.G. (2025). New insights into early vascular land plants as geobiological agents of phosphorus weathering. *3rd Geobiology Society Conference, Banff.*

Riemer, S., Moller, S.R., Ellefson, E., Dewing, K., Melchin, M., Blake, R.E., Planavsky, N.J., Sperling, E.A., Tarhan, L.G. (2025). New insights into early vascular land plants as geobiological agents of phosphorus weathering. *Northeast Geobiology Symposium.*

Silva, A., Santha, K., Tingle, K., **Riemer, S.**, Schnabel, E., McCauley Rench, R.L., Dawson, K., Grettenberger, C., Macalady, J.L. (2024). Niche Differentiation in Freshwater Beggiatoa Mats. *American Geophysical Union Fall Meeting Abstracts*.

Riemer, S., Moller, S.R., Ellefson, E., Dewing, K., Melchin, M., Blake, R.E., Planavsky, N.J., Sperling, E.A., Tarhan, L.G. (2024). New insights into early vascular land plants as geobiological agents of phosphorus weathering. *Geological Society of America Annual Meeting Abstracts and Programs.*

Riemer, S., Fakhraee, M., Tarhan, L.G. (2023). Exploring pathways of soft-tissue preservation using geochemical modeling. *Geological Society of America Annual Meeting Abstracts and Programs.*

Riemer, S., Antler, G. (2020). Does bioturbation affect the sulfur isotope record? *Gordon Research Conference on Geobiology*.

Riemer, S., Turchyn, A.V., Antler, G. (2019). Bioturbation and the Phanerozoic sulfur cycle: A model approach.

Goldschmidt Abstracts.

Riemer, S., Antler, G. (2019). Bioturbation and the Phanerozoic sulfur cycle: A model approach. *7th Kaplan Symposium: Tracers in the Sea.*

FIELD EXPERIENCE

2026 **Cornwallis Island, Nunavut**, 1 week. Silurian–Devonian strata PhD Thesis research.
2024 **Italy**, 2 weeks. Agouron Institute International Geobiology Course sampling trip (thermal springs/travertine and Cretaceous OAE 2 Bonarelli Level).
2023 **West Virginia**, 1 week. Devonian–Carboniferous strata sampling.
2023 **Bathurst Island, Nunavut**, 2 weeks. Silurian–Devonian strata PhD Thesis research.
2023 **Great Basin, USA**, 4 weeks. Cambrian–Ordovician and Devonian–Carboniferous strata sampling.
2018–2020 **Gulf of Aqaba, Red Sea**, 1 week. Several day-long research cruises sampling marine sediments.
2019 **Wyoming**, 5 weeks. Albion College Geological Field Methods Course.
2019 **Cyprus**, 1 week. Regional geology field trip to the Troodos ophiolite.

LEADERSHIP & SERVICE

2023–2026 **Yale Earth & Planetary Sciences Graduate-Undergraduate Mentorship Program**, Leadership Team.
Assisted in planning activities and joint community events for the mentorship program.

2023–2024 **Yale Earth & Planetary Sciences Geobiology-Astrobiology Reading Group**, Organizer.
Organized monthly meetings to discuss key topics and papers bridging geobiology and astrobiology.

2023–2024 **Yale University Department of Earth & Planetary Sciences**, Graduate Mentor.
Mentored a Yale College undergraduate Earth & Planetary Sciences major.

2017–2018 **Sigma Gamma Epsilon (Earth Sciences Honor Society) Johns Hopkins University Chapter**, Vice President.
Elected by peers to lead meetings, activities, and events for the university chapter.

PEER REVIEWER

– *Frontiers in Earth Science*

UNDERGRADUATE MENTORSHIP

2026 Clara Gulick (Yale '27), lab work at Yale

TEACHING EXPERIENCE

Spring 2026 **Global Tectonics**, Field Instructor.
Yale University. Death Valley National Park, USA

Spring 2025 **Global Tectonics**, Field Instructor.
Yale University. Mendoza, Argentina

Fall 2024 **Isotope Geochemistry**, Teaching Fellow.
Yale University

Spring 2024 **Earth Surface Processes**, Teaching Fellow.
Yale University

Fall 2022 **Dynamic Earth**, Teaching Fellow.
Yale University

Spring 2019 **Marine Sedimentology,** Assistant in Instruction.
Led labs and guided students on their class projects during the 10-day intensive course at the Interuniversity Institute for Marine Sciences in Eilat.

COMMUNITY OUTREACH

July 2026 Co-developed and led a 1-hour workshop "Plants: How Earth Became Green" for high school students
August 2024 Hosted local high school student in the lab and guided them through analytical chemistry techniques