Hwiseo Choi

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EDUCATION

University of Pittsburgh — Dietrich School of Arts & Sciences *Pittsburgh, PA*

PhD Student, Geology and Environmental Sciences

August 2025 – Present

- Lithium isotope geochemistry in the East River Watershed (CO): investigating lithological, biogeochemical, and geomorphological controls on clay mineral formation
- Preparation and calibration of Li separation columns for MC-ICP-MS isotope measurements
- Watershed delineation of tributaries to assess lithological influences on δ^7Li signatures

Rice University — Wiess School of Natural Sciences *Houston, TX*

PhD Student (1st year transfer), Earth, Environmental, and Planetary Sciences

August 2024 – August 2025

- Watershed-scale Li isotope geochemistry tracing clay mineral formation and organic carbon stabilization across redox gradients (DOE-funded East River Watershed project)
- Iron-mediated organic carbon stabilization in enhanced weathering systems
- Orbitrap mass spectrometry method development for high-precision S and O isotope analysis

The Ohio State University — School of Environment and Natural Resources *Columbus, OH*

B.S. Environment and Natural Resources, May 2024 | GPA: 3.99/4.00 | Summa Cum Laude

- Major: Environment, Economy, Development, and Sustainability; Specialization: Sustainability and Business
- Minor: Soil Sciences

PUBLICATIONS & PRESENTATIONS

Manuscripts in Preparation

Choi, H., et al. Lithologic and hydrologic controls on dissolved δ^7Li in the East River headwater watershed, Colorado. *In preparation*.

Conference Abstracts

Choi, H., et al. (2025). Lithium Isotopes as Tracers of Silicate Weathering Intensity and Clay Formation in the East River Watershed, Colorado. *American Geophysical Union Fall Meeting (AGU25)*, New Orleans, LA. Session H34H-06. [Oral Presentation]

RESEARCH & PROFESSIONAL EXPERIENCE

Field Experience

East River Watershed, Colorado *July 2025*

Field Research Campaign

- Collected and filtered 50+ river water, groundwater, soil, and rock samples to investigate δ^7Li signatures and clay formation processes
- Conducted multi-day field campaigns including >2-hour upstream hikes to access remote headwater sites for watershed delineation
- Performed on-site sample preparation (filtration, preservation, documentation) for downstream geochemical and isotopic analyses

Academic Positions

University of Pittsburgh — Geology and Environmental Sciences *Pittsburgh, PA*

Teaching Assistant – GEOL 1516 (Environmental Geochemistry Lab) *August 2025 – Present*

- Lead weekly lab sessions (~6 hrs/week) for 30+ undergraduate students
- Mentor students in research design, critical thinking, and data interpretation
- Provide hands-on training with field instruments (YSI multiparameter probe) and teach R for geospatial analysis

Seoul National University — Earth System Science *Seoul, South Korea*

Undergraduate Research Internship *June – August 2023*

- Conducted microbial inoculation experiments in anaerobic chamber; analyzed sulfur isotope fractionation in geobiological reaction systems
- Processed local coal mine rock samples to examine geobiological reactions with uranium

The Ohio State University — Soil Science *Columbus, OH*

Experiential Research Internship *January 2023 – May 2024*

- Gained lab experience in soil sampling, drying, processing, and analysis; completed workshops in QGIS and R

FAES — School of Environment and Natural Resources *Columbus, OH*

Student Instructional Assistant *January 2021 – May 2024*

- Provided timely feedback and grading for 45+ students weekly; served as liaison between students and instructors

Online English Tutor *Remote*

English Speaking Tutor *May 2020 – June 2022*

- Tutored Korean high school students in conversational English; integrated cultural context to enhance language acquisition

INVOLVEMENT

American Geophysical Union Conference 2025 (AGU25) *New Orleans, LA — December 2025*

Presenter / Participant

- Delivered oral presentation to 500+ attendees on Li isotope variability across the East River Watershed, integrating major/trace element chemistry with geospatial analysis

Consulting Industry Immersion Program – Sustainability Sector *Columbus, OH — Aug 2023 – May 2024*

Student / Participant

- Selected as one of 30 students; developed strategic sustainability plans for industry clients

Columbus Calvary Korean Church *Columbus, OH — Aug 2022 – May 2024*

Simultaneous Interpreter

- Volunteered as Korean–English simultaneous interpreter; guided English-speaking attendees through service

4th Global Soil Security Conference *Seoul, South Korea — June 2023*

Participant

- Engaged with international scholars on soil science research; expanded professional network across Korea and beyond

Harvard World Model United Nations *Boston, MA — February 2020*

Participant / Delegate

- Participated in competitive multilateral debates as delegate representing a developing country; formed coalitions to advocate for equitable policy outcomes

Habitat for Humanity *Lewisburg, WV — April 2019*

Volunteer

- Performed demolition and concrete foundation work to support affordable housing construction in Appalachia

ADDITIONAL INFORMATION

Honors & Awards

- Dr. J. Frederick and Ann Sarg Research Award, 2026 — Department of Geology & Environmental Science, University of Pittsburgh ($1,000)
- Annabelle E. Hoge Endowment Fund Scholarship Award, 2023–24 — School of Environment & Natural Resources, The Ohio State University

- Winner, Newcomb Scholars — 2022 CFAES Celebration of Students, The Ohio State University
- Nomination, Presidential Science Scholarship, 2019 — Korea Student Aid Foundation
- Dean's List — The Ohio State University: Spring 2021, Autumn 2021, Spring 2022, Autumn 2022, Spring 2023, Spring 2024, Autumn 2024

Technical Skills

- Isotope geochemistry: δ^{7}Li column chemistry; Neoma MC-ICP-MS and TQ-ICP-MS analysis
- Stable isotope tracing: δ^{13}C, δ^{15}N, δ^{7}Li, δ^{34}S for organic matter and nutrient pathway studies
- Soil carbon–mineral interactions and redox-sensitive Fe cycling
- Reactive transport modeling: CrunchFlow, PFLOTRAN
- Instrumentation: MC- & TQ-ICP-MS, Ion Chromatography, Orbitrap MS, Picarro
- Computational: R (tidyverse, geospatial analysis), MATLAB, QGIS, ArcGIS

Relevant Coursework

- GEOL 2520 (Stable & Radiogenic Isotopes), GEOL 2468 (Quantitative Research Methods), EEPS 615 (Earth Surface Geochemistry), EEPS 638 (Nature-based Carbon Sequestration), EEPS 657 (Carbon Capture, Utilization & Storage), CEVE 544 (Environmental Microbiology & Ecology), ENR 5262 (Soil Chemistry), ENR 5270 (Soil Fertility), ENR 5273 (Soil Pollutants), GEOG 5210 (GIS)

Languages

- Korean (native), English (fluent), Chinese (proficient)