THOMAS WILLIAMS

PhD Candidate in Earth, Environmental, and Planetary Sciences, Brown University, USA
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Department of Earth, Environmental, and Planetary Sciences, 324 Brook Street, Providence, RI, 02912

Education & Qualifications:

PhD Candidate, Dept. of Earth, Environmental, and Planetary Sciences Sept. 2021 – Present
Brown University, USA

- Advisors: Stephen Parman and Alberto Saal

MSc in Earth, Environmental, and Planetary Science 2025
Brown University, USA

- Thesis: Lunar volcanic gas cloud chemistry: Constraints from glass bead surface sublimates
- Advisors: Stephen Parman and Alberto Saal

MEarthSci Earth Sciences Oct. 2016 – June 2020
University of Oxford, Worcester College, UK

- First Class Honours
- Thesis: "*Damaran Leucogranites of the Uis Tin Belt, Northern Namibia: Field Relations, Geochemistry, Origin, and Emplacement*"
- Supervisor: Laurence Robb

Publications:

- **Williams, T.A.**, Parman, S.W., Saal, A.E., Akey, A.J., Gardener, J.A., and Ogliore, R.C. Lunar volcanic gas cloud chemistry: Constraints from glass bead surface sublimates. *Icarus*, 438, 116607 (2025).
- **Williams, T.A.**, Huber, C., Parman, S.W. Bubble–Melt Separation in Basaltic Magmas: Constraints on MORB–OIB Noble Gas Disequilibrium. *Geochemistry, Geophysics, Geosystems* (in prep).

Experience:

Accenture plc Dec. 2020 - July 2021
Management Consultant Analyst, London, UK

Volcanology and Igneous Petrology Lab Aug. 2020
Graduate Research Assistant, Department of Earth Sciences, Oxford University

- Magmatic and eruptive evolution of the 1883 caldera-forming eruption of Krakatau

AfriTin Mining June 2019 - Aug. 2020
Exploration Geologist Intern, Uis, Namibia

- Geochemical and petrological pegmatite-hosted mineral exploration.

Volcanology and Igneous Petrology Lab Aug. 2019 - Sept. 2019
Undergraduate Research Assistant, Department of Earth Sciences, Oxford University

- Magmatic and eruptive evolution of the 1883 caldera-forming eruption of Krakatau

Invited Presentations:

- **Williams, T.A.**, Parman, S.W., Saal, A.E., Akey, A.J., and Gardener, J.A. *Inferring Lunar Volcanic Gas Cloud Evolution from Atom Probe and TEM Analyses of Glass Bead Surface Sublimates* (oral), New England Society for Microscopy Spring Symposium, April 2024.

Presentations:

- **Williams, T.A.**, Huber, C. *Investigating Noble Gas Outgassing Dynamics in MORB and OIB Magmas with a New Lattice Boltzmann Method* (poster), International Association of Volcanology and Chemistry of the Earth's Interior Scientific Assembly 2025, July 2025.
- **Williams, T.A.**, Parman, S.W., Saal, A.E., Akey, A.J., and Gardener, J.A. *Inferring Lunar Volcanic Gas Cloud Evolution from Atom Probe and TEM Analyses of Glass Bead Surface Sublimates* (poster), Lunar and Planetary Sciences Conference, March 2024.
- **Williams, T.A.**, Huber, C., Parman, S.W. *Constraining MORB and OIB Volatile Concentrations and Degassing Processes with a New Lattice Boltzmann Method* (oral), American Geophysical Union Fall Meeting, December 2023.
- **Williams, T.A.**, Parman, S.W., Saal, A.E., Ogliore, R.C., Iskakova, M., A.J. Akey, and J.A. Gardner. *Constraining Lunar Volatiles via Nanoanalysis of Pristine Sample Surfaces* (oral), Geochemistry, Mineralogy, and Petrology Seminar, Brown University, Providence, RI, USA, April 2023.
- **Williams, T.A.**, Parman, S.W., Saal, A.E., Ogliore, R.C., Iskakova, M., and A.J. Akey. *Nanoanalysis of Sublimates on Pristine Lunar Orange Glass Beads* (poster), Lunar and Planetary Sciences Conference, March 2023.
- **Williams, T.A.**, Parman, S.W., Saal, A.E. *Lunar Volatiles: Nanoscale Analysis of (de)Sublimates on Lunar Glass Beads* (oral), Geochemistry, Mineralogy, and Petrology Seminar, Brown University, Providence, RI, USA, March 2022.

Non-Refereed Publications:

- **Williams, T.A.**, Parman, S.W., Saal, A.E., Akey, A.J., and Gardener, J.A. Inferring Lunar Volcanic Gas Cloud Evolution from Atom Probe and TEM Analyses of Glass Bead Surface Sublimates. *Lunar Planet. Sci. LV*, 1574 (abstract).
- D'Hondt-Gorbea, C.M., Khan, D., **Williams, T.A.**, Parman, S.W. Lunar Volcanic Degassing in Multi- Component Systems and Implications for Volatile Element Speciation. *Lunar Planet. Sci. LV*, 2622 (abstract).
- **Williams, T.A.**, Parman, S.W., Saal, A.E., Ogliore, R.C., Iskakova, M., and Akey, A.J. Nanoanalysis of Sublimates on Pristine Lunar Orange Glass Beads. *Lunar Planet. Sci. LIV*, 1441 (abstract).

Grants, Fellowships, and Awards:

2023	**Conference Travel Grant**, Brown University ($650)
2023	**Lipman Research Award**, Geological Society of America ($2500)
2023	**Conference Travel Grant**, Graduate Student Council, Brown University ($100)
2022	**Conference Travel Grant**, Brown University ($650)
2021-2022	**University Fellowship**, Brown University
2019	**Burdett-Coutts Foundation Travel Grant**, Oxford University (£650)
2019	**Research Travel Grant**, Worcester College, Oxford University (£400)
2018	**Research Travel Grant**, Worcester College, Oxford University (£400)
2016-2020	**Scholar of Worcester College** for academic performance, Oxford University (£600)

Outreach and Service:

Vis-a-thon Spring 2025

- Created artwork based around lunar volcanism to communicate science through an artistic medium: https://www.vis-a-thon.com/moon-beads

Geochemistry Seminar Organiser Spring 2023

- Schedule and host speakers for the Brown DEEPS weekly Geochemistry seminar.

DEEPS CORES 2021 - Present

- Creating Earth Science lesson plans for high school students.
- Assisting students with writing Brown pre-college program applications.

UNIQ Summer School June 2019

- Helping students from under-represented backgrounds to make successful applications to Oxford.

Mentoring:

D'Hondt-Gorbea, C.M., Brown University, RI, USA 2023 - 2024

Teaching Experience:

Teaching Assistant, EEPS 0010 - Face of the Earth, Brown University, RI, USA Spring 2025

Teaching Assistant, EEPS 0050 - Mars, Moon, and the Earth, Brown University, RI, USA Autumn 2025

Professional Development:

Sheridan Center Teaching Seminar, Reflective Teaching, Brown University, RI, USA Fall 2022

Selected Media:

- Discover Magazine: "These Glistening Glass Beads on the Moon Likely Came From Ancient Lunar Volcanoes" (Rosie McCall, 2025)
- Times of India: "Moon's volcanic history trapped in tiny glass beads: A valuable clue for NASA" (TOI Science Desk, 2025)

Scientific Skills:

Numerical modelling of fluid dynamics, equilibrium thermodynamics, and chemical kinetics. Geochemical analysis and sample preparation/fabrication (TEM, APT, FIB, NanoSIMS, XRF).

Computing:

MATLAB, Python, C++, LaTeX, Office suite, HPC workflows (SLURM scheduling, job arrays, OpenMP parallelisation).