Cara B. G. James

Vancouver, BC, Canada
Email: cjames@eoas.ubc.ca
Website: https://carabgjames.com
Updated: February 2026

Bio:

I investigate the environmental impacts of particle plumes generated by deep-sea mining of polymetallic nodules. Using experimental fluid mechanics, including lock-release experiments, I examine how different mixing regimes influence the behaviour of turbulent particle-laden flows. My work aims to improve predictions of plume dispersal and to inform the design of collector systems that reduce ecological harm.

Alongside this, I engage with the broader scientific, regulatory, and ethical challenges associated with deep-sea mining. I am particularly interested in how scientific evidence can support decision-making in international environmental governance frameworks, ensuring accountability during resource extraction in areas beyond national jurisdiction.

Education & research:

2022 – Now	**PhD Candidate in Geophysics,** *University of British Columbia* **Research:** Environmental impacts and policy implications of particulate clouds produced during deep-seabed mining. *Supervisor: Mark Jellinek*
2021	**Research Internship,** *l'Université Clermont-Auvergne, Laboratoire Magmas et Volcans* **Research:** Laboratory experiments on analog volcanic plumes with varying vent geometries *Supervisor: David Jessop*
2020 – 2021	**Master Natural Sciences,** *University of Cambridge* Earth Sceinces, Geophysics **Research:** Particle separation from turbulent particle plumes in a crossflow *Supervisor: Andy Woods*
2017 – 2020	**BA Natural Sciences,** *University of Cambridge*

Earth Sciences, ‘minor’ in Chemistry & Physics
Research: Geological Mapping of the Cantabrian region of Northern Spain

Publications and reports:

2026 (in rev.) **C.B.G. James**, A.M. Jellinek, H. S. Topf.
How source momentum and particle loading shape deep-sea mining collector vehicle discharges
Submitted to Elementa: Science of the Anthropocene.

2024 (report) **C.B.G. James**, A.M. Jellinek.
Laboratory experiments investigating the mixing dynamics of analogue seabed mining particulate clouds.
Produced for Natural Resources Canada.

2024 R. Deberdt, **C.B.G. James**.
Self-governance at
depth: The International Seabed Authority and verification culture of the deep-sea mining industry.
Resources Policy, 89, 104577.

2022 **C.B.G. James**, N.Mingotti, A.W. Woods.
On particle separation from turbulent particle plumes in a cross-flow.
Journal of Fluid Mechanics, 932, A45.

Science communication, outreach & policy:

July 2025 **Global Negotiations Conference,** *Institute for Global Negotiation, Zurich Switzerland*

- Attended 1 week workshop on multilateral, bilateral, and personal negotiation skills, with focus on deep-seabed mining.
- Acted as the sole representative of Nauru during a full day multilateral ‘Negotation Simulation’ of International Seabed Authority council meeting.

2023 – Now **Mentorship program member,** *Deep Ocean Observing Strategy (DOOS)*

- Mentee of DOERs program 'foster a new generation of leadership to guide deep-ocean observing and research'

2023 – Now **Minerals Working Group Member,** *Deep-Ocean Stewardship Initiative*
- Reviewing Environmental Impact Statements (EIS) for the International Seabed Authority (ISA)
- Supporting attendees who participate in ISA Council and Assembly meetings

2022 – Now **Social Media Manager,** *UBC Department of Earth, Ocean & Atmospheric Sciences*
- Plan, create and schedule audience specific content across various social media platforms
- Videography projects (filming and editing) documenting research and innovations from the department

2023 **Introduction to Ocean Governance,** *COBRA*
- Two-day interactive workshop "Insights into Ongoing Policy Processes and Lessons for Early Career Professionals"

2023 **Heavy Metal: Earth's Minerals and the Future of Sustainable Societies,** *UBC Graduate Course*
- Jointly taught by UBC Schools of Public Policy, Mining Engineering, Law, & Earth Sciences
- Examines the interdisciplinary roles of scientists, engineers, policy makers, & lawyers in the transition towards sustainable energy systems

2022 **Young Voices of Science,** *Hubbard Brook Foundation*
- 2-month series of science communication workshops for environmental science students

Positions of responsibility:

2024 – Now **Vice President & Founder,** *UBC Squash Club*

2023 – 2024 **Graduate Council Treasurer,** *UBC Department of Earth, Ocean & Atmospheric Sciences*

2022 – 2024 **Faculty Graduate Student Representative,** *UBC Department of Earth, Ocean & Atmospheric Sciences*

2022 – 2024 **Department Representative,** *UBC Graduate Student Society (GSS) Council*

2022 – 2023 **Graduate Council President,** *UBC Department of Earth, Ocean & Atmospheric Sciences*

2019 – 2021 **President & Founder,** *The Amazons sports society for women, non-binary and trans individuals of Jesus College, University of Cambridge*

2019 – 2020 **President,** *Cambridge University Athletic Club (track and field varsity team)*

Teaching & supervision:

2024 - Now **Undergraduate Supervision,** *University of British Columbia*
Hannah Topf
- Guiding laboratory experiments, computational analysis, and synthesis of academic papers

2023 - 2024 **Undergraduate Supervision,** *University of British Columbia*
Shreya Gangadharan
- Guiding laboratory experiments, computational analysis, and synthesis of academic papers

2022 - 2024 **Graduate Teaching Assistant,** *University of British Columbia*
EOSC223: Field Techniques & Geological Mapping
- 7 day field trip covering basics of geological mapping

- Sedimentology, volcanology, igneous deposits, geomorphology and landscape processes.

SCIE113: First-year Seminar in Science

- Science in society, scientific process, communicating scientific concepts
- Lead weekly discussions of a wide range of scientific papers covering multiple fields.

Skills:

technical:	Python, MATLAB, LaTeX, Microsoft Office Suite, AI usage
media:	Adobe Illustrator, Adobe Premiere Pro (video and sound editing), Canva, Social Media Management
languages:	English - native French - full working proficiency (C1+ level) Spanish - conversational Dutch - conversational Mandarin - basic conversational

Awards and scholarships:

2023 – 2026	**Vanier Scholarship**, *National Sciences and Engineering Research Council of Canada* CAD $50,000/yr
2023 – 2024	**Liu Scholarship**, *UBC School of Public Policy and Global Affairs* *CAD $2,000*
2022 – 2026	**Four-year Fellowship**, *University of British Columbia* CAD $18,000/yr
2022 – 2026	**President's Academic Excellence Initiative PhD Award**, *University of British Columbia* CAD $1,500/semester
2022 – 2026	**Faculty of Science PhD Tuition Award**, *University of British Columbia* CAD $6,000/semester
2022 - 2026	**International Tuition Award**, *University of British Columbia* CAD $3,200/semester
2021	**Prize for Part III Natural Sciences**, *Jesus College, University of Cambridge* £120
2021	**Poster Prize (2nd place)**, *Sedgwick Club Conference* £40
2020	**Prize for Part II Natural Sciences**, *Jesus College, University of Cambridge* £120
2019	**Jesus College research & travel grant**, *Jesus College, University of Cambridge* £550
2019	**Geological Mapping Fund**, *Cambridge Arctic Shelf Programme (CASP)* £400