

# JAMES A. BRADLEY

School of Geography  
Queen Mary University of London  
London, UK

jbradleylab.com  
jbradley.earth@gmail.com  
+44(0) 20 78828417

## Professional Appointments

2019-Present Lecturer (Assistant Professor), Queen Mary University of London, UK.  
2018-Present Humboldt Fellow, GFZ German Research Centre for Geosciences, Germany.  
2016-2019 Postdoctoral Fellow, University of Southern California, USA.

## Academic Preparation

2013-2016 PhD, Geographical Sciences, University of Bristol, UK.  
Thesis: Microbial dynamics in High-Arctic proglacial soils: an integrated modelling, field and laboratory approach. Supervised by: Prof. Alexandre Anesio, Prof. Sandra Arndt, Prof. Joy Singarayer. Committee: Prof. Andy Ridgwell, Prof. Martyn Tranter.  
2008-2011 BSc, 1<sup>st</sup> Class with Honours, Physical Geography, University of Bristol, UK  
Thesis: Geoengineering the climate with forestation: the albedo effect. Supervised by: Prof. Dan Lunt.

## Research Grants

Total: £1.97 million

2020 Research Council of Norway, Svalbard Science Forum. Spatial and temporal dynamics of biogeochemical cycling in Svalbard snowpacks. £8,500. Role: Co-PI  
2020 INTERACT (Horizon 2020). AMBER ICE. €15,694. Role: PI  
2020 Svalbard Integrated Arctic Earth Observing System (SIOS). IN-SPACE: An Integrated Network to measure Seasonal Processes in Arctic habitats via novel Experiments. £20,247. Role: PI  
2020 Svalbard Integrated Arctic Earth Observing System (SIOS). CAP-BIO: Capturing Biogeochemical Processes in Proglacial Soil During the Freezing Period. £12,463. Role: PI  
2020 IHSS Seed-corn Fund (Internal). Micro-AP: Microbial activity in frozen Arctic Permafrost. £2,000. Role: PI  
2020 QMUL Global Engagement (Internal). Research Initiation. 'Developing a modelling framework for sub-seafloor processes'. £1,000. Role: PI  
2020-2023 Natural Environmental Research Council (NERC) and National Science Foundation (NSF) - Signals in the Soil. 'SUN SPEARS: Sensors Under Snow - Seasonal Processes in the Evolution of Arctic Soils'. £1.62 million, £511,023 to JB. Role: PI  
2019-2022 Simons Foundation. 'Modeling emergent microbial communities in marine sediments.' Lead PI: Dominik Huelse, University of California, Riverside. Role: Project Partner.  
2019-2022 Department of Energy. 'Using culture-independent methods to link active compound-specific carbon degradation to greenhouse gas production and recycling in natural populations of permafrost microbes.' \$3,320,280. Lead PI: Karen Lloyd, University of Tennessee, Knoxville. Role: Project Partner.  
2018-2021 Humboldt Foundation. Humboldt Research Fellowship for Postdoctoral Researchers. Alexander von Humboldt Foundation. €85,680. Role: PI  
2018-2019 Deep Carbon Observatory. DLMV Postdoctoral Fellowship. Modelling the role of dormancy and maintenance of microorganisms on carbon transformations in marine sediments. \$33,375. Role: PI  
2016-2018 Centre for Dark Energy Biosphere Investigations. Postdoctoral Fellowship. Develop a 1D biogeochemical-evolutionary model for deep marine sediments. \$215,429 Role: PI  
2016 Natural Environmental Research Council. Antarctic Circumnavigation Expedition (ACE). BIOAIR. Lead PI: David Pearce, Northumbria University. Role: Project Partner.  
2015 Scott Polar Research Institute. Gino Watkins Memorial Fund. £500. Role: PI  
2014 John Muir Trust. Bill Wallace Grant. £500 Role: PI

## Prizes and Awards

2019 European Association of Geochemistry. Early Career Science Ambassador Award. €1,500.  
2019 Humboldt Fellow, Alexander Humboldt Foundation.

2019	Fellow, Deep Carbon Observatory.
2018	NASA Travel Award. 12 <sup>th</sup> International Congress of Extremophiles, 2018, Ischia, Italy. \$2,000.
2018	USC Postdoctoral Research Symposium: Oral Presentation Prize. University of Southern California, Los Angeles, USA. \$250.
2018	Antarctic Service Medal, United States Congress
2017	University of Southern California, Postdoctoral Scholar Training & Travel Award. International workshop on Marine Geomicrobiology, 2017, Sandbjerg, Denmark. \$500.
2016	Fellow, C-DEBI.
2016	ABTA Doctoral Research Award: Honourable Mention.
2016	European Association of Geochemistry, Student Sponsorship Award. European Geosciences Union General Assembly 2016, Vienna, Austria. €500.
2016	European Geosciences Union, Early Career Scientist's Travel Award. €275.
2015	University of Bristol, Alumni Foundation Travel Award. Polar & Alpine Microbiology Conference 2015, České Budějovice, Czech Republic. £500.
2015	Agouron Institute, International Geobiology Course. \$4,000.
2013	Natural Environmental Research Council, PhD Studentship.
2011	University of Bristol Faculty of Science, Outstanding Academic Success Award.
2011	Royal Geographical Society 'Climate Change Research Group' dissertation award, nomination

## Publications

### Peer-Reviewed Articles

Bay S, Dong X, [Bradley J](#), Leung P M, Grinter R, Jirapanjawan T, Arndt S, Cook P, LaRowe D, Nauer P, Chiri E, Greening C. (In press) Trace gas oxidizers are widespread and active members of soil microbial communities. *Nature Microbiology*. doi: 10.1038/s41564-020-00811-w

[Bradley J](#), Arndt S, Amend J, Burwicz E, Dale A, Egger M, LaRowe D. (2020) Widespread energy limitation to life in global subseafloor sediments. *Science Advances*. doi: 10.1126/sciadv.aba0697

LaRowe D, Arndt S, [Bradley J](#), Burwicz E, Dale A, Amend J (2020) Organic carbon and microbial activity in marine sediments on a global scale throughout the Quaternary. *Geochimica et Cosmochimica Acta*. doi: 10.1016/j.gca.2020.07.017

Stibal M, [Bradley J](#), Edwards A, Hotaling S, Zawierucha K, Rosvold J, Lutz S, Cameron K, Mikucki J, Kohler T, Šabacká M, Anesio A. (2020) Glacial ecosystems are essential to understanding biodiversity responses to glacier retreat. *Nature Ecology and Evolution*. doi: 10.1038/s41559-020-1163-0

LaRowe D, Arndt S, [Bradley J](#), Estes E, Hoarfrost A, Lang S, Lloyd K, Mahmoudi N, Orsi W, Shah Walter S, Steen A, Zhao R (2020) The fate of organic carbon in marine sediments - New insights from recent data and analysis. *Earth Science Reviews*. doi: 10.1016/j.earscirev.2020.103146

Orcutt B, [Bradley J](#), Brazelton W, Estes E, Goordial J, Huber J, Jones R, Mahmoudi N, Marlow J, Murdock S, Pachiadaki M. (2020) Impacts of Deep-Sea Mining on Microbial Ecosystem Services. *Limnology & Oceanography*. doi: 10.1002/lno.11403

[Bradley J](#), Amend J, LaRowe D. (2019) Survival of the fewest: Microbial dormancy and maintenance in marine sediments through deep time. *Geobiology*. doi: 10.1111/gbi.12313

[Bradley J](#), Amend J, LaRowe D. (2018) Necromass as a limited source of energy for microorganisms in marine sediments. *Journal of Geophysical Research: Biogeosciences*. 123. doi: 10.1002/2017JG004186

[Bradley J](#), Amend J, LaRowe D. (2018) Bioenergetic controls on microbial ecophysiology in marine sediments. *Frontiers in Microbiology – Extreme Microbiology*. doi: 10.3389/fmicb.2018.00180

[Bradley J](#)<sup>o</sup>, Daille L<sup>o</sup>, Trivedi C<sup>o</sup>, Bojanowski C, Stamps B, Stevenson B, Nunn H, Johnson H, Loyd S, Berelson W, Corsetti F, Spear J. (2017) Carbonate-Rich Dendrolitic Cones: Insights into a Modern Analogue for Incipient Microbialite Formation, Little Hot Creek, Long Valley Caldera, California. *npj Biofilms and Microbiomes*. doi:10.1038/s41522-017-0041-2 (°co-first authors)

Stibal M, [Bradley J](#), Box J (2017) Ecological modelling of the supraglacial ecosystem: a process-based perspective. *Frontiers in Earth Science*. doi: 10.3389/feart.2017.00052

Bradley J, Anesio, A, Arndt S (2017) Microbial and biogeochemical dynamics in glacier forefields are sensitive to century-scale climate and anthropogenic change. **Frontiers in Earth Science**. doi: 10.3389/feart.2017.00026

Bradley J, Arndt S, Šabacká M, Benning L, Barker G, Blacker J, Yallop M, Wright K, Bellas C, Telling J, Tranter M, Anesio A (2016) Microbial dynamics in a High-Arctic glacier forefield: a combined field, laboratory, and modelling approach. **Biogeosciences**. doi: 10.5194/bg-13-5677-2016

Bradley J, Anesio A, Arndt S. (2016) Bridging the divide: A model-data approach to Polar & Alpine Microbiology. **FEMS Microbiology Ecology**. doi: 10.1093/femsec/fiw015

Pearce D, Irina A, Terauds A, Willemotte A, Quesada A, Edwards A, Dommergue A, Sattler B, Adams B, Magalhães C, Wan Loy C, Yim M. Lau C, Cary C, Smith D, Wall D, Eguren G, Matcher G, Bradley J, Devera J, Elster J, Hughes K, Benning L, Gunde-Cimerman N, Convey P, Gyu Hong S, Pointing S, Pellizari V, Vincent W (2016) Aerobiology over Antarctica – a new initiative for atmospheric ecology. **Frontiers in Microbiology**. 7. doi: 10.3389/fmicb.2016.00016

Bradley J, Anesio A, Singarayer J, Heath M, Arndt S. (2015) SHIMMER (1.0): A novel mathematical model for microbial and biogeochemical dynamics in glacier forefield ecosystems. **Geoscientific Model Development**. 8, 3441-3470. doi: 10.5194/gmd-8-3441-2015

Bradley J, Singarayer J, Anesio A. (2014) Microbial community dynamics in the forefield of glaciers. **Proceedings of the Royal Society B**. 281: 20140882. doi: 10.1098/rspb.2014.0882

### **White Papers**

Orcutt B, Bradley J, Huber J, Jones R, Mahmoudi N, Marlow J, Wheat J. (2020) Liliuokalani Ridge Seamounts: Mineral Crusts, Benthic Habitat, and Ecosystem Services in an Un-mapped and Unexplored Region of the US EEZ and International Waters. **National Ocean Exploration Priorities in the Pacific, Consortium for Ocean Leadership and NOAA Office of Ocean Exploration and Research**. <https://oceanleadership.org/discovery/ocean-exploration>

Orcutt B, Bradley J, Goordial J, Huber J, Jones R, Mahmoudi N, Marlow J, Wheat J. (2020) The Pacific-Antarctic Rise: An Uncharacterized Mid-Ocean Ridge. **National Ocean Exploration Priorities in the Pacific, Consortium for Ocean Leadership and NOAA Office of Ocean Exploration and Research**. <https://oceanleadership.org/discovery/ocean-exploration>

### **Book Chapters**

Bradley J (In press) Microbial dynamics in forefield soils following glacier retreat. In: Liebner, S (Ed.) *Microbial life In the Cryosphere and its feedback on Global change*. de Gruyter, Berlin, Germany

Lutz S, Bradley J (In press) Glacial surfaces: functions and biogeography. In: Liebner, S (Ed.) *Microbial life In the Cryosphere and its feedback on Global change*. de Gruyter, Berlin, Germany

## **Mentoring and Teaching Service**

### **Graduate students**

2020-Present Margaret Cramm, PhD (*Primary supervisor, QMUL*)  
2020-Present Amy Solman, PhD (*Primary supervisor, QMUL*)  
2020-Present Rey Mouro, PhD (*Co-Supervisor, GFZ*)  
2020 Melanie Hay, PhD (*External Examiner, Aberystwyth University*)  
2019-Present Dorothee Kinkel, PhD. (*Committee, QMUL*)

### **Undergraduate research projects**

Bethan Evans, BSc (2020, QMUL); Omar Faruq, BSc (2020, QMUL); Gurdeep Kaur, BSc (2020, QMUL); Dan Lin, BSc (2020, QMUL); Naziha Rahman, BSc (2020, QMUL); Shah Rahman, BSc (2020, QMUL); Shophia Shoutova, BSc (2020, QMUL); Roanno Thomas, BSc (2020, QMUL); Jessica Mead, BSc (2019, QMUL); Bryony Cesil, BSc. (2019, QMUL); Chloe Paxman, BSc. (2019, QMUL); Alexander Olding, BSc. (2019, QMUL).

### **Teaching experience**

*Queen Mary University of London*

2020/21 Earth Surface Science; Environmental Research Methods; Advanced Environmental Research Methods; Research Design; Independent Geographical Study/Project in

	Environmental Science; Ideas and Practice in Geography and Environmental Science; Ecosystem Sciences.
2019/20	Earth Surface Science; Environmental Research Methods; Advanced Environmental Research Methods; Research Design; Independent Geographical Study/Project in Environmental Science; Progress in Physical Geography and Environmental Science.
<i>University of Bristol</i>	
2015/16	Environmental Change; Earth System Modelling; Cryosphere; Research Methods in Physical Geography; Ice & Oceans; Big Ideas in Science.
2014/15	Environmental Change; Earth System Modelling; Cryosphere; Research Methods in Physical Geography; Ice & Oceans; Big Ideas in Science.
2013/14	Environmental Change; Earth System Modelling; Big Ideas in Science.

### **Mentor for students with disabilities, Disability service**

*University of Bristol*

2013-2016	Working with disabled students (5 students over 3 years) for one-to-one support meetings, support and academic assistance.
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### **FIELD EXPERIENCE**

2019	Iceland. Biological and chemical sampling of Langjökul and Snaefellsjökull glaciers.
2019	East Greenland. Biological and chemical sampling of Mittivakkat glacier and the Greenland Ice Sheet. Based out of Sermilik Research Station, eastern Greenland. INTERACT-funded project: AirMiMic.
2018	McMurdo Sound, Antarctica. Sea-ice based fieldwork investigating biological adaptation of Polar organisms to environmental change.
2015	Long Valley Caldera, USA. Fieldwork in California and Nevada on modern (hot springs, lakes) and ancient outcrop settings.
2015	Svalbard. SNOW WAKE winter/spring sampling campaign. Geochemical and biological sampling of snow, lake ice, cryoconite, soils.
2014	Russel Glacier, West Greenland. Arctic Soils summer campaign. Geochemical and biological sampling of soils and cryoconite.
2013	Svalbard. Arctic soils summer sampling campaign. Geochemical and biological sampling of soils and cryoconite.
2010	Haut d'Arolla, Switzerland. Field training in geochemical, biological and hydrological analyses.

### **Invited Presentations**

Oral\*, Poster°

10.2020	*Bradley, J. Glaciers and Ice Sheets as Climate Regulators and Biogeochemical Reactors. Geologists Association, London, UK.
09.2020	*Bradley, J. SUN SPEARS: Sensors under snow – Seasonal processes in the evolution of Arctic soils. Signals in the Soil International Workshop, UK.
06.2020	*Bradley, J. SaltGiant Workshop. Paris, France.
03.2020	*Bradley, J. Department of Geological Sciences, Universite Libre de Bruxelles, Belgium (cancelled due to COVID-19).
02.2020	*Bradley, J. Arctic Station Day. British Antarctic Survey, Cambridge, UK.
01.2020	*Bradley, J. School of Earth and Environment, Leeds University, Leeds, UK.
01.2020	*Bradley, J. Department of Environmental Science, Roskilde University, Denmark.
01.2020	*Bradley, J. et al. Polar Night Week 2020. Svalbard Science Centre, Longyearbyen.
12.2020	*Bradley, J. et al. UKRI Signals in the Soil. Birmingham, UK.
11.2019	*Bradley, J. et al. C-DEBI Network Speaker Series. Online webinar.
06.2019	*Bradley, J. et al. Bio-energetics of life in marine sediments on a global scale. 2 <sup>nd</sup> Geobiology Society Conference, Banff, Canada.
05.2019	*Bradley, J. Bio-energetics of life in marine sediments. GFZ Helmholtz Centre, Potsdam, Germany.
02.2019	*Bradley, J. Widespread energy limitation in global marine sediments, Department of Earth and Planetary Sciences, McGill University, Montreal, Canada.
11.2018	*Bradley, J. et al. Bioenergetics of life in the marine subsurface. Inaugural Symposium for the International Center for Deep Life Investigation (ICDLI) and Deep Life Community Meeting, Shanghai, China.
10.2018	*Bradley, J. Survival of the fewest: Microbial energetics in marine sediments. Department of Earth Sciences, University of Southern California, USA.

04.2018	*Bradley, J. Microbial energetics, dormancy, and maintenance in marine sediments through deep time. California Institute of Technology, USA.
03.2018	*Bradley, J. Modelling the role of dormancy and maintenance of microorganisms on carbon transformations in marine sediments. Deep Carbon Observatory DLMV workshop, Arizona State University, USA.
03.2018	*Bradley, J. Quantifying microbial processes and their role as drivers of biogeochemical cycles, using integrated model-data approaches. Woods Hole Oceanographic Institution
12.2017	*Bradley, J. et al. Necromass as a source of energy for microorganisms in marine sediments. American Geophysical Union Fall Meeting, New Orleans, USA
11.2017	*Bradley, J. et al. Necromass as a limited source of energy for microorganisms in marine sediments. C-DEBI Annual Meeting, Marina, California, USA
09.2017	*Bradley, J. Necromass as a limited source of energy for microorganisms in marine sediments. University of Bristol, Bristol, UK
10.2016	*Bradley, J. et al. Develop a 1D biogeochemical-evolutionary model for deep marine sediments. C-DEBI Annual Meeting, Marina, California, USA
06.2016	*Bradley, J. et al. Modelling microbial processes during soil formation in a High-Arctic glacier forefield. Goldschmidt Conference, Yokohama, Japan
05.2016	*Bradley, J. et al. Characterisation of Arctic Soil Development Using the New Biogeochemical Model: SHIMMER. 22 <sup>nd</sup> International Symposium on Polar Sciences, Korea Polar Research Institute, Incheon, Republic of Korea
01.2014	*Bradley, J. et al. Characterising the initial stages of soil formation in the High Arctic. NERC GW4 & DTP Launch Event, Natural History Museum, London, UK

### External Meetings and Workshops

#### Invited Participant\*

09.2020	*Signals in the Soil International Workshop, UK
06.2020	*SaltGiant Workshop. Paris, France.
12.2020	*UKRI Signals in the Soil. Birmingham, UK.
11.2019	*C-DEBI Annual Meeting, Marina, California, USA.
11.2019	*C-DEBI NextGen, Monterrey, California, USA.
10.2019	*DeepCarbon 2019: Launching the Next Decade of Deep Carbon Science. Washington, DC, USA.
09.2019	*The Biotic Fringe: A Deep Life Modeling and Visualization Workshop, LUMCON, Louisiana, USA.
09.2019	The Origin and Rise of Complex Life, The Royal Society, London, UK.
11.2018	*C-DEBI Annual Meeting, Marina, California, USA.
11.2018	*Inaugural Symposium for the International Center for Deep Life Investigation (ICDLI) and Deep Life Community Meeting, Shanghai, China.
04.2018	Deep Sea Mining Impacts on Microbial Ecosystem Services, Bigelow Laboratory for Ocean Sciences, Maine, USA.
03.2018	*Deep life modelling and visualization. Deep Carbon Observatory sponsored workshop, Arizona State University, USA
03.2018	*Microorganisms and organic carbon in the marine subsurface. C-DEBI sponsored workshop, University of Tennessee, Knoxville, USA
11.2017	*C-DEBI Annual Meeting, Marina, California, USA.
09.2017	International workshop on Marine Geomicrobiology – A matter of energy. Sandbjerg, Denmark.
10.2018	*C-DEBI Annual Meeting, Marina, California, USA.
11.2014	Marine Science and Technology, British Council Researcher Links and Newton Fund sponsored workshop, Santa Marta, Colombia.
09.2014	Quantifying albedo feedbacks and their role in mass balance of the Arctic terrestrial cryosphere, IASC/ICARP III workshop, University of Bristol, UK.
01.2014	Understanding uncertainty in environmental modelling, NERC sponsored workshop. London School of Economics, UK.
11.2013	Life in the cold workshop, University of Leeds, UK.
03.2013	Glacial Biogeochemistry workshop, University of Bristol, UK.

### Academic and Professional Service

#### External

2019-Present	Journal Editing: Geoscientific Model Development – Topical Editor.
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2017-Present	Reviewer for international peer-reviewed journals: Nature Communications, ISME Journal, Environmental Microbiology, Geobiology, FEMS Microbiology Ecology, Geoderma, Astrobiology.
2017-2019	Reviewer for NSF Research Proposals.
2019	Conference session convenor and chair: Microbial Metabolisms and Biogeochemical Processes in Earth's Subsurface. AGU, San Francisco, USA.
2019	Conference session chair: DCO Field Studies. DeepCarbon 2019: Launching the Next Decade of Deep Carbon Science. Washington, DC, USA.
2019	Liaison & Judge. Outstanding Student Presentation Award, AGU Fall Meeting.
2017-Present	Communications Committee, European Association of Geochemistry
2014	Conference organizing committee, International Glaciological Society British Branch Meeting, Bristol, UK
2014	Conference organizing committee, UK Antarctic Research Symposium, Bristol, UK
<u>Internal</u>	
2020-Present	Confirmation & Clearing Working Group (QMUL)
2019-Present	Academic lead, Sustainability Committee (QMUL)
2019-Present	Masters Program Scoping Committee (QMUL)
2019-Present	Academic Lead for Marketing and Communications (QMUL)
2019-Present	Taught Programs Recruitment and Admissions Committee (QMUL)
2014-2016	Chair, Glaciology Centre Seminar Seminars (Bristol)

### Community Engagement and Outreach

2020	Public Lecture, 'Glaciers and Ice Sheets as Climate Regulators and Biogeochemical Reactors', Geologists Association, London, UK.
2020	Public Lecture, 'People and Pandemics – A Better World?' QMUL Public Lecture Series.
2020	The Impossible Network Podcast, Guest interviewee.
2020	London Borough of Tower Hamlets Annual Conference. Keynote Speaker on climate change (Cancelled due to COVID-19).
2020	QMUL Climate Action Group, Speaker.
2020	Newham Citizen's Assembly on Climate Change. Expert witness, Speaker & Panellist.
2019-Present	Skype a Scientist. Regularly participating in 'Skype a Scientist' program: Q&A sessions with school classrooms across the world, covering topics including research, experiences from the field, citizen science, career information and guidance, what it's like to be a scientist.
2019	Tower Hamlets Climate Strike group: Global Warming: a climate crisis. Panellist and Speaker, London Muslim Centre/East London Mosque.
2019	NDR 90.3 German national radio broadcast and podcast. Matthias Steiner talks with Liane Benning, Mattias Winkel and Laura Halbach about our INTERACT-funded AirMiMic project, live from Sermilik Research Station in E. Greenland.
2018	International Polar Foundation, Design a flag for Antarctica
2018	Antarctica Expedition: Student Questions & Answers, <a href="https://antarcticatrainees2018.weebly.com/">https://antarcticatrainees2018.weebly.com/</a>
2015	Life in Extremes. Exhibit at the Science Museum, London, UK, with the Royal Society
2015	Digital Explorer "Arctic Live" event. Direct classroom interaction (via Skype interviews) with schools worldwide from the UK Arctic Research Station, Svalbard.
2015	Sircome collaboration: photographs and motivational written piece, integrating Arctic soils research.
2013-2014	Sutton Trust Summer School
2014	Bristol Ice Explorers: Room 13 Hareclive Academy. Polar science education and exploration day and ongoing art project with 8-11 year olds.
2013	Access To Bristol.

### SELECTED COURSES AND TRAINING

2018	NSF Advanced Training Program in Antarctica. Biological Adaptations to Environmental Change, McMurdo Station, Antarctica.
2015	International Geobiology Course, University of Southern California. Intensive 5 week course combining lectures, modelling, fieldwork and laboratory analyses (University of Southern California and California State University, Fullerton).

- Carbonate, organic, and sulphur geochemistry, genomics (16S rRNA and metagenomics), petrography, microscopy, isotope geochemistry.
- 2015 Nonlinear Dynamics: Mathematical and Computational Approaches. Online Complexity Explorer course, Santa Fe Institute and Portland State University.
- 2015 Earth System Modelling with GENIE. University of Bristol, UK
- 2015 Freshwater Taxonomic and Field Technique Course. Natural History Museum, UK.
- 2015 Introduction to Mathematical Modelling for the Environmental and Biological Sciences. University of Stirling, UK.
- 2014 Introduction to Ecological Modelling. UCL, UK
- 2014 Building your own ODE ecological models in R. University of Strathclyde, UK.
- 2014 Molecular Techniques for Taxonomy. Introduction to molecular ecology, laboratory training including DNA extraction, PCR and gene sequencing. Natural History Museum, UK.
- 2014 Understanding Uncertainty in environmental modelling. London School of Economics, UK

## Software

- MicroLow 1.0:** Microbial model for growth and maintenance of active and dormant microorganisms in low-energy environments. Open source, executed in R.  
[https://github.com/jbradley8365/MICROLOW\\_1.0\\_SOURCE](https://github.com/jbradley8365/MICROLOW_1.0_SOURCE)
- SHIMMER 1.0:** Microbial-biogeochemical model for Arctic soils. Open source, executed in R.  
[https://github.com/jbradley8365/2016\\_17\\_SHIMMER\\_demo](https://github.com/jbradley8365/2016_17_SHIMMER_demo)

## Conference Presentations

Oral\*, Poster° (Presenting author only)

- 09.2020 \*Bradley, J. SUN SPEARS: Sensors under snow – Seasonal processes in the evolution of Arctic soils. Signals in the Soil International Workshop, UK.
- 06.2020 \*Bradley, J. SaltGiant Workshop. Paris, France.
- 02.2020 \*Bradley, J. Arctic Station Day. British Antarctic Survey, Cambridge, UK.
- 01.2020 \*Bradley, J. Polar Night Week 2020. Svalbard Science Centre, Longyearbyen.
- 12.2019 °Bradley, J. et al. The power of life in marine sediments. American Geophysical Union Fall Meeting, San Francisco, USA.
- 12.2020 \*Bradley, J. et al. UKRI Signals in the Soil. Birmingham, UK.
- 11.2019 °Bradley, J. et al. C-DEBI Annual Meeting, Marina, California, USA.
- 11.2019 \*Bradley, J. et al. C-DEBI Network Speaker Series. Online webinar.
- 10.2019 °Bradley, J. et al. DeepCarbon 2019: Launching the Next Decade of Deep Carbon Science. Washington, DC, USA.
- 09.2019 \*Bradley, J. et al. Bio-energetics and the power of microbial life in marine sediments. Shackleton: Marine Geoscience and Carbon – from ancient storage to future challenges. Geological Society of London, UK.
- 08.2019 \*Bradley, J. et al. Bio-energetics of microbial life in marine sediments. Goldschmidt, Barcelona, Spain.
- 06.2019 \*Bradley, J. et al. Bioenergetics of life in marine sediments on a global scale. 2<sup>nd</sup> Geobiology Society Conference, Banff, Canada.
- 11.2018 °Bradley, J. et al. Bioenergetics of life in marine sediments on a global scale. C-DEBI Annual Meeting, Marina, California, USA.
- 11.2018 °Bradley, J. et al. Survival of the fewest: Microbial energetics in oligotrophic marine sediments. C-DEBI Annual Meeting, Marina, California, USA.
- 11.2018 \*Bradley, J. et al. Bioenergetics of life in the marine subsurface. Inaugural Symposium for the International Center for Deep Life Investigation (ICDLI) and Deep Life Community Meeting, Shanghai, China.
- 09.2018 °Bradley, J. et al. Microbial energetics in oligotrophic marine sediments. 12<sup>th</sup> International Congress of Extremophiles, Ischia, Italy.
- 05.2018 \*Bradley, J. et al. Energetics of life in the deep biosphere. 3rd Annual Postdoctoral Research Symposium, University of Southern California, Los Angeles, USA.
- 12.2017 °Bradley, J. et al. Necromass as a source of energy for microorganisms in marine sediments. American Geophysical Union Fall Meeting, New Orleans, USA.
- 11.2017 \*Bradley, J. et al. Necromass as a limited source of energy for microorganisms in marine sediments. C-DEBI Annual Meeting, Marina, California, USA.

- 08.2017 °Bradley, J. et al. Necromass as a source of energy for microorganisms in marine sediments. International workshop on Marine Geomicrobiology – A Matter of Energy, Sandbjerg, Denmark
- 04.2017 \*Bradley, J. et al. Utilization of microbial necromass in marine sediments. 14th Annual Southern California Geobiology Symposium, Los Angeles, USA
- 06.2016 \*Bradley, J. et al. Modelling microbial processes during soil formation in a High-Arctic glacier forefield. Goldschmidt, Yokohama, Japan
- 04.2016 °Bradley, J. et al. Investigating the initial stages of soil formation in glacier forefields using the new biogeochemical model: SHIMMER. European Geosciences Union General Assembly, Vienna, Austria
- 04.2016 °Bradley, J. et al. Vertical Microbial Community Variability Of Carbonate-based Cones May Provide Insight Into Ancient Conical Stromatolite Formation. European Geosciences Union General Assembly, Vienna, Austria
- 09.2015 \*Bradley, J. et al. Microbial community dynamics in the forefield of glaciers – a modelling perspective. UK Arctic Science Conference, Sheffield
- 09.2015 \*Bradley, J. et al. Microbial community dynamics in the forefield of glaciers – a modelling perspective. 6th International Conference on Polar and Alpine Microbiology, České Budějovice, Czech Republic
- 11.2014 \*Bradley, J. et al. Polar Ecosystems and Marine Implications. Marine Science and Technology, British Council Researcher Links Workshop, Santa Marta, Colombia
- 09.2014 °Bradley, J. et al. Microbial community dynamics in the forefield of glaciers. International Glaciological Society British Branch Meeting, Bristol
- 09.2014 °Bradley, J. et al. Microbial community dynamics in the forefield of glaciers. UK Antarctic Research Symposium, Bristol, UK
- 03.2014 °Bradley, J. et al. Modelling microbial community development in deglaciated forefield soils. Natural Systems and Processes, Bristol, UK
- 01.2014 °Bradley, J. et al. Characterising the initial stages of soil formation in the High Arctic. Understanding Uncertainty in Environmental Modelling, CATS/LSE, London, UK
- 11.2013 °Bradley, J. et al. Characterising the initial stages of soil formation in the High Arctic. Life In The Cold, Leeds, UK

## PROFESSIONAL AFFILIATIONS

- 2020-Present Partner, SaltGiant ETN
- 2019-Present Alexander Humboldt Foundation
- 2018-Present The Geobiology Society
- 2016-Present Astrobiology Society of Britain
- 2016-Present The Mineralogical Society
- 2016-Present British Society of Soil Science
- 2013-Present American Geophysical Union
- 2013-Present European Geosciences Union
- 2013-Present European Association of Geochemistry
- 2016-Present Astrobiology Society of Britain

## Selected Press and Media

- 2020 Vice. Scientists Found Creatures So Inactive They Expanded Our Idea of Life Itself. <https://www.vice.com/en/article/jgxavb/scientists-found-creatures-so-inactive-they-expanded-our-idea-of-life-itself>
- 2020 The Daily Mail. Microbes living beneath the seafloor are found to survive on 'fifty-billion-billion times less energy than a human' - setting a new lower energy limit for life on Earth. <https://www.dailymail.co.uk/sciencetech/article-8596159/Microbes-beneath-seafloor-living-fifty-billion-billion-times-energy-human.html>
- 2020 New Scientist. Deep-sea microbes survive on less energy than we thought possible. <https://www.newscientist.com/article/2251074-deep-sea-microbes-survive-on-less-energy-than-we-thought-possible/>
- 2020 Smithsonian Magazine. Deep-Sea Microbes Exert the Least Amount of Energy Possible to Survive. <https://www.smithsonianmag.com/smart-news/these-microbes-exert-least-amount-energy-possible-survive-180975535/>
- 2020 Quanta Magazine. 'Zombie' Microbes Redefine Life's Energy Limits. <https://www.quantamagazine.org/zombie-microbes-redefine-lifes-energy-limits-20200812/>



- 2020 AOL. Researchers discover lower energy limit for life on Earth. <https://www.aol.co.uk/news/2020/08/05/researchers-discover-lower-energy-limit-for-life-on-earth/>
- 2020 Earth. Organisms beneath the seafloor barely need energy for life. <https://www.earth.com/news/organisms-beneath-the-seafloor-barely-need-energy-for-life/>
- 2020 Science. This week in science: Lower power limit to subseafloor life. <https://science.sciencemag.org/content/369/6504/twis.full>
- 2020 Nature Reviews Earth & Environment. Microbial Munchies. <https://www.nature.com/articles/s43017-020-0094-2>
- 2020 Mare (German national magazine): featured article.
- 2020 La Libre (Major daily newspaper in Belgium). Au fond des océans, la vie presque éternelle. <https://www.lalibre.be/planete/sciences-espace/au-fond-des-occeans-la-vie-presque-eternelle-5f329cf99978e2322f0bd1a9>
- 2020 RTBF (Belgian public broadcasting). Un organisme n'a pas besoin d'autant d'énergie qu'on le pensait pour "être vivant". [https://www.rtbf.be/info/societe/detail\\_un-organisme-n-a-pas-besoin-d-autant-d-energie-qu-on-le-pensait-pour-etre-vivant?id=10557897](https://www.rtbf.be/info/societe/detail_un-organisme-n-a-pas-besoin-d-autant-d-energie-qu-on-le-pensait-pour-etre-vivant?id=10557897)
- 2020 The Impossible Network Podcast. <https://theimpossiblenetwork.com/podcast/dr-james-bradley/>
- 2020 Forbes. How Your Smartphone May Be Destroying The Deep Ocean - And Its Valuable Microbes. <https://www.forbes.com/sites/allenelizabeth/2020/02/03/how-your-smartphone-may-be-destroying-the-deep-oceanand-its-valuable-microbes/#225781814405>
- 2020 The Daily Mail. Mining the sea floor for precious metals needed for electric car batteries could lead to 'irreversible damage' to marine ecosystems, scientists warn. <https://www.dailymail.co.uk/sciencetech/article-7885867/Mining-sea-floor-precious-metals-lead-irreversible-damage.html>
- 2020 Science&Vie. Voici le seul endroit sans vie sur Terre! <https://www.science-et-vie.com/nature-et-enviro/voici-le-seul-endroit-sans-vie-sur-terre-54905>
- 2020 Preventing the Inevitable: snowsports in a warming world.
- 2019 The Guardian. The age of extinction: The tiny algae at ground zero of Greenland's melting glaciers. The Guardian long-format article covering INTERACT-funded AirMiMic project, reporting from Sermilik Research Station in E. Greenland. <https://www.theguardian.com/environment/2019/sep/18/tiny-algae-ground-zero-greenland-melting-glaciers>
- 2019 NDR 90.3. German national radio and podcast interview on INTERACT-funded project AirMiMic, live from Sermilik Research Station in E. Greenland. [https://www.ndr.de/903/sendungen/hamburger\\_hafenkonzert/Unterwegs-mit-Arved-Fuchs-auf-Groenland,sendung935784.html#](https://www.ndr.de/903/sendungen/hamburger_hafenkonzert/Unterwegs-mit-Arved-Fuchs-auf-Groenland,sendung935784.html#)
- 2019 SuperScience: 120 Recent Scientific Discoveries. Illustrated book documenting the most surprising or interesting studies in the world. Le Courier du Livre/Guy Tredaniel Publisher.
- 2018 Scientific American: Inside Earth, Microbes Approach Immortality: Mostly dead is slightly alive. <https://blogs.scientificamerican.com/artful-amoeba/inside-earth-microbes-approach-immortality/>
- 2018 New Scientist: 75-million-year old ocean microbes live forever on almost zero energy. <https://www.newscientist.com/article/2182271-75-million-year-old-ocean-microbes-live-forever-on-almost-zero-energy/>
- 2018 DCO Research News: How microbes survive when buried alive. <https://deepcarbon.net/how-microbes-survive-when-buried-alive>
- 2018 Eos Research Spotlight: Life and Death in the Deepest Depths of the Seafloor. <https://eos.org/research-spotlights/life-and-death-in-the-deepest-depths-of-the-seafloor>
- DOI: 10.1002/2017JG004186
- 2018 Antarctic Sun: A World-Class Classroom At The Bottom Of The World. <https://antarcticsun.usap.gov/science/contentHandler.cfm?id=4360>
- 2018 Mines Newsroom: Microbial hot spring structures offer clues into geological past. <http://www.minesnewsroom.com/news/microbial-hot-spring-structures-offer-clues-geological-past>

- 2017 Frontiers Blog: Microbial colonisers of Arctic soils are sensitive to future climate change.  
<https://blog.frontiersin.org/2017/04/04/microbial-colonisers-of-arctic-soils-are-sensitive-to-future-climate-change/>
- 2017 Science Daily: Microbial colonisers of Arctic soils are sensitive to future climate change.  
<https://www.sciencedaily.com/releases/2017/04/170403091317.htm>
- 2016 Phys.Org: Simple forms of life are quick to colonise new 'desert' landscapes created by shrinking Arctic ice  
<https://phys.org/news/2016-10-simple-life-quick-colonise-landscapes.html>