

Academic Curriculum Vitae

Brennan O'Connell

University of Cambridge, Department of Earth Sciences

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[University Academic Profile](#)

[Research Website](#)

EDUCATION & TRAINING

- Ph.D. Earth Sciences**, University of Melbourne, Parkville, VIC, Australia 2023
Thesis: Neoproterozoic marine oxygenation and environmental evolution
Advisors: Ashleigh Hood, Malcolm Wallace
- M.Sc. Geology**, University of Oregon, Eugene, OR, USA 2016
Thesis: Sedimentology and depositional history of the Miocene–Pliocene Bouse Formation
Advisor: Rebecca Dorsey
- B.A. Geology**, Colorado College, Colorado Springs, CO, USA 2013
Thesis: Sedimentology and geochemistry of the Paleocene–Eocene Chickaloon Formation, Alaska
Advisors: Henry Fricke

POSITIONS

- Leverhulme Trust Early Career Fellow**, University of Cambridge, *School of Earth Sciences* 2025–now
- College Research Associate**, St. John's College, University of Cambridge 2023–now
- Post-Doctoral Research Associate**, University of Cambridge, *School of Earth Sciences* 2022–2025
PI: Alex Liu, *Geobiology*
- Research Associate**, Yale University, USA, *Dept. of Geology and Geophysics* 2016–2018
PI: Noah Planavsky, *Metal Geochemistry Center*

AWARDS, HONORS, & FUNDING

- 2025– Leverhulme Trust, Early Career Fellowship (PI) € 213,900
· *Living coasts: the evolution of coastal wetland ecosystems*
- 2025– NERC Pushing the Frontiers of Environmental Research (Research co-Lead) € 1,069,500
· *Reconciling the Ediacaran and Cambrian fossil records of early animal evolution*
- 2025– Fermor Seed Corn Fund, The Geological Society of London (PI) € 72,874
· *Life on the edge: the evolution of coastal wetland ecosystems through time*
- 2025– Gilchrist Fieldwork Award, Royal Geographical Society (PI) € 17,250
· *Tidal Flats to Wetlands: Blue Carbon Storage in Tasmania's Coastal Landscapes*
- 2025– Harvard Travellers Club (PI) € 6,880
· *Exploring Namibia's Desert Landscapes for Clues to Early Animal Evolution*
- 2025– Blumberg Grants in Astrobiology (PI) € 5,629
· *Life before the explosion: early animal evolution in Namibia's Ediacaran fossil record*
- 2025– Postdoctoral Research Grants, International Association of Sedimentologists (PI) € 2,400
· *The evolution of coastal wetland ecosystems through time*
- 2023–2024 Cambridge-Africa ALBORADA Fund, University of Cambridge (Co-PI) € 23,000
- 2022–2025 Leverhulme Trust, University of Cambridge, (selected PDRA out of 87 applicants) € 171,617
· *Establishing the environmental context for Earth's first 'mass extinction'*
- 2018–2022 Graduate Research Scholarship, University of Melbourne € 151,747
- 2022 George Lansell Award, University of Melbourne (Department of Engineering) € 3,920
- 2019, 2020 Baragwanath Geology Research Scholarship € 3,360
- 2020 Grand Canyon Field Forum Scholarship € 4,300
- 2019 AAPG Student Research Grant € 1,680
- 2018 International Association of Sedimentologists Travel Grant (Bathurst Meeting) € 1,000
- 2018 International Association of Sedimentologists Student Research Grant € 1,500
- 2018 Rowan White Scholarship, University of Melbourne € 3,920
- 2018 Tony Noon Memorial Scholarship, APPEA Australian Energy € 1,680
- 2014–2016 University of Oregon, Department of Earth Sciences Graduate Scholarship € 110,360
- 2016 Department of Earth Science Research Recognition Award, University of Oregon

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| 2016 Desert Symposium Best Student Paper, Honorable Mention | |
| 2015 Geological Society of America Student Research Grant | € 2,580 |
| 2015 Society of Sedimentary Geology Student Research Grant | € 2,150 |
| 2013 Donald B. Gould Scholarship Award in Geology, Colorado College | € 860 |
| 2013 Darrel M. Putman Scholarship Award in Geology, Colorado College | € 860 |
| 2009–2012 NCAA Division 1 Athletic Scholarship (Soccer) | |

PUBLICATIONS

Link to ORCID: [ORCID 0000-0002-5652-1222](https://orcid.org/0000-0002-5652-1222)

Refereed Journal Articles, first author

Published

1. **O'Connell, B.** and Wallace, M.W., 2025. The palaeoenvironmental and biological significance of marine carbonate depositional surfaces. Geological Society, London, Special Publications, 556(1), pp.SP556-2024. <https://doi.org/10.1144/SP556-2024-90>
2. **O'Connell, B.**, McMahon, W.J., Nduutepo, A., Pokolo, P., Mocke, H., McMahon, S., Boddy, C.E. & Liu, A.G. (2025). Transport of 'Nama'-type biota in sediment gravity and combined flows: Implications for terminal Ediacaran palaeoecology. *Sedimentology*, 72, 365–407. <https://doi.org/10.1111/sed.13239>
3. **O'Connell B.**, Wallace, M.W., Hood A.Vs, Brooks, H., Lechte, M., Mahon, L., 2022, Nearshore environments before the evolution of land plants, *Precambrian Research*, 382, 106883. <https://doi.org/10.1016/j.precamres.2022.106883>
4. **O'Connell B.**, Wallace, M.W., Hood, A.v.S, Rebbechi, L., 2022, Deep water cusped stromatolites in the Cryogenian Trezona Formation, *Geobiology*, 20(2), 194-215 <https://doi.org/10.1111/gbi.12479>
5. **O'Connell, B.**, Dorsey, R.J., Hasiotis, S.T., Hood, A.v.S., 2021, Mixed carbonate-siliciclastic tidal sedimentation in the Miocene to Pliocene Bouse Formation, palaeo-Gulf of California, *Sedimentology*, 68 (3). <https://doi.org/10.1111/sed.12817>
6. **O'Connell, B.**, Wallace, M.W, Hood, A.v.S., Lechte, M.A., Planavsky, N.P., 2020. Iron-rich carbonate tidal deposits of the Angepena Formation, South Australia: A redox-stratified Cryogenian basin, *Precambrian Research*, 342, 105668. <https://doi.org/10.1016/j.precamres.2020.105668>
7. **O'Connell, B.**, Dorsey, R.J. and Humphreys, E.D., 2017. Tidal rhythmites in the southern Bouse Formation as evidence for post-Miocene uplift of the lower Colorado River corridor. *Geology*. 45(2), 99-102 <https://doi.org/10.1130/G38608.1>

In-late-stage prep

8. **O'Connell, B.**, Peakall, J., Liu A.G., Volcanism, shock/tsunami waves, combined flow, and the smothering of Ediacaran seafloor ecosystems
9. **O'Connell, B.**, Wallace, M.W., Hood, A.Vs, Rapid giant ooid precipitation in low-oxygen Cryogenian oceans

In-prep

10. **O'Connell, B.**, McMahon, W.J., Liu, A.G. Earth's first mass extinction? Sedimentological insights into the rise and fall of Ediacaran biota

Refereed Journal Articles, Co-author

Published

11. Cole, D.B., **O'Connell, B.**, Planavsky, N.J., 2018 Authigenic chromium enrichments in Proterozoic ironstones. *Sedimentary Geology*, 372, 25-43.
12. Dorsey, R.J., **O'Connell, B.**, McDougall, K. and Homan, M.B., 2017. Punctuated sediment discharge during early Pliocene birth of the Colorado River: Evidence from regional stratigraphy, sedimentology, and paleontology. *Sedimentary Geology*, 363, 1-33
13. Dorsey, R.J.D., **O'Connell, B.**, Gardner K., Homan, M., Bennett, S.K.E., Thacker, J.O., Darin, M.O., 2021, Tectonostratigraphic record of late Miocene–early Pliocene transtensional faulting in the Eastern California shear zone, southwestern USA, 2021, *Geosphere*, 17(4), 1101-1125
14. Jin, C., Li, C., Algeo, T.J., **O'Connell, B.**, Cheng, M., Shi, W., Shen, J. and Planavsky, N.J., 2018. Highly heterogeneous “poikiloredox” conditions in the early Ediacaran Yangtze Sea. *Precambrian Research*, 311, pp.157-166.

15. Planavsky, N.J., Slack, J.F., Cannon, W.F., **O'Connell, B.**, Isson, T.T., Asael, D., Jackson, J.C., Hardisty, D.S., Lyons, T.W. and Bekker, A., 2018. Evidence for episodic oxygenation in a weakly redox-buffered deep mid-Proterozoic ocean. *Chemical Geology*, 483, 581-594
16. Dorsey, R.J., Braga, J.C., Gardner, K., McDougall, K. **O'Connell, B.**, 2023, Early Pliocene Marine Transgression into the Lower Colorado River Valley, Southwestern USA, By Re-Flooding of a Former Tidal Strait, Special Publication on Straits and Seaways (Geological Society of London), 523(1), 369-397.
17. Konhauser, K.O., Hao, W., Li, Y., von Gunten, K., Bishop, B.A., Alessi, D.S., Tarhan, L.G., **O'Connell, B.**, Robbins, L.J., Planavsky, N.J. and Gingras, M.K., 2019. *Diopatra cuprea* worm burrow parchment: a cautionary tale of infaunal surface reactivity. *Lethaia*, 53(1), 47-61.
18. Farrell, Ú.C., Samawi, R., Anjanappa, S., Klykov, R., Adeboye, O.O., Agic, H., Ahm, A.S.C., Boag, T.H., Bowyer, F., Brocks, ... **B. O'Connell**, ... and Brunoir, T.N., 2021. The sedimentary geochemistry and paleoenvironments project. *Geobiology*, 19(6), pp.545-556.
19. Lipp, A. G., Shorttle, O., Sperling, E., Brocks, J. J., Cole, D., Crockford, P. W., ... **O'Connell, B.** ... & Yang, J., 2021, The composition and weathering of the continents over geologic time. *Geochemical Perspectives Letters*, 7, 21-26.
20. Mehra, A., Keller, C., Zhang, T., Tosca, N., McLennan, S., Sperling, E.,... **O'Connell, B.** & Strauss, J., 2021, Curation and analysis of global sedimentary geochemical data to inform earth history. *GSA Today*, 1-6.
21. Shen, J., Chen, J., Algeo, T.J., Yuan, S., Feng, Q., Yu, J., Zhou, L., **O'Connell, B.** and Planavsky, N.J., 2019. Evidence for a prolonged Permian–Triassic extinction interval from global marine mercury records. *Nature Communications*.
22. Stockey, R., Cole, D., Farrell, U., Agić, H., Boag, T., Brocks, J., Canfield, D., Cheng, M., Crockford, P., Cui, H. ... **O'Connell, B.**, and Dahl, T., 2023. Multiple sustained increases in atmospheric oxygen and marine productivity through the Neoproterozoic and Paleozoic Eras. *in-revision Nature Geoscience*, Preprint DOI:10.21203/rs.3.rs-3438740/v1

In review (*student):

23. *Boddy, C.E., **O'Connell, B.**, McMahon, W., Liu, A.G., Paleo-environmental controls on Ediacaran fossil distribution: evidence from the St. John's Group and Signal Hill Group of Newfoundland, Canada, JSR

In-late-stage prep

24. *Hewitt, J., Baas, J., **O'Connell B.**, Green, J.A.M., A Novel Approach to Constraining Carboniferous Tidal Currents using Bedforms in Tidal Rhythmites
25. *Liu, Y., **O'Connell, B.**, Pang K., Zhe C., Yuan, X., Liu, A.G., Sedimentological controls on Ediacaran fossil distributions in the Shibantan Member, China

Conference papers and field guides

26. **O'Connell, B.**, Dorsey, R.J., Humphreys, E.D. A pre-Colorado River Northern Gulf of California Marine Embayment recorded by tidal rhythmites in the Southern Bouse Formation. California State University Desert Studies Center 2016 Desert Symposium Field Guide and Proceedings (pp. 154-157).
27. **O'Connell, B.**, Dorsey, R.J., Homan, M., Gootee, B.F. and House, K., 2016. Structural controls on stratigraphic architecture of the southern Bouse Formation near Cibola, Arizona. In 2016 Desert Symposium Field Guide and Proceedings, California State University Desert Studies Center, Zzyzx, Calif (pp. 171-175).
28. Gootee, B.F., Pearthree, P.A., House, P.K., Youberg, A., Spencer, J.E. and **O'Connell, B.**, 2016. Geologic map and report of the Cibola area. La Paz County, Arizona, and Imperial County, California: Arizona Geological Survey Digital Map DGM-112, scale, 1(24,000), p.21
29. Dorsey, R.J., **O'Connell, B.**, Homan, M. and Howard, K., 2016, April. Upper limestone of the southern Bouse Formation: evidence for unsteady origins of the Colorado River. In Going LOCO: Investigations along the Lower Colorado River. California State University Desert Studies Center 2016 Desert Symposium Field Guide and Proceedings (pp.145-153)
30. Dorsey, R.J., **O'Connell, B.**, Homan, M., Bennett, S.E. and Reynolds, R.E., 2017. Influence of the Eastern California Shear Zone on deposition of the Mio-Pliocene Bouse Formation: Insights from the Cibola area, Arizona. In Desert Symposium Field Guide and Proceedings. California State University Desert Studies Center, Zzyzx, CA (pp. 150-157). 29. Gootee, B.F., Pearthree, P.A., House, P.K., Youberg, A., **O'Connell, B.**, Bright, J. and Reynolds, R.E., 2016, April. A sequence-stratigraphic interpretation of the upper bioclastic unit capping the Bouse Formation in the Cibola Area, Arizona and California. In Going LOCO: Investigations along the Lower Colorado River: California State University Desert Studies Center 2016 Desert Symposium Field Guide and Proceedings (pp. 15-18).

COMMISSIONS OF TRUST & INVOLVEMENT

Member: Sedimentary Geochemistry and Palaeoenvironments (SGP) Working Group, Stanford University
LGBTQI+ Network (University of Cambridge), LGB-Tea (Cambridge School of Earth Sciences)

Panel Member: International Women's Day, Cambridge University

Conference Organizer: Selwyn Earth Sciences Conference 2019 (co-organized with A.v.S. Hood)

Conference Session convener: Australian Earth Sciences Convention 2021

Reviewer: *Geology*, *Earth & Planetary Science Letters*, *Journal of Sedimentary Research*, *Nature Communications*, *Lethaia*, *Geological Magazine*, *Geological Society of London*, *Precambrian Research*, *Depositional Record*, *Geological Society of London Special Publications*

Society Membership: Geological Society of London, Royal Geographical Society, Geological Society of America, International Association of Sedimentologists, Paleontological Society, British Sedimentological Research Group, Society for Sedimentary Geology, British Society of Geomorphology

COOPERATION PARTNERS

Current Cooperation Partners

- **Prof. Alexander G. Liu**, School of Earth Sciences, University of Cambridge — Reconciling the Ediacaran and Cambrian fossil records of early animal evolution
- **Prof. Jeff Peakall**, School of Earth and Environment, University of Leeds — Deep-water marine sedimentology of the St. Johns Group (Canada) and Longmyndian Supergroup (U.K.)
- **Prof. Kyungsik Choi**, School of Earth and Environmental Sciences, Seoul National University — Modern tidal sedimentology and carbon storage in tidal flats (Tasmania & South Korea)
- **Profs. Jaco Bass and Mattias Green**, School of Ocean Sciences, University of Bangor, with student Jennifer Hewitt — Constraining ancient tidal current velocities using bedforms in tidal rhythmites
- **Prof. Collen Issia-Uahengo**, Department of Geology, University of Namibia, with Helke Mocke, Andreas Nduutepo & Paulina Pokolo, Geological Survey of Namibia — Sedimentology and basin analysis of the Ediacaran-Cambrian Nama Group (Namibia).

Previous Cooperation Partners

- **A. Prof. Noah Planavsky**, Department of Earth and Planetary Sciences, Yale University — Sedimentary and metal geochemistry; Precambrian marine redox evolution
- **Prof. Stephen Hasiotis**, Department of Geology, University of Kansas — Ichnology and sedimentology of the ancient Gulf of California (Bouse Formation)
- **Prof. Gene Humphreys** (Emeritus), Department of Earth Sciences, University of Oregon — Modelling tidal rhythmites in the ancient Gulf of California (Bouse Formation)

SCIENTIFIC SEMINARS

2024 Nanjing Institute of Geology & Palaeontology, 'Sedimentary insights into Neoproterozoic life'

2023 Bangor University, 'Neoproterozoic reef systems and ocean oxygenation'

2022 Cambridge University, 'Neoproterozoic co-evolution of life, oceans, and environments'

2019 Yale University, 'Tidal sedimentology: evidence for a marine connection in ancient basins'

GRADUATE SUPERVISION & MENTORSHIP

PhD student/candidate

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| Catherine Boddy – Ediacaran sedimentology, geobiology (University of Cambridge) | 2022–present |
| Yarong Liu – Sedimentology of the Ediacaran Shibantan Member, South China (Nanjing Institute of Geology and Palaeontology, Cambridge University) | 2024–present |
| Jennifer Hewitt – Tidal sedimentology (Bangor University) | 2024–present |

MSc student

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| Alexander Christy – Precambrian lakes or oceans? (Bangor University) | 2024–present |
| Elkan Etoni – Ediacaran sedimentology, geobiology (University of Namibia) | grad. 2024 |
| Jennifer Hewitt – Constraining ancient tidal currents from bedforms (Bangor University) | grad. 2023 |

Honours student

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| Spencer Jones – Trace element and stable isotope chemistry of <i>Balanus</i> (University of Oregon) | grad. 2016 |
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TEACHING & MENTORING

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| University of Namibia (UNAM), Namibia (through the Cambridge-Africa ALBORADA Fund) | |
| Taught field methods and sedimentology-stratigraphy to UNAM undergraduate/MSc students | 2023 & 2025 |
| University of Cambridge, School of Earth Sciences, Cambridge, UK | |
| Lecturer – 1B: Carbonate Sedimentology | 2025 |
| Demonstrator – 2B: Sedburgh Field School | 2023–2025 |
| Demonstrator – C2: Ancient Life and Environments (ALE) | 2023–2024 |
| Guest Lecture – C2: Ancient Life and Environments (ALE) | 2022 |
| Demonstrator – 1A: Earth Sciences | 2023 |
| Demonstrator – 1B: Siliciclastic Sedimentology and Stratigraphy | 2023 |
| Demonstrator – 1B: Carbonate Sedimentology | 2023–2024 |
| University of Melbourne, Department of Earth Science, Parkville, VIC | |
| Demonstrator – Structural Geology and Field Mapping EVSC30001 | 2022 |
| Demonstrator – The Global Environment EVSC10001 | 2021 |
| Demonstrator – Geology of Southeast Australia GEOL2001 | 2019–2021 |
| Demonstrator – Introduction to Earth Science GEOL10001 | 2018–2021 |
| University of Oregon, Department of Earth Science, Eugene, OR | |
| Lecturer – Sedimentology and Stratigraphy Lab | 2015–2016 |
| Guest Lectures – Sedimentology and Stratigraphy | 2015–2016 |
| Teaching Assistant – Geology of National Parks | 2014–2015 |
| Teaching Assistant – Structural Geology Field Camp | 2014 |

PROFESSIONAL EXPERIENCE

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| AngloGold Ashanti: Cripple Creek & Victor Gold Mine, Exploration Geologist, Colorado USA | 2012–2014 |
| AngloGold Ashanti: Greenfields Exploration Program, Field Mapper, Drum Mountains, Utah USA | 2011 |

FIELD EXPERIENCE

PDRA: China, Namibia, Flinders Ranges (Australia), United Kingdom, S. Korea, Newfoundland (6 months)
PhD: Flinders Ranges (Australia), Yukon Territory (Canada), Northern Territory (Australia) (9 months)
RA: Ogeechee Barrier Islands (Georgia, USA), Southwestern USA (2 months)
MSc: Southwestern USA, Colorado River Corridor (6 months)
Professional (Field mapping): Drum Mountains, Utah (4 months)
Honours: Matanuska Valley, Alaska (1 month)
Undergraduate Coursework: Colorado, New Mexico, Texas, Utah, Oregon, Washington (4 months)

OUTREACH, ACTIVITIES & INTERESTS

Chapter Author. “Stratigraphy of the Nama Group” In *Crossing the Line* (a popular science book), edited by P. Vickers-Rich. Cambridge University Press, forthcoming.

Arkaroola Wilderness Sanctuary, Flinders Ranges, South Australia, 2024

- Led a field trip at my PhD field site to help the sanctuary develop geology tours for tourists

University of Melbourne Women’s Soccer – Volunteer soccer coach, 2018–2019

University of Melbourne –Athlete program, Olympic weightlifting, 2018–2022

Parker High School, Arizona – Led a geology field trip for natural science teachers to my MSc field site, 2016

J. Serbu Juvenile Justice Center – Volunteer olympic weightlifting coach for youth in prison, 2015–2016

Victor Colorado Fire Department – Volunteer firefighter, 2013–2014

Florissant Fossil Beds National Monument – Volunteer geology instructor, 2013

National Collegiate Athletic Association – Division 1 Soccer, 2009–2012

Interests: packrafting, surfing, soccer, climbing, hiking, shipwrecks, desert tortoises