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**Education**

**University of Cambridge, Cambridge, UK**

PhD Geography

2021

Title: *Resolving abrupt palaeoenvironmental changes in a lake sediment sequence from Ioannina, northwest Greece*

Supervised by Prof Christine Lane, Prof Harriet Allen (University of Cambridge) and Dr Katherine Roucoux (University of St Andrews)

**University of Manchester, Manchester, UK**

MSc Geographical Sciences, Distinction

2015

Dissertation: *The potential of cryptotephra as a geochronological tool in Lukenya Hill cave and Panga ya Saidi rockshelter, East Africa*. Supervised by Prof Christine Lane.

BSc (Hons) Geography with International Study, First Class

2014

Dissertation: *Reconstructing Environmental Change in Salt Marshes at Kouchibouguac, NB, and Covehead Bay, PEI*. Supervised by Prof Gail Chmura (McGill University) and Prof Will Fletcher (University of Manchester).

**Employment**

**Bicentenary Research Fellow (Geography)**

Faculty of Humanities, University of Manchester

2025-

Independent research fellowship focussed on resolving chronologies for marine cores through the construction of a new tepthrostratigraphic framework for the Arctic Ocean. In particular, this project seeks to provide chronological constraint for vital sea ice reconstructions. Work will be undertaken in collaboration with researchers at the Alfred Wagener Institute, Bremerhaven (Germany).

**Research Fellow in Quaternary Palynology**

School of Earth and Environment, University of Leeds

2021-2025

Postdoctoral researcher on the ERC-funded RISEr project (Rates of Interglacial Sea-Level Change, and Responses) led by Prof Natasha Barlow. In this role, my primary responsibility was to develop palaeoecological records for five sediment cores from the southern North Sea, comprising a complex sequence of terrestrial (peat, intertidal, deltaic) and shallow marine facies. I helped lead a large, interdisciplinary team of collaborators from across the UK, Germany, and the Netherlands, organising annual meetings and sending regular project updates and compiling manuscripts.

**Awards and  
Funding**

Winner of The Geological Society 'Wollaston Fund'

2025

Horizons Institute Connect Fund for leading a stakeholder workshop on Climate Change, Biodiversity, and Agriculture (£5,000)

2023

Carlsberg Foundation Early Career Scientist support grant for attendance at Dansgaard Symposium (£500)

2022

EGU Early Career Scientist support grant for attendance at INTIMATE EGU Galileo conference (£400)

2018

INTAV ECR/Student Travel Grant for attendance at INTAV International Field Conference on Tephrochronology (£700) 2017

Winner of 'Best Talk' at the CCfCS Student Symposium 2017

PI on QRA-<sup>14</sup>Chrono Centre Radiocarbon Dating Special Grant (£4,000) 2017

Fully funded PhD studentship within the Department of Geography at the University of Cambridge (£120,000) 2016

Winner of 'Best Geographical Science Student' for highest attainment in MSc Geographical Science, University of Manchester 2015

Invited Talks

EPOCH Seminar Series, Department of Geography, Royal Holloway, University of London Jan 2023

Quaternary Discussion Group, Clare College, University of Cambridge Oct 2022

Climate and Chronology Lunchtime Seminar, The Research Laboratory for Archaeology and the History of Art, University of Oxford Jun 2018

Climate and Environmental Dynamics Lunchtime Seminar, Department of Geography, University of Cambridge May 2018

Teaching

**BSc Environmental Science and BSc Geology, University of Leeds**

SOEE 1640 - Earth Through Time (Lecturer) Class of 60-80. Planning and delivery of lecture material, led field class to Ilkley Moor (joint trip w/ 1690).

SOEE 1690 - Shaping the Earth (Lecturer) Class of 60-80. Planning and delivery of lecture material, led field class to Ilkley Moor (joint trip w/ 1640).

SOEE 3010 - Independent Study Project (Supervisor) Supervision of undergraduate alternative mapping projects, including project development, all laboratory training, and support.

**Geographical Tripos (BA Geography), University of Cambridge**

Part IA (Year 1): Physical Geography - Life on Earth (Supervisor, between 30-40 students), Physical Geography - Environmental Change in the Quaternary (Supervisor, between 30-40 students), Geographical Skills and Methods (Field course demonstrator, 4 days, full cohort >120 students)

Part IB (Year 2): Quaternary Climates and Environments (Demonstrator and supervisor, 40-50 students), Living with Global Change (Supervisor, full cohort >120 students)

Part II (Year 3): Quaternary Climates and Environments (Demonstrator and supervisor, 20-30 students), Volcanology (Supervisor, 20-30 students), Dissertation Skills (Lecturer, full cohort >120 students)

Supervision

Denise Becker (MSc by Research, School of Earth and Environment, University of Leeds): A Last Interglacial tephrostratotype at Bispingen, NW Germany (supervisor; Fulbright Scholarship) – Denise has recently defended her thesis successfully and is currently applying to PhD programmes. *Ongoing*

Edward Taylor (MSc by Research, School of Earth and Environment, University of Leeds): Holocene sea-level change and palaeolandscape reconstruction, North Skye, Scotland, UK (supervisor; self-funded) – Edward has recently graduated (with distinction) and begun a new job working as a Marine Surveyor at XOCEAN. 2024

Megan Edwards (MGeol, School of Earth and Environment, University of Leeds): Interrogating the biosphere response to the Laschamps Geomagnetic Excursion at Ioannina, NW Greece (supervisor) – Megan has received a fully funded studentship as part of the University of Cambridge C-CLEAR DTP, which she commenced in Oct 2024. 2023

Memberships	<p>Quaternary Research Association (QRA)</p> <p>INTEgration of Ice-core, Marine, and Terrestrial records (INTIMATE) palaeoclimate network</p> <p>International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI)</p> <ul style="list-style-type: none"> <li>• Commission on Tephrochronology (CoT)</li> </ul> <p>Past Global Changes (PAGES)</p> <p>PALeo constraints on SEA level rise (PALSEA) working group</p>
Responsibilities	<p>Convenor of the Inaugural Palaeo@Leeds annual symposium 2023</p> <p>Convenor of the session 'Quaternary palaeolandscape, palaeoclimatic and palaeoenvironmental change in the North Sea' at the INQUA Congress, Rome 2023</p> <p>Academic lead for the Quaternary Geochronology Lab, School of Earth and Environment, University of Leeds 2022-</p> <p>Convenor of the Earth Surface Science Institute Seminar Series, School of Earth and Environment, University of Leeds 2021-2023</p> <p>Co-host of the Cambridge Tephra Lab's first Community Cryptotephra Workshop, with attendees from University of Oxford, UCL, RHUL and University of Bergen 2019</p> <p>Convenor of the Climate and Environmental Dynamics Research Group, Department of Geography, University of Cambridge 2017-2019</p>
Outreach and EDI	<p>Invited speaker at Essex Rock and Mineral Society Virtual Seminar Series (March 2023) and Brighton and Hove Geological Society (January 2024)</p> <p>Co-convenor, Experience Cambridge, Department of Geography, University of Cambridge (2018)</p> <p>Co-convenor, Sutton Trust Summer School, Department of Geography, University of Cambridge (2017, 2018)</p> <p>Teaching Materials Accessibility Coordinator, Department of Geography, University of Cambridge (2020, 2021)</p> <p>Member of gage, which seeks to make science open, inclusive, and accessible</p>
Personal Development	<p>Completed the 'Fellowship Accelerator' training programme led by Organisational Development and Professional Learning (OD&amp;PL) at the University of Leeds, October 2024</p> <p>Completed the 'Exploring Leadership for Research Staff' training programme led by Organisational Development and Professional Learning (OD&amp;PL) at the University of Leeds, December 2023</p>

Participated in the 'Horizons Institute Challenge Network Collaborative Labs' interdisciplinary research programme led by the Horizons Institute at the University of Leeds, December 2022

## Publications

- McGuire, A.M.**, Cartelle, V.C., Rush, G.R., Busschers, F.S., Cohen, K.M., Hodgson, D.M., Barlow, N.L.M. (*in press*) The RISE cores: unexpected and extensive Middle Pleistocene terrestrial stratigraphy in the southern North Sea. *Scientific Drilling*.
- Tetzner, D.R., Thomas, E.R., Allen, C.S., McCulloch, R., Perren, B., **McGuire, A.M.**, Segato, D., Moser, D., Fernandoy, F., Rada, C. (2025) The first firn core from the Cordillera Darwin Icefield: implications for future ice core research. *JGR:Atmospheres* | <https://doi.org/10.1029/2024JD043124>
- McGuire, A.M.**, Waajen, I., and Barlow, N.L.M. (2024) Advancing chronologies for Last Interglacial sequences (invited review). *Journal of Quaternary Science* | <https://doi.org/10.1002/jqs.3641>
- McGuire, A.M.**, Lane, C.S., Roucoux, K.H., Lawson, I.T., Koutsodendris, A., Pross, J., Margari, V., Tzedakis, P.C. (2024) Campanian Ignimbrite tephra reveals asynchronous vegetation responses to abrupt climate change in the eastern Mediterranean region. *Quaternary Science Reviews* | <https://doi.org/10.1016/j.quascirev.2024.108714>
- Kearney, R.J., Albert, P.G., Staff, R.A., Magyari, E., Pal, I., Veres, D., Lane, C.S., **McGuire, A.M.**, Bronk Ramsey, C. (2024) At an important tephrostratigraphic crossroads: a detailed Late Glacial to Early Holocene cryptotephra stratigraphy from two lake records in the Carpathian Mountains, Romania. *Quaternary Science Reviews* | <https://doi.org/10.1016/j.quascirev.2024.108558>
- McGuire, A.M.**, Lane, C.S., Roucoux, K.H., Albert, P.G., Kearney, R. (2022) The dating and correlation of an eastern Mediterranean lake sediment sequence: a 46 – 4 ka tephrostratigraphy for Ioannina (NW Greece). *Journal of Quaternary Science* | <https://doi.org/10.1002/jqs.3452>

## Forthcoming

- McGuire, A.M.**, Barlow, N., Edwards, M., Cartelle, V., Hodgson, D., Austermann, J., Conti, M., Deckers, M., Donders, T., Rush, G., Smedley, R., Watanabe Nara, F., Wesselingh, F., Wallinga, J., Busschers, F., Cohen, K. (*in prep*) Bavelonia: an Early Pleistocene land bridge across the southern North Sea. *Planned submission to Nature Ecology and Evolution, early 2026*.
- Cartelle, V.C., **McGuire, A.M.**, Busschers, F.S., Cohen, K.M., Hodgson, D.M., Rush, G., Barlow N.L.M. (*in prep*) Geomodelling the Eem Formation of the southern North Sea: integrating legacy and offshore windfarm datasets. *Planned submission to Earth Surface Processes and Landforms, early 2026*.
- Heaton, T.J., Wilkinson-Rowe, E., Kruger, L., Bard, E., Lane, C.S., **McGuire, A.M.**, Nakagawa, T., Seddon, A.W.R. (*in prep*) Increased UV-B radiation at Earth's surface during the Laschamps Event and the relationship with the geodynamo. *Planned submission to Science, summer 2025*.

## Conference Presentations

- McGuire, A.M.**, Barlow, N., Edwards, M., Cartelle, V., Hodgson, D., Austermann, J., Conti, M., Deckers, M., Donders, T., Rush, G., Smedley, R., Watanabe Nara, F., Wesselingh, F., Wallinga, J., Busschers, F., Cohen, K. (2025) Bavelonia: an Early

- Pleistocene land bridge across the southern North Sea. (Oral presentation at the QRA ADM, Newcastle, January 2025).
- McGuire, A.M.**, Edwards, M., Woods, L., Busschers, F., Cohen, K., Donders, T.H., Waajen, I.M., Smedley, R., Rush, G., Cartelle, V., Hodgson, D., Barlow, N.L.M. (2024) Revisiting the Quaternary stratigraphy of the southern North Sea. (Oral presentation at the QRA ADM, Manchester, January 2024).
- \*Edwards, M., Rush, G., **McGuire, A.M.**, Cartelle, V., Nara, F., Conti M., MacLachlan, S., Hodgson, D., Barlow, N. (2024) Developing a novel approach to reconstructing palaeoenvironments of the southern North Sea (Oral presentation at the QRA ADM, Manchester, January 2024).
- \*Becker, D., Barlow, N.L.M., **McGuire, A.M.**, Lauterbach, S., Neumann F.H., Tjallingii, R., Brauer, A. (2024) Establishing a tephrochronological framework for the Last Interglacial in NW Europe (Oral presentation at the QRA ADM, Manchester, January 2024).
- McGuire, A.M.**, Rush, G., Pollard, O., Cartelle, V., Barlow, N., Hodgson, D., Busschers, F., Cohen, K., Gregoire, L., Gomez, N., and Haigh, I. (2023) Integrating marine and terrestrial chronologies across the Last Interglacial for sequences from NW Europe (Oral presentation at the INQUA Congress, Rome, July 2023).
- \*Edwards, M., **McGuire, A.M.**, Seddon, A., Heaton, T., Bard, E., Lane, C.S., Tzedakis, P.C., Barlow, N.L.M. (2023) Using a multiproxy approach to interrogate the terrestrial impacts of the Laschamps geomagnetic excursion (ca. 41 ka BP) at Ioannina, NW Greece (Poster presentation at the INQUA Congress, Rome, July 2023).
- \*Taylor, E., Barlow, N.L.M., Hardy, K., Booth, A., Rush, G., **McGuire, A.M.**, Rees-Hughes, L. (2023) Postglacial and Holocene environmental and sea-level change in northern Isle of Skye, western Scotland, and implications for human settlement (Oral presentation at the INQUA Congress, Rome, July 2023).
- McGuire, A.M.**, Lane, C.S., Roucoux, K., Lawson, I., and Albert, P. (2019) Tephrostratigraphic insights from Lake Ioannina, North West Greece (Oral presentation at the 20th INQUA Congress, Dublin, Ireland, July 2019).
- McGuire, A. M.**, Lane, C.S., Roucoux, K., Lawson, I., and Albert, P. (2018) A tephrostratigraphy for Lake Ioannina, North West Greece (Poster presentation at the INTIMATE EGU Galileo conference, Gniew, Poland, August 2018/INTAV International Field Conference on Tephrochronology, Moieciu de Sus, Romania, June 2018).
- McGuire, A.M.** and Lane, C.S. (2017) Abrupt Change in the Quaternary Record of North West Greece (Poster presentation at the INTIMATE Climate Network Open Workshop and Conference, Aberystwyth, June 2017).

(\*) denotes students I have supervised