



JENNY ROBERTS

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DOB: 4th April 1990
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RESEARCH INTERESTS

- **The role of the ocean in driving climate change:** reconstructions of the physical properties of the ocean (temperature and salinity) and its carbonate chemistry, and how this relates to the storage of CO₂ in the deep ocean on Quaternary timescales.
- **Using geochemistry to reconstruct past climates:** from discovering the causes of the Permo-Triassic mass extinction using $\delta^{34}\text{S}$ and $\delta^{13}\text{C}$, to reconstructing Quaternary ocean chemistry using $\Delta^{14}\text{C}$, $\delta^{11}\text{B}$ and B/Ca.
- **Proxy/Method development:** pioneering the use of foraminifer $\delta^7\text{Li}$ as an ocean pH proxy and refining the boron isotope method for small carbonate samples.

EMPLOYMENT AND EDUCATION

Product Specialist, Thermo Fisher Scientific, Bremen

May 2018-Present

Inorganic Mass Spectrometry

- Developing the next generation of Multi-Collector Inductively Coupled Plasma Mass Spectrometry (MC-ICP-MS) and Gas Isotope Mass Spectrometry (GIRMS) software.
- Project leader for major R&D project within the Inorganic Mass Spectrometry business unit.

Post-doctorate researcher, Alfred-Wegener Institute, Bremerhaven

May 2016-May 2018

Marine Geology & Geochemistry. Line Managers: Dr. Frank Lamy, Prof. Jelle Bijma, Prof. Ralf Tiedemann

- Understanding deglacial carbon system dynamics in the South Pacific through carbonate ^{14}C , $\delta^{11}\text{B}$, B/Ca, $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$.
- Developing the application of benthic foraminiferal $\delta^7\text{Li}$ as a novel proxy for bottom water pH.
- Refining the boron isotope method via micro-distillation.

Ph.D. University of Cambridge & British Antarctic Survey

Oct 2012 – May 2016

Godwin Laboratory for Palaeoclimate Research. Supervisors: Prof. David Hodell, Dr. Victoria Peck and Dr. Sev Kender

- Reconstructing the physical properties of deep water in the south Atlantic through trace elemental and stable isotope analysis.
- Multi-proxy (organic geochemistry, sedimentology, trace elemental analyses) study of Antarctic Intermediate Water in the southwest Atlantic, and its implications for past climate.

Research Assistant, British Antarctic Survey

Jan 2012 – Apr 2012

Quaternary Sediments. Manager: Dr. Claus-Dieter Hillenbrand

- Sediment core processing, interpretation and foraminifer identification.

M.Sci. Research Project, Department of Earth Sciences, University of Cambridge

July 2011 – Jan 2012

Isotope Geochemistry. Supervisor: Dr. Alexandra Turchyn

- Using carbon and sulphur isotopes to investigate causes of the Permo-Triassic mass extinction.

M.Sci Natural Sciences, University of Cambridge

Oct 2008 – Jun 2012

Classification: First

- Studied a wide variety of fields in Earth Sciences including geochemistry, sedimentology, petrology and geophysics.

- Broad-based 1st & 2nd years studying Physics, Chemistry, Earth Sciences and Mathematics.

Research Assistant, Lancaster University

Jan 2008 – Jun 2008

Centre for Environmental Magnetism & Palaeomagnetism

Manager: Prof. Barbara Maher

- Using remnant magnetism to track the dispersion of heavy metal pollutant particles.

PUBLICATIONS

- Roberts, J.**, Kaczmarek, K., Skinner, L.C., Langer, G., Bijma, J., Bradbury, H., Turchyn, A.V., Misra, S. Lithium isotopic composition of benthic foraminifera: a new proxy for paleo-pH reconstruction, *Geochimica et Cosmochimica Acta (Elderfield Memorial Edition)*, 2018. DOI: 10.1016/j.gca.2018.02.038
- Roberts, J.**, Turchyn, A.V., Wignall, P.B., Newton, R., Vane C.H. Geochemical insights into the immediate aftermath of the Permo-Triassic Boundary, Wordie Creek Formation, East Greenland, *Geochemistry, Geophysics, Geosystems*, 2018. DOI: 10.1002/2017GC007259
- Roberts, J.**, McCave, I.N., E.L. McClymont, S. Kender, C.-D. Hillenbrand, R. Matano, Hodell, D.A., Peck, V.L. Deglacial changes in flow and frontal structure through the Drake Passage, *Earth and Planetary Science Letters*, 2017. DOI: 10.1016/j.epsl.2017.07.004
- Roberts, J.**, Gottschalk, J., Skinner, L.C., Peck, V.L., Kender, Elderfield, H., S., Waelbroeck, C., Vázquez Riveiros, N. & Hodell, D.A. Evolution of South Atlantic density and chemical stratification across the last deglaciation, *Proceedings of the National Academy of Sciences*, 2016. DOI: 10.1073/pnas.1511252113
- Roberts, J.**, Insights into glacial terminations from a South Atlantic perspective, *Ph.D Thesis*, 2016.
- Roberts, J.**, Lamy, F., Mackensen, A., Sarnthein, M., Southon, J. & Tiedemann, R. Quantified effects of abundance changes and bioturbation on proxy records in marine sediment cores, *Paleoceanography*, in rev.
- Wengler, M., Lamy, F., Struve, T., Borunda, A., Böning, P., Geibert, W., Kuhn, G., Pahnke, K., **Roberts, J.**, Tiedemann, R., Winckler, G., Reconstruction of modern South Pacific dust fluxes and provenance areas: Insights from lithogenic fluxes, REE, Sr, Nd and Pb isotopes, *Geochimica et Cosmochimica Acta*, in rev.
- Kaczmarek, K., Misra, S., Greaves, M., **Roberts, J.**, Raitzsch, M., Bijma, J., Lithium incorporation and isotope fractionation in planktonic foraminifera, part I: The role of pH, in rev.
- Kaczmarek, K., Misra, S., Greaves, M., **Roberts, J.**, Raitzsch, M., Bijma, J., Lithium incorporation and isotope fractionation in planktonic foraminifera, part II: Li/Ca trends across glacial-interglacial transitions, in rev.
- Roberts, J.**, Misra, S., Rae, J.B.W., Skinner, L.C., Butzin, M., Grotheer, H., Shuttleworth, R., Mollenhauer, G., Bijma, J., Tiedemann, R., Lamy, F. Deep water formation in the glacial South Pacific and the deglacial release of CO₂, in prep.

RESEARCH EXPEDITIONS

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| Oceanographic expedition JC089 Iberian Margin aboard R/V James Cook (5 weeks) | Aug 2013 |
| Roles: Sedimentologist, assisted in marine seismology group. Pls: Prof. D.A. Hodell, Dr. L.C. Skinner, Prof. H.E. Elderfield (University of Cambridge, UK). | |
| Oceanographic expedition ANT-XXIX/4 Punta Arenas-South Sandwich Islands-Port Stanley aboard R/V Polarstern (5 weeks). | Mar 2013 |
| Roles: Sedimentologist, assisted in SWATH bathymetry acquisition. PI: Prof. Gerhard Bohrmann (Marum, DE). | |

ORGANISATIONAL ROLES

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| Project Manager for Gas Isotope Ratio Mass Spectrometry software platform transformation at Thermo Fisher Scientific. | 2018-Present |
| Led Geo Seminar talk series , a fortnightly meeting of academics in the marine geology section of the Alfred Wegener Institute. | 2017-2018 |
| Sponsorship co-ordinator in the organising committee for the Postgraduate Research in Marine and Earth Sciences meeting. | Nov 2015 |
| Chair and member of organising committee for the British Antarctic Student Symposium | Nov 2015 |
| Lead author in the IODP APL846 , South Falkland Slope Drift. Co-ordinated the re-submission of the scientific proposal and seismic data. | Oct 2015 |
| Head of the organising committee for the Quaternary Research Association Postgraduate Symposium. Raising sponsorship, chairing sessions and promoting conference. | Sept 2015 |

Organiser of the Godwin Journal Club , a weekly meeting of academics in the field of palaeo-climate to discuss recent papers.	2013-2014
Student Representative for the British Antarctic Survey.	2013-2014

SCHOLARSHIPS & FUNDING

IODP APL846 , for short drilling campaign, scheduled March 2019	Aug 2017
UK IODP Travel Grant , for travel to the UK IODP Meeting Newcastle	Sept 2015
Internal Graduate Studentship , awarded by Trinity College, for 3.5 years of postgraduate studies, covering 50% of university fees	July 2012
Fully-funded 4 year NERC Ph.D. Scholarship at the University of Cambridge	Mar 2012
Centre for Latin American Studies Research Grant , for research in Central and Southern America – geological mapping project to Chile	May 2010
Trinity College Project Scholarship , for travel and subsistence for academic project proposals – geological mapping project to Chile	April 2010
Shell plc Project Scholarship , for outstanding proposal for academic research	April 2010

AWARDS

ICP student poster prize	Sept 2016
BUFI Science Festival peer prize ; best poster	July 2014
Research Scholarship , awarded by Trinity College for first class degree	July 2012
Harkness Prize ; highest mark in class, awarded by Department of Earth Sciences	July 2012
Trinity College Engineering Essay Prize , best essay on an engineering problem	April 2011
Robert Wright Geology Prize ; highest mark in college	July 2009

TEACHING

Organising and leading R and GMT scripting classes for doctorate students , Alfred Wegener Institute, DE	2017-2018
Teaching assistant for first year students reading Earth Sciences , University of Cambridge, UK; teaching hours per week: 3	2012 –2016
Teaching assistant for first year Earth Sciences students on the Arran field trip , leading and teaching groups about the geology of Arran.	April 2013
Personal academic tutor for first year students reading Earth Sciences , University of Cambridge, UK; teaching hours per week: 3	2013-2015
Lecturing for prospective applicants to Trinity College , University of Cambridge.	2012-2013

PUBLIC OUTREACH

Royal Society Summer Science Festival , teaching the public about Earth Sciences	Jul 2016
Cambridge TV , interview discussing results of PNAS paper.	Jan 2016
School visits on behalf of the British Antarctic Survey , inspiring school children (11-15 yrs) to study science.	2012-2014

PROFESSIONAL TRAINING

Earth System Modelling , 5-day introduction, Dr. Joy Singarayer, Reading University	Feb 2016
AGENIE Earth System Modelling , 2-day introduction, Prof. Andy Ridgwell, University of Bristol	Aug 2015
Outdoor Fieldwork First Aid Course , 2-day training course, Marlin Training	March 2014
Sea Survival Training , Lowestoft College, UK	Feb 2013

ACADEMIC CONFERENCES/PRESENTATIONS (SELECTED)

Aug 2018, Goldschmidt , Oral presentation
May 2017, Past Global Changes (PAGES) , Oral presentation
Nov 2016, Bern University , Oral presentation (invited)
Sept 2016, Alfred-Wegener Institute Palaeo-Climate Modelling group , Oral presentation

Sept 2016, **International Conference for Palaeoceanography**, Poster Presentation
Jan 2016, **Alfred-Wegener Institute**, Oral presentation (invited)
Dec 2015, **American Geophysical Union**, Oral presentation
Nov 2015, **Postgraduate Research in Marine and Earth Sciences**, Oral Presentation
Nov 2015, **British Antarctic Survey Student Symposium**, Oral Presentation
Sept 2015, **UK International Ocean Drilling Program meeting**, Oral Presentation
Sept 2015, **Quaternary Research Association Postgraduate Symposium**, Oral Presentation
June 2015, **Quaternary of Southern South America**, Oral Presentation
Dec 2014, **American Geophysical Union**, Poster presentation
Oct 2014, **Investigating Past Ocean Dynamics (iPODS) workshop**, Poster Presentation
Aug 2014, **Quaternary Research Association Postgraduate Symposium**, Oral Presentation
July 2014, **BUFI Science Festival**, Poster presentation
Sept 2013, **British Antarctic Survey Student Symposium**, Poster Presentation
Sept 2013, **International Conference for Palaeoceanography**, Poster Presentation

REFEREES

Prof. David A. Hodell (dah73@cam.ac.uk)	Ph.D. supervisor, University of Cambridge
Prof. Jelle Bijma (jelle.bijma@awi.de)	Advisor, Alfred-Wegener Institute
Dr. Sambuddha Misra (sambuddha@iisc.ac.in)	Collaborator, Indian Institute of Science
Prof. Ralf Tiedemann (ralf.tiedemann@awi.de)	Advisor, Alfred-Wegener Institute
Dr. Sasha Turchyn (avt25@cam.ac.uk)	Master's supervisor, University of Cambridge