



# JENNY ROBERTS

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DOB: 4<sup>th</sup> April 1990  
Nationality: British (UK)

## RESEARCH INTERESTS

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- **Physical properties of past oceans:** the influence of temperature and salinity on ocean circulation during glaciations, and how this relates to the storage of CO<sub>2</sub> in the deep ocean.
- **Past ocean carbon systematics:** reconstructing changes in the deep ocean carbon system using <sup>14</sup>C,  $\delta^{11}\text{B}$ , B/Ca and  $\delta^{13}\text{C}$  over the last glacial termination.
- **Method development:** refining the boron isotope method for small carbonate samples at the Alfred-Wegener Institute, and producing new benthic foraminifera core top calibration studies.
- **Antarctic Intermediate Water:** the glacial-interglacial changes in the chemical and physical properties of Antarctic Intermediate Water, and the effect that this may have on rapid millennial-scale climate variability.

## RESEARCH AND EDUCATION

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### Post-doctorate researcher, Alfred-Wegener Institute, Bremerhaven

May 2016-Present

#### *Marine Geology & Geochemistry*

Working with: Dr. Frank Lamy, Prof. Jelle Bijma, Prof. Ralf Tiedemann

- Understanding deglacial carbon system dynamics in the South Pacific.
- Developing high-resolution <sup>14</sup>C,  $\delta^{11}\text{B}$ , B/Ca,  $\delta^{13}\text{C}$  and  $\delta^{18}\text{O}$  deglacial records from a depth transect off the Chilean margin.
- Refining B purification via micro-distillation (in collaboration with S. Misra, Cambridge).
- Generating new global core top pH calibrations for  $\delta^{11}\text{B}$  and  $\delta^7\text{Li}$ .

### Ph.D. University of Cambridge & British Antarctic Survey

Oct 2012 – May 2016

#### *Godwin Laboratory for Palaeoclimate Research*

Supervisors: Prof. David Hodell, Dr. Vicky Peck and Dr. Sev Kender

- Reconstructing the physical properties of deep water in the south Atlantic
- Multi-proxy study of Antarctic Intermediate Water from 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

- 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 first and second years studying Physics, Chemistry, Earth Sciences and Mathematics.

**Centre for Environmental Magnetism & Palaeomagnetism**

Manager: Prof. Barbara Maher

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

**PUBLICATIONS**

**Roberts, J.**, Turchyn, A.V., Wignall, P.B., Newton, R.J., & Vane, C.H., Disentangling diagenesis from the rock record: an example from the Permo-Triassic Wordie Creek Formation, East Greenland, *Geochemistry, Geophysics, Geosystems*, 19 (2018). DOI: 10.1002/2017GC007259

**Roberts, J.**, McCave, I.N., McClymont, E.L., Kender, S., Hillenbrand, C.-D., Matano, R., 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, S., Elderfield, H., 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.

**Roberts, J.**, Kaczmarek, K., Skinner, L.C., 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)*, 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, *in prep.*

**Roberts, J.**, Misra, S., Lamy, F., Tiedemann, R., Bijma, J. Deglacial changes in the deep South Pacific carbon pool, *in prep.*

**RESEARCH EXPEDITIONS**

**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, Germany).

**ORGANISATIONAL ROLES**

**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. Raised £3000 from sponsors. **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. Now scheduled for March 2019. **Oct 2015**

**Head of the organising committee** for the Quaternary Research Association Postgraduate Symposium. Raising £7000 from sponsors, chairing sessions and promoting conference. **Sept 2015**

**Led 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

<b>IODP APL846</b> , for short drilling campaign, scheduled March 2019	<b>Aug 2017</b>
<b>UK IODP Travel Grant</b> , for travel to the UK IODP Meeting Newcastle, £100	<b>Sept 2015</b>
<b>Internal Graduate Studentship</b> , awarded by Trinity College, for 3.5 years of postgraduate studies, covering 50% of university fees; £6,000	<b>July 2012</b>
<b>Fully-funded 4 year NERC Ph.D. Scholarship</b> at the University of Cambridge	<b>Mar 2012</b>
<b>Centre for Latin American Studies Research Grant</b> , for research in Central and Southern America – geological mapping project to Chile, £6,000	<b>May 2010</b>
<b>Trinity College Project Scholarship</b> , for travel and subsistence for academic project proposals – geological mapping project to Chile: £1,500	<b>April 2010</b>
<b>Shell plc Project Scholarship</b> , for outstanding proposal for academic research: £1,000	<b>April 2010</b>

## AWARDS

<b>ICP student poster prize</b>	<b>Sept 2016</b>
<b>BUFI Science Festival peer prize</b> ; best poster, £70	<b>July 2014</b>
<b>Research Scholarship</b> , awarded by Trinity College for first class degree, £1200	<b>July 2012</b>
<b>Harkness Prize</b> ; highest mark in class, awarded by Department of Earth Sciences, £3000	<b>July 2012</b>
<b>Trinity College Engineering Essay Prize</b> , best essay on an engineering problem, £500	<b>April 2011</b>
<b>Robert Wright Geology Prize</b> ; highest mark in college: £360	<b>July 2009</b>

## TEACHING

<b>Teaching assistant for first year students reading Earth Sciences</b> , University of Cambridge, UK; teaching hours per week: 3	<b>2012 –2016</b>
<b>Teaching assistant for first year Earth Sciences students on the Arran field trip</b> , leading and teaching groups about the geology of Arran.	<b>April 2013</b>
<b>Personal academic tutor for first year students reading Earth Sciences</b> , University of Cambridge, UK; teaching hours per week: 3	<b>2013-2015</b>
<b>Lecturing for prospective applicants to Trinity College</b> , University of Cambridge.	<b>2012-2013</b>
<b>Volunteer English teacher in Jinga</b> , Uganda (8 weeks).	<b>Summer 2008</b>

## PUBLIC OUTREACH

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

## PROFESSIONAL TRAINING

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

## ACADEMIC CONFERENCES/PRESENTATIONS (SELECTED)

May 2017, <b>Past Global Changes (PAGES)</b> , Oral presentation
Nov 2016, <b>Bern University</b> , Oral presentation (invited)
Sept 2016, <b>Alfred-Wegner Institute Palaeo-Climate Modelling group</b> , Oral presentation
Sept 2016, <b>International Conference for Palaeoceanography</b> , Poster Presentation
Jan 2016, <b>Alfred-Wegner Institute</b> , Oral presentation (invited)
Dec 2015, <b>American Geophysical Union</b> , Oral presentation
Nov 2015, <b>Postgraduate Research in Marine and Earth Sciences</b> , Oral Presentation
Nov 2015, <b>British Antarctic Survey Student Symposium</b> , Oral Presentation
Sept 2015, <b>UK International Ocean Drilling Program meeting</b> , 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

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**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