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Education

Dates		University	Qualifications gained, awards; (grade) & [date awarded]
From	To		
10/1987	06/1990	Clare College, University of Cambridge	BA in Natural Sciences (2:2) [June 1990] 1989 Clare College Scholarship 1989 Mineralogical Society Student Award
10/1996	09/1997	University of Nottingham	MSc in Environmental Science (Distinction) [October 1997] 1997 Campbell Scientific Prize
10/1997	09/2000	University of East Anglia, Norwich	PhD; "Glacial-interglacial perturbations in the global carbon cycle" [March 2001]

Employment history

Dates		Firm/Organisation	Status and description of work
From	To		
11/2006	Present	University of Bristol	Royal Society University Research Fellow and Professor of Earth System Modelling (as of 2010)
04/2004	11/2006	UBC, Vancouver	Canada Research Chair in Global Process Modelling (Assist. Professor level)
10/2002	03/2004	UC Riverside	Researcher; numerical modeling of Precambrian carbon cycling and dynamics
05/2001	09/2002	University of East Anglia (UEA)	Senior Research Associate; construction of an ocean carbon cycle model (for The Tyndall Centre for Climate Change Research)
10/2000	04/2001	UEA	Senior Research Associate; numerical modelling of ocean iron and carbon cycles
07/1993 10/1991	09/1996 03/1992	n/a n/a	Variously; contract instrumentation physicists; self-employed (developing environmental software for schools & universities; environmental campaigning)
04/1992	06/1993	ATI-Unicam Ltd.	Physicist/instrumentation scientist – development testing of a Zeeman-effect atomic absorption spectrometer
09/1990	09/1991	University of Cambridge	Research assistant; infrared and optical spectroscopy of crystalline materials

Grants held (grants as project PI underlined)

Granting Agency	Title	Value	Duration	PI/Co-I
<u>EU (ERC)</u>	<u>PAst Links in the Evolution of Ocean's Global ENvironment and Ecology</u>	<u>1,930,472 EUR</u>	<u>2014-19</u>	PI
Leverhulme Trust	Controls on ocean redox structure and atmospheric oxygen during the Proterozoic	~75,000 £ (<i>Bristol</i>)	2013-16	Co-I
NERC	Assessing the role of millennial-scale variability in glacial-interglacial climate change	~50,000 £ (<i>Bristol</i>)	2012-15	Co-I
Bristol Alumni (donation)	Sensitivity of tropical coral reef ecosystems to global change	200,000 £ (<i>Bristol</i>)	2012-14	Co-I
<u>NERC</u>	<u>Molybdenum in the Oceans ('MOO')</u>	<u>~350,000 £ (<i>Bristol</i>)</u>	<u>2013-15</u>	PI
<u>NERC</u>	<u>'TRACING the fate of Glacial-Interglacial Carbon' ('TRAGIC')</u>	<u>58,889 £ (<i>Bristol</i>)</u>	<u>2011-12</u>	PI
<u>Royal Society (URF extension)</u>	<u>'Mechanistic Understanding of the Dynamics of Sedimentary proxies' ('MUDS')</u>	<u>350,722 £ (<i>Bristol</i>)</u>	<u>2011-14</u>	PI
EPSERC	'Integrated Assessment of Geoengineering Proposals.	~200,000 £ (<i>Bristol</i>)	2010-14	Co-I
<u>NERC</u>	<u>'CO₂-Carbon Cycle-Climate-Interactions'</u>	<u>220,528 £ (<i>Bristol</i>)</u>	<u>2010-13</u>	PI
<u>NERC</u>	<u>'evolution of Carbon Cycle Dynamics (eCCD)'</u>	<u>274,226 £ (<i>Bristol</i>)</u>	<u>2010-13</u>	PI
<u>NERC-UKIODP</u>	<u>'Orbital Modulation of Eocene Carbon Cycle and Climate'</u>	<u>49,109 £ (<i>Bristol</i>)</u>	<u>2010-11</u>	PI
DEFRA	Crop albedo biogeoeengineering pilot study	100,000 (<i>Bristol</i>)	2010	Co-I
Bristol Ports (donation)	Crop albedo biogeoeengineering	50,000 £ (<i>Bristol</i>)	2009-10	Co-I
Bristol Alumni (donation)	'Historical impacts of ocean acidification on polar organisms'	50,000 £ (<i>Bristol</i>)	2010-13	Co-I
EU – FP7	'Past4Future'	~400,000 £ (<i>Bristol</i>)	2010-14	Co-I
NERC	'GENIE-LAMP'	57,111 £ (<i>Bristol</i>)	2009-11	Co-I
Leverhulme Trust	'Modelling the importance of labile iron in iceberg sediment to CO ₂ draw down in the Southern Ocean'	162,370 £ (<i>Bristol</i>)	2009-12	Co-I
EU – FP7 (Marie Curie IEF)	'BioGeochemistry in a high CO ₂ World (BIGCOW): lessons from the Ocean Anoxic Events'	154,019 £ (<i>Bristol</i>)	2009-11	(PI)
NERC (small grant)	'Assessment of Cadmium Isotopes as a Paleoclimate Proxy'	0 £ (<i>Bristol</i>)	2009-11	Co-I
NERC	'Past records of ocean acidification - the Palaeogene hyperthermals'	169,966 £ (<i>Bristol</i>)	2009-12	Co-I
NERC (QUEST)	'Dynamics of the PETM'	222,286 £ (<i>Bristol</i>)	2008-10	Co-I
NERC	'Sensitivity of ocean carbon cycling to anthropogenic emissions'	~2,000 £ (<i>Bristol</i>)	2008-10	Co-I
Leverhulme Trust	'Using deep-sea corals to test the role of deep Southern Ocean in regulating CO ₂ '	161,477 £ (<i>Bristol</i>)	2008-10	Co-I
<u>Royal Society (URF)</u>	<u>'Understanding the controls on atmospheric CO₂: An Earth history perspective'</u>	<u>423,786 £ (<i>Bristol</i>)</u>	<u>2006-11</u>	PI
<u>NSERC (Discovery)</u>	<u>'Understanding the controls on atmospheric carbon dioxide: An Earth history perspective'</u>	<u>103,000 \$ (<i>UBC</i>)</u>	<u>2005-10</u>	PI
<u>CFCAS (Project Grant)</u>	<u>'Anthropogenic acidification of the ocean: Implications for future carbon cycling and climate change'</u>	<u>182,400 \$ (<i>UBC</i>)</u>	<u>2005-8</u>	PI
UBC	(Start-up)	62,000 \$ (<i>UBC</i>)	2004-09	(PI)
<u>CFI</u>	<u>'Computing laboratory for global carbon cycle modeling and analysis'</u>	<u>23,752 \$ (<i>UBC</i>)</u>	<u>2004</u>	PI
<u>BCKDF</u>	<u>'Computing laboratory for global carbon cycle modeling and analysis'</u>	<u>23,752 \$ (<i>UBC</i>)</u>	<u>2004</u>	PI

Publications (some available on-line from: pubs.seao2.org)

Since the start of my PhD (1997) I have received approximately 2700 citations in total (source: Thomson Reuters 'Web of Knowledge' (all databases); accessed 06/12/2013), averaging 158 per year since 1997, with 441 in the last full year (2013). Web of Knowledge calculates an h-index of 28. (Google Scholar gives >3400 citations and an h-index of 30.)

- John, E. H., J. Wilson, P. N. Pearson, and **A. Ridgwell**, Temperature-dependent remineralisation and carbon cycling in the warm Eocene oceans, *Palaeogeography, Palaeoclimatology, Palaeoecology* (in revision).
- Death, R., J. L. Wadham, F. Monteiro, A. M. Le Brocq, M. Tranter, **A. Ridgwell**, S. Dutkiewicz, and R. Raiswell, Antarctic Ice Sheet fertilises the Southern Ocean, *Biogeosciences Discuss.* **10**, 12551-12570, doi:10.5194/bgd-10-12551-2013 (in revision).
- Sánchez-Baracaldo, P., **A. Ridgwell**, and J. A. Raven, A Neoproterozoic Revolution in the Marine Nitrogen Cycle, *Current Biology* (in press).
1. Kirtland Turner, S., and **A. Ridgwell**, Recovering the true size of an Eocene hyperthermal from the marine sedimentary record, *Paleoceanography* (in press).
 2. Wood, S., C. B. Paris, **A. Ridgwell**, and E. J. Hendy, Modeling dispersal and connectivity of broadcast spawning corals at the global scale, *Global Ecology and Biogeography*, DOI: 10.1111/geb.1210 (in press).
 3. Cui, Y., L. R. Kump, and **A. Ridgwell**, Initial assessment on the carbon emission rate and climatic consequences during the end-Permian mass extinction, *Palaeogeography, Palaeoclimatology, Palaeoecology* **389**, 128–136 (2013).
 4. Couce, E., **A. Ridgwell**, and E. J. Hendy, Future habitat suitability for coral reef ecosystems under global warming and ocean acidification, *Global Change Biology*, DOI: 10.1111/gcb.12335 (2013).
 5. Dunkley Jones, T., D. L. Lunt, D. N. Schmidt, **A. Ridgwell**, A. Sluijs, P. J. Valdes, and M. Maslin, Climate model and proxy data constraints on ocean warming across the Paleocene-Eocene Thermal Maximum, *Earth-Science Reviews* **125**, 123–145 (2013).
 6. Colbourn, G., **A. Ridgwell**, and T. M. Lenton, The Rock Geochemical Model (RokGeM) v0.9, *Geosci. Model Dev.* **6**, 1543-1573, doi:10.5194/gmd-6-1543-2013 (2013).
 7. Norris, R. D., S. Kirtland Turner, P. M. Hull, and **A. Ridgwell**, Marine Ecosystem Responses to Cenozoic Global Change, *Science* **341**, 492-498 (2013).
 8. Zirkfeld, K., *et al.*, **A. Ridgwell**, *et al.*, Long-term Climate Change Commitment and Reversibility: An EMIC Intercomparison, *Journal of Climate* **26**, 5782–580 (2013).
 9. Foster, L. C., D. N. Schmidt, E. Thomas, S. Arndt, and **A. Ridgwell**, Surviving rapid climate change in the deep-sea during the Paleogene hyperthermals, *PNAS* **110**, 9273–9276 (2013).
 10. Hunter, S. J., D. S. Goldobin, A. M. Haywood, **A. Ridgwell**, and J. G. Rees, Sensitivity of the global submarine hydrate inventory to scenarios of future climate change, *EPSL* **367**, 105–115 (2013).
 11. Couce, E., P. J. Irvine, L. J. Gregorie, **A. Ridgwell**, and E. J. Hendy, Tropical coral reef habitat in a geoengineered, high-CO₂ world, *GRL* **40**, doi:10.1002/grl.50340 (2013).
 12. Eby, M., *et al.*, **A. Ridgwell**, *et al.*, Historical and idealized climate model experiments: an intercomparison of Earth system models of intermediate complexity, *Clim. Past* **9**, 1111-1140 (2013).
 13. Holden, P. B., N. R. Edwards, S. A. Muller, K. I. C. Oliver, R. M. De'ath, and A. Ridgwell, Controls on the spatial distribution of oceanic $\delta^{13}\text{C}_{\text{DIC}}$, *Biogeosciences* **10**, 1815-1833 (2013).
 14. Dunkley Jones, T., Ivanović, R. F., **Ridgwell, A.**, Lunt, D. J., Maslin, M. A., Valdes, P. J. and Flecker, R., Methane Hydrate Instability: A View from the Palaeogene, in *Climate Forcing of Geological Hazards* (eds B. McGuire and M. Maslin), John Wiley & Sons, Ltd, Chichester, UK. doi: 10.1002/9781118482698 (2013).
 15. Maslin, M., Owen, M., Betts, R. A., Day, S., Dunkley Jones, T. and **Ridgwell, A.**, Assessing the Past and Future Stability of Global Gas Hydrate Reservoirs, in *Climate Forcing of Geological Hazards* (eds B. McGuire and M. Maslin), John Wiley & Sons, Ltd, Chichester, UK. doi: 10.1002/9781118482698 (2013).
 16. Wadham, J. L., R. De'Ath, F. M. Monteiro, M. Tranter, **A. Ridgwell**, R. Raiswell and S. Tulaczyk, The potential role of the Antarctic Ice Sheet in global biogeochemical cycles, *Earth and Environmental Science Transactions of the Royal Society of Edinburgh* **104**, 1-13 (2013).
 17. Monteiro, F. M., R. D. Pancost, **A. Ridgwell**, and Y. Donnadieu, Nutrients as the dominant control on the extent of anoxia and euxinia across the Cenomanian-Turonian oceanic anoxic event (OAE2): Model-data comparison, *Paleoceanography*, DOI: 10.1029/2012PA002351 (2012).
 18. Wilson, J. D., S. Barker, and **A. Ridgwell**, Assessment of the spatial variability in particulate organic matter and mineral sinking fluxes in the ocean interior: implications for the ballast hypothesis, *GBC* **26**, doi:10.1029/2012GB004398 (2012).
 19. Williams, R. G., P. Goodwin, **A. Ridgwell**, and P. L. Woodworth, Steric sea level rise from cumulative carbon emissions, *GRL* **39**, L19715 <http://dx.doi.org/10.1029/2012GL052771> (2012).
 20. Palike, H., M. W. Lyle, H. Nishi, I. Raffi, **A. Ridgwell**, *et al.*, A Cenozoic record of the equatorial Pacific carbonate compensation depth, *Nature* **488**, 609–614 (2012).
 21. Wadham, J. M., S. Arndt, S. Tulaczyk, M. Stibal, M. Tranter, J. Telling, G. P. Lis, E. Lawson, **A. Ridgwell**, *et al.*, Potential methane reservoirs beneath Antarctica, *Nature* **488**, 633–637 (2012).
 22. Barker, S., and **A. Ridgwell**, Ocean Acidification, *Nature Education Knowledge* **3**, 21 (2012).

23. **Ridgwell, A.**, M. Maslin, and J. O. Kaplan, Flooding of the continental shelves as a contributor to deglacial CH₄ rise, *Journal of Quaternary Science* DOI: 10.1002/jqs.2568 (2012).
24. Couce, E., **A. Ridgwell**, and E. J. Hendy, Environmental controls on the global distribution of shallow-water coral reefs, *Journal of Biogeography* **39**, 1508–1523 (2012).
25. Hönisch, B., **A. Ridgwell**, *et al.*, The Geological Record of Ocean Acidification, *Science* **335**, 1058-1063 (2012).
26. Irvine, P. J., **A. Ridgwell**, and D. J. Lunt, Climatic Impacts of Surface Albedo Geoengineering, *JGR* **116**, D24112, doi:10.1029/2011JD016281 (2011).
27. **Ridgwell, A.**, Evolution of the ocean's "biological pump", *PNAS* **108**, 16485–16486 (2011).
28. Lunt, D. J., **A. Ridgwell**, A. Sluijs, and J. Zachos, A model for orbital pacing of methane hydrate destabilization during the Palaeogene, *Nature Geoscience*, doi:10.1038/ngeo1266 (2011).
29. **Ridgwell, A.**, T. J. Rodengen, and K. E. Kohfeld, Geographical variations in the effectiveness and side effects of deep ocean carbon sequestration, *GRL* **38**, L17610, doi:10.1029/2011GL048423 (2011).
30. Cui, Y., L. R. Kump, **A. J. Ridgwell**, *et al.*, Slow release of fossil carbon during the Paleocene-Eocene Thermal Maximum, *Nature Geoscience*, DOI: 10.1038/NNGEO1179 (2011).
31. Haywood, A. M., **A. Ridgwell**, D. J. Lunt, *et al.*, Are there pre-Quaternary geological analogues for a future greenhouse warming?, *Phil. Trans. R. Soc. A* **369**, 933-956 (2011).
32. Zeebe, R. E. and **A. Ridgwell**. Past changes of ocean carbonate chemistry, in *Ocean Acidification*, ed. J.-P. Gattuso and L. Hansson, Oxford University Press, 2011.
33. Irvine, P. J., **A. Ridgwell**, and D. J. Lunt, Assessing the Regional Disparities in Geoengineering Impacts, *GRL* **37**, L18702, doi:10.1029/2010GL044447 (2010).
34. Lunt, D. J., P. J. Valdes, T. Dunkley-Jones, **A. Ridgwell**, A. M. Haywood, D. N. Schmidt, R. Marsh, and M. Maslin, CO₂ driven ocean circulation changes as an amplifier of PETM hydrate destabilization, *Geology* **38**, 875-878 (2010).
35. Matsumoto, K., K. Tokos, and **A. Ridgwell**, Characterizing postindustrial changes in the natural ocean carbon cycle in an Earth system model, *Tellus* **62B**, 296–313 (2010).
36. Turley, C., M. Eby, **A. J. Ridgwell**, D. N. Schmidt, H. S. Findlay, *et al.*, The Societal Challenge of Ocean Acidification, *Marine Pollution Bulletin* **60**, 787-792 (2010).
37. Maslin, M., M. Owen, R. Betts, S. Day, T. Dunkley Jones, and **A. Ridgwell**, Gas hydrates: past and future geohazard?, *Phil. Trans. R. Soc. A* **368**, 2369-2393, doi:10.1098/rsta.2010.0065 (2010).
38. Dunkley Jones, T., **A. Ridgwell**, D. J. Lunt, M. A. Maslin, D. N. Schmidt, and P. J. Valdes, A Palaeogene perspective on climate sensitivity and methane hydrate instability, *Phil. Trans. R. Soc. A* **368**, 2395-2415, doi:10.1098/rsta.2010.0053 (2010).
39. Goodwin, P., and **A. Ridgwell**, Ocean-atmosphere partitioning of anthropogenic carbon dioxide on multi-millennial timescales, *Global Biogeochemical Cycles* **24**, GB2014, doi:10.1029/2008GB003449, 2010.
40. **Ridgwell, A.**, and D. N. Schmidt, Past constraints on the vulnerability of marine calcifiers to massive CO₂ release, *Nature Geoscience*, doi:10.1038/ngeo755, 2010.
41. Kump, L. R., T. J. Bralower, and **A. Ridgwell**, Ocean Acidification in Deep Time, *Oceanography* **22**, 94-107, 2009.
42. Singarayer, J. S., **A. Ridgwell**, and P. Irvine, Assessing the benefits of crop albedo bio-geoengineering, *Environ. Res. Lett.* **4**, doi:10.1088/1748-9326/4/4/045110 (2009).
43. Irvine, P. J., D. J. Lunt, E. J. Stone, and **A. Ridgwell**, Fate of the Greenland Ice Sheet in a geoengineered, high CO₂ world, *Environ. Res. Lett.* **4**, doi:10.1088/1748-9326/4/4/045109 (2009).
44. **Ridgwell, A.**, The Global Dust Cycle, in *Surface Ocean–Lower Atmospheres Processes*, Eds. C. Le Quéré and E. S. Saltzman, AGU Geophysical Monograph Series, Volume 187, 350 pp.
45. Kohfeld, K. E., and **A. Ridgwell**, Glacial-interglacial variability in atmospheric CO₂, in *Surface Ocean–Lower Atmospheres Processes*, Eds. C. Le Quéré and E. S. Saltzman, AGU Geophysical Monograph Series, Volume 187, 350 pp.
46. Turley, C., Findlay, H. S., Mangi, S., **Ridgwell, A.** and Schimdt, D. N., CO₂ and ocean acidification in Marine Climate Change Ecosystem Linkages Report Card 2009. (Eds. Baxter JM, Buckley PJ and Frost MT), Online science reviews, 25pp (2009). www.mccip.org.uk/elr/acidification
47. **Ridgwell**, and P. Valdes, Climate and Climate Change, *Current Biology* **19**, R563-R566 (2009).
48. Irvine, P., and **A. Ridgwell**, 'Geoengineering' – taking control of our planet's climate, *Science Progress* **92**, 139-162 (2009).
49. Archer, D., M. Eby, V. Brovkin, **A. Ridgwell**, *et al.*, Atmospheric lifetime of fossil-fuel carbon dioxide, *Annual Reviews of Earth and Planetary Sciences* **37**, 117-134 (2009).
50. **Ridgwell, A.**, Schmidt, D. N., Turley, C., Brownlee, C., Maldonado, M. T., Tortell, P., and Young, J. R., From laboratory manipulations to Earth system models: scaling calcification impacts of ocean acidification, *Biogeosciences* **6**, 2611-2623 (2009).
51. **Ridgwell, A.**, J. S. Singarayer, A. M. Hetherington, and P. Valdes, Tackling regional climate change by leaf albedo bio-geoengineering, *Current Biology* **19**, doi:10.1016/j.cub.2008.12.025 (2009).
52. Goodwin, P., R. G. Williams, **A. Ridgwell**, and M. J. Follows, Climate sensitivity to the carbon cycle modulated by past and future changes in ocean chemistry, *Nature Geoscience*, doi:10.1038/ngeo416 (2009).

53. Cao, L., M. Eby, **A. Ridgwell**, *et al.*, The importance of ocean transport in the fate of anthropogenic CO₂, *Biogeosciences* **6**, 375-390 (2009).
54. Meyer, K. M., L. R. Kump, and **A. Ridgwell**, Biogeochemical controls on photic-zone euxinia during the end-Permian mass extinction, *Geology* **36**, 747-750 (2008).
55. Chikamoto, M. O., K. Matsumoto, and **A. Ridgwell**, Response of deep-sea CaCO₃ sedimentation to Atlantic meridional overturning circulation shutdown, *JGR* **113**, G03017, doi:10.1029/2007JG000669 (2008).
56. Singaraye, J. S., D. A. Richards, **A. Ridgwell**, P. J. Valdes, W. E. N. Austin, and J. W. Beck, An oceanic origin for the increase of atmospheric radiocarbon during the Younger Dryas, *GRL* **35**, L14707, doi:10.1029/2008GL034074 (2008).
57. Lunt, D. J., **A. Ridgwell**, P. J. Valdes, and A. Seale, Sunshade World.: a fully coupled GCM evaluation of the climatic impacts of geoengineering, *GRL* **35**, L12710, doi:10.1029/2008GL033674 (2008).
58. Panchuk, K., **A. Ridgwell**, and L. R. Kump, Sedimentary response to Paleocene Eocene Thermal Maximum carbon release: A model-data comparison, *Geology* **36**, 315-318 (2008).
59. Caldeira, K., ..., **A. Ridgwell**, *et al.*, Comment on 'Modern-age buildup of CO₂ and its effects on seawater acidity and salinity' by Hugo A. Loaiciga, *GRL* **34**, doi:10.1029/2006GL027288 (2007).
60. **Ridgwell, A.**, Interpreting transient carbonate compensation depth changes by marine sediment core modeling, *Paleoceanography* **22**, PA4102, doi:10.1029/2006PA001372 (2007).
61. **Ridgwell, A.**, and K. E. Kohfeld, Dust in the Earth system: The biogeochemical linking of land, air, and sea, in *Advances in Earth Science*, Eds. Sammonds, P. R., and J. M. T. Thompson, Imperial College Press, 2007.
62. **Ridgwell, A.**, and J. Hargreaves, Regulation of atmospheric CO₂ by deep-sea sediments in an Earth System Model, *Global Biogeochemical Cycles* **21**, doi:10.1029/2006GB002764, 2007.
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84. Watson, A. J., D. C. E. Bakker, **A. J. Ridgwell**, P. W. Boyd, and C. S. Law, Effect of iron supply on Southern Ocean CO₂ uptake and implications for glacial atmospheric CO₂, *Nature* **407**, 730-733, 2000.
85. **Ridgwell, A. J.**, A. J. Watson, and M. E. Raymo, Is the spectral signature of the 100 kyr glacial cycle consistent with a Milankovitch origin? *Paleoceanography* **14**, 437-440, 1999.
86. **Ridgwell, A. J.**, S. J. Marshall, and K. Gregson, Consumption of atmospheric methane by soils: a process-based model. *Global Biogeochemical Cycles* **13**, 59-70, 1999.
87. Salje, E. K. H., **A. Ridgwell**, B. Gütler, B. Wruck, M. T. Dove, and G. Dolino, On the displacive character of the phase transition in quartz: A hard mode (infrared) spectroscopic study. *J. Phys. Condens. Matter* **4**, 571-577, 1992.

Invited keynote and speaker addresses

• Keynote lectures

EGS-AGU-EUG (2003, Nice), AGU-CGU (2004, Montreal), Goldschmidt (2006, Melbourne), SCOR 50th Anniversary Symposium (2008, Woods Hole), 2008 Darwin Day (2008, Netherlands), 2010 Commercial CSR Day (2010, Cheltenham Racecourse, UK), Gordon Conference on Hydrates (2012, Ventura, US), and 2 at 2013 Goldschmidt (Florence, Italy).

• Invited public lectures

St. Andrews science week public lecture (St. Andrews, 2007), Geological Society Shell-sponsored lecture series (Oxford, February 2010), The Times Cheltenham Science Festival (Cheltenham, 2011), Institute of Physics / Royal Society of Edinburgh evening open lecture (Edinburgh, 2011), Public Climate Change Lecture (Cardiff, 2012), open climate change (geoengineering) lecture (Clare College, Cambridge, 2013).

• Invited lectures – workshops and symposia

International Symposium: New Horizons in the Study of the Carbon Cycle (2000, Rome), Zuckerman Symposium (2001, UEA, Norwich), Gordon Conference in Chemical Oceanography (2002, Oxford), IGBP-SCOR 'Global Iron Connections' (2004, UEA, Norwich), AGU Chapman Conference (2005, Woods Hole), IGBP-SCOR 'Ocean Acidification' (2006, Lamont, New York), GEOTRACES workshop (2007, Delmenhorst), Raiswell Symposium (2008, Leeds), Ocean Acidification Working Group (2009, Miami), EPOCA Annual Meeting (2009, Plymouth), Paleo-ocean Acidification and Carbon Cycle Perturbation Events (2010, Catalina Island), WUN Workshop (2011, Seattle), TOTAL Foundation on Ocean Acidification (2011, Porquerolles, France), DLB Symposium (2011, Imperial College, London), Fermor Meeting on Neoproterozoic (Geological Society, London, 2012), Kaplan Symposium on paleoclimate (2012, Jerusalem, Israel), EPOCA Annual Meeting (2012, Nice, France).

• Invited lectures – conferences

EGU (2007, Vienna), AGU Fall Meeting (2008, San Francisco), AGU Fall Meeting (2009, San Francisco), ICP10 (2010, San Diego), IPC3 (2010, London), EGU (2010, Vienna), ASLO (2011, Portland), Goldschmidt (2012, Montreal), Royal Society URF conference (2012, London), AGU Fall (2013, San Francisco).

• Invited lectures – university and institute seminars

Jena (2001), UCR (2001, California), UCL (2002, London), UCLA (2003, California), UEA (2003), Scripps (California), University of Maryland (2004), University of Western Ontario (2004), UVic (2004, British Columbia), Penn State (2004); British Antarctic Survey (2005), NOCS (2005), IOS (2005, British Columbia), FRCGC (2006, Japan), University of Tokyo (2006, Japan), UBC (2007, British Columbia), Open University (2007), WUN (2008), Stanford (2008), Imperial (2008), Liverpool (2009), Queen Mary, University of London (2010), NOC, Southampton (2011) Trinity College Dublin (2011), Edinburgh (2011), Bristol (Earth Sciences) (2011), Adelaide (2012), Open University (2012), Cambridge (2013).

Editing and reviewing

• Editing

I am one of the founding Editors and sit of the Executive Board of the EU journal Geoscientific Model Development (<http://www.geoscientific-model-development.net/>), as well as being an active 'topical Editor' for the journal. I have been a guest editor for two separate special issues of Philosophical Transactions of the Royal Society – one on 'geoengineering' and one on warm climates of the past.

• Journal reviewing

AGU Monographs, Biogeosciences, Climatic Change, Climates of the Past, Earth and Planetary Science Letters, Earth-Science Reviews, Environ. Res. Lett., Geobiology, Geology, Global Biogeochemical Cycles, Geochemistry Geophysics Geosystems, Geophysical Research Letters, JGR-Biogeochimistry, Journal of Quaternary Science, Marine Ecology Progress Series, Nature, Nature Climate Change, Nature Geoscience, Nature Communications, Netherlands Journal of Geoscience, New Phytologist, Paleoceanography, Philosophical Transactions of the Royal Society, PNAS, Quaternary Science Reviews, Science.

(AGU 2002 Editors' Citation for Excellence in Refereeing for Paleoceanography)

• Grant reviewing

Core panel member for the (UK) NERC Peer Review College, panel member for (German) DFG priority program "Climate Engineering"

American Chemical Society, CRC (Canada), EU/ESF (EuroCLIMATE program), EU/ESF (ERC), Israel Science Foundation, NERC (UK SOLAS program), NERC (Standard grants), NERC (Postdoctoral Fellowships), Netherlands Organisation for Scientific Research, New Zealand Marsden Fund, NSERC (Canada), NSF (Chemical Oceanography), NSF (Geology and Paleontology), NSF (Postdoctoral Fellowships), The Israel Science Foundation, Royal Society.

- **PhD vivas**

I have conducted a number of PhD viva examinations, both as internal and external examiner, and both in the UK and abroad, including: University of Edinburgh (external), three times at the University of Bristol as internal, IPSL/Laboratoire des Sciences du Climat et de l'Environnement, France (external), University of Bern (external), Imperial, London (external), and the University of Earth Anglia (external).

Graduate student supervision

- Currently, I am primary supervisor for three students:

- Nancy Jones – Bristol PhD candidate studying tropical coral ecosystem dynamics and funded through a proposal submitted to the highly competitive EU-wide 'AXA Insurance' postgraduate scholarship scheme.
- Sally Wood – Bristol PhD candidate supported by a UK NERC studentship, working on assessing the controls on coral reef 'connectivity' using ocean tracer-transport models.
- Sarah Jones – Bristol PhD candidate supported by an UK EPSRC grant, studying carbon cycle geoengineering as part of a UK-wide EPSRC funded geoengineering consortium project.

- In addition, I am second supervisor for:

- Suzanne Jennions – Bristol PhD candidate supported by an alumni donation, studying historical records of Antarctic Ocean acidification.
- Dominik Huelse – Bristol PhD candidate supported by a graduate teaching studentship, studying the role of organic carbon reactivity and transformations in past deoxygenation events.
- Natalie Lord – Bristol PhD candidate supported under an IAEA program, studying the long-term fate of fossil fuel CO₂ and climate change as relevant to the future integrity of nuclear waste repositories.
- Jamie Wilson – Cardiff PhD candidate supported by a UK NERC grant, studying modern ocean carbon cycle dynamics and controls, and Cenozoic implications.

- Completed students include:

- Dr. Peter Irvine, whom I lead-supervised in a study of solar radiation management geoengineering impacts using fully coupled climate models.
- Elena Couce, whom I second-supervised who studied the environmental controls on tropical coral reef habitat suitability.

- I have also first-supervised a completed Masters student at UBC (Vancouver) and second-supervised one at SFU (Vancouver), plus informally acted as an additional supervisor to two completed PhD students at Penn State (US) whose research used the GENIE Earth system model.

Teaching and summer-schools

- **Courses**

At the University of British Columbia I co-devised and led an undergraduate unit to provide a base level of computer programming skills in MATLAB, and co-led a masters level unit in Earth history and global biogeochemical cycles.

At Bristol I have developed and run a Masters level unit on Earth system modeling, which I provide as part of both the 4-year MSci program as well as for a 1-year Masters course. I also provide lectures for a 1-year open unit ('World in Crisis') and physical geography, and to 2nd and 3rd year units on geobiology and physical geography.

- **Summer-schools**

I am a frequent invitee to lecture and teach on international graduate/postgraduate summer schools, including: QUEST (2007 and 2008, Bristol) and SOLAS (2007 and 2009, Corsica, France) summer-schools. I am also a regular contributor to the annual Urbino Summer School in Paleoclimatology in Urbino, Italy (2010, 2011, 2012, 2013), and have taught on the 'ACDC' climate change summer school (2011, Friday Harbor, US). I have also provided lectures for the ERCR Introduction to Palaeoceanography 'short-course' at UCL.

Popular articles and educational scribblings

- "Cooling Europe with crops", EU Parliament *Research Review*, issue 8, page 37 (2009)
- "Global warming". in: *The Seventy Great Mysteries of the Natural World*, Eds. Benton, M. J., Thames & Hudson, London, p. 257-261 (2008).
- "What will Earth's future climate look like?", in: *The Seventy Great Mysteries of the Natural World*, Eds. Benton, M. J., Thames & Hudson, London, p. 262-265 (2008).
- "Anti-freeze for snowball Earth", *Planet Earth*, winter 2003 (2003).
- "Planète poussiéreuse, planète heureuse!", *Met Mar*, No. 200, pages 24-25 (2003).
- "A dirty planet is a happy planet", *The Marine Observer*, vol. 73, no. 359, pages 25-27 (2003).
- "The role of feedbacks in the Earth System: Past changes in dust and iron fertilization of the ocean", IGBP 'Global Change' Newsletter, Issue no. 51, pages 2-5 (2002).
- "Trees that bite the dust", *The Guardian* August 15th 2002 (2002).
- "Robbing Peter to pay Paul", NERC Annual Report 2001-2002 (2002).
- "The 'inconvenient ocean' – Undesirable consequences of terrestrial carbon sequestration", *Ocean Challenge*, vol. 12, no. 1, pages 28-32 (2002).
- "A dirty planet is a happy planet", *Planet Earth* summer 2002 (2002).
- Educational modeling program on the 'Greenhouse Effect', 'Acorn User' computing magazine (1994).
- "Daisy World" simple homeostatic climate model, 'Acorn User' computing magazine (1994).