

CURRICULUM VITAE: Andy Ridgwell

Address : School of Geographical Sciences,
University of Bristol,
Bristol, BS8 1SS United Kingdom

Date of birth : 01/02/1969

Nationality : British

Phone number : +44 (0)117 954 6858

Email: andy@seao2.org

Fax number : +44 (0)117 928 7878

www: <http://www.seao2.org>

EDUCATION

Dates		University	Qualifications gained, awards, and prizes; (grade) & [date awarded]
From	To		
10/1987	06/1990	Clare College, University of Cambridge, 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, 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] Norman Heaps Prize for Best Student Presentation @ Marine Science 2000

EMPLOYMENT HISTORY

Dates		Firm/Organisation	Status and description of work
From	To		
11/2006	present	University of Bristol	Royal Society University Research Fellow; leader of 'BRIDGE' global climate change research group; founder of 'BRISBI' (bio)geoengineering initiative
04/2004	11/2006	UBC, Vancouver	Canada Research Chair in Global Process Modelling (Assistant Professor)
10/2002	03/2004	UC Riverside	Researcher; modeling analysis of Precambrian carbon cycling
05/2001	09/2002	University of East Anglia (School of Env. Sciences)	Senior Research Associate; construction of an ocean carbon cycle model (for The Tyndall Centre for Climate Change Research)
10/2000	04/2001	University of East Anglia	Senior Research Associate; modelling ocean iron and carbon cycles
07/1993	09/1996	n/a	Variously: contract instrumentation physicist; unemployed (developing environmental software for schools and universities; environmental campaigning)
10/1991	03/1992		
04/1992	06/1993	ATI-Unicam Ltd.	Physicist/instrumentation scientist; development atomic absorption spectrometer
09/1990	09/1991	University of Cambridge	Research assistant; infrared and optical spectroscopy of crystalline materials

GRANTS HELD

Granting Agency	Title	Value (funders price)	Duration	PI/Co-I
DEFRA		£~100,000 (Bristol)	2010	Co-I
Bristol Ports		£ 50,000 (Bristol)	2009-10	Co-I
Bristol Alumni (donation)	'Historical impacts of ocean acidification on polar organisms'	£ 50,000 (Bristol)	2010-13	PI
EU - FP7	'Past4Future'	£~400,000 (Bristol)	2010-14	Co-I
NERC	'GENIE-LAMP'	£ 57,111 (Bristol)	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 (Bristol)	2009-12	Co-I
EU - FP7 (Marie Curie IEF)	'BloGeochemistry in a high CO ₂ World (BIGCOW): lessons from the Ocean Anoxic Events'	£ 154,019 (Bristol)	2009-11	PI
NERC (small grant)	'Assessment of Cadmium Isotopes as a Paleoclimate Proxy'	£ 22,938 (TOTAL)	2009-11	Co-I
NERC	'Past records of ocean acidification - the Palaeogene hyperthermals'	£ 169,966 (TOTAL)	2009-12	Co-I
NERC (QUEST)	'Dynamics of the PETM'	£ 222,286 (Bristol)	2008-10	Co-I
NERC	'Sensitivity of ocean carbon cycling to anthropogenic emissions'	£ 186,982 (TOTAL)	2008-10	Co-I
Leverhulme Trust	'Using deep-sea corals to test the role of deep Southern Ocean in regulating CO ₂ '	£ 161,477 (Bristol)	2008-10	Co-I

Royal Society (URF)	'Understanding the controls on atmospheric CO ₂ : An Earth history perspective'	£ 423,786 (<i>Bristol</i>)	2006-11	PI
NSERC (Discovery Grant)	'Understanding the controls on atmospheric carbon dioxide: An Earth history perspective'	\$ 103,000 CAD (<i>UBC</i>)	2005-10	PI
CFCAS (Project Grant)	'Anthropogenic acidification of the ocean: Implications for future carbon cycling and climate change'	\$ 182,400 CAD (<i>UBC</i>)	2005-8	PI
Faculty of Science, UBC	(Start-up)	\$ 62,000 CAD (<i>UBC</i>)	2004-09	PI
CFI	'Computing laboratory for global carbon cycle modeling and analysis'	\$ 23,752 CAD (<i>UBC</i>)	2004	PI
BCKDF	'Computing laboratory for global carbon cycle modeling and analysis'	\$ 23,752 CAD (<i>UBC</i>)	2004	PI

PUBLICATIONS (available on-line at: pubs.seao2.org)

- Matsumoto, K., K. Tokos, and **A. Ridgwell**, Characterizing postindustrial changes in the natural ocean carbon cycle in an Earth system model (in press).
- Goodwin, P., and **A. Ridgwell**, Ocean-atmosphere partitioning of anthropogenic carbon dioxide on multi-millennial timescales, *Global Biogeochemical Cycles* (in press).
- 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.
- Kump, L. R., T. J. Bralower, and **A. Ridgwell**, Ocean Acidification in Deep Time, *Oceanography* **22**, 94-107, 2009.
- 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).
- 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).
- Ridgwell, A.**, The Global Dust Cycle, in Surface Ocean–Lower Atmospheres Processes, Eds. C. Le Quééré and E. S. Saltzman, AGU Geophysical Monograph Series, Volume 187, 350 pp.
- Kohfeld, K. E., and **A. Ridgwell**, Glacial-interglacial variability in atmospheric CO₂, in Surface Ocean–Lower Atmospheres Processes, Eds. C. Le Quééré and E. S. Saltzman, AGU Geophysical Monograph Series, Volume 187, 350 pp.
- Turley, C., Findlay, H. S., Mangi, S., **Ridgwell, A.** and Schmidt, 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
- A. Ridgwell**, and P. Valdes, Climate and Climate Change, *Current Biology* **19**, R563-R566 (2009).
- Irvine, P., and **A. Ridgwell**, 'Geoengineering' – taking control of our planet's climate, *Science Progress* **92**, 139-162 (2009).
- 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).
- 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).
- 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).
- 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).
- Cao, L., M. Eby, **A. Ridgwell**, et al., The importance of ocean transport in the fate of anthropogenic CO₂, *Biogeosciences* **6**, 375-390 (2009).
- 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).
- 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).
- Singarayer, 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).
- 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).
- 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).
- 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).
- Ridgwell, A.**, Interpreting transient carbonate compensation depth changes by marine sediment core modeling, *Paleoceanography* **22**, PA4102, doi:10.1029/2006PA001372 (2007).
- 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.
- 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.
- Ridgwell, A.**, Application of sediment core modelling to interpreting the glacial-interglacial record of Southern Ocean silica cycling, *Clim. Past* **3**, 387-396, 2007.
- Ridgwell, A.**, I. Zondervan, J. Hargreaves, J. Bijma, and T. Lenton, Assessing the potential long-term increase of oceanic fossil fuel CO₂ uptake due to 'CO₂-calcification feedback', *Biogeosciences* **4**, 481-492, 2007.
- Ridgwell, A.**, J. Hargreaves, N. Edwards, J. Annan, T. Lenton, R. Marsh, A. Yool, and A. Watson, Marine geochemical data assimilation in an efficient Earth System Model of global biogeochemical cycling, *Biogeosciences* **4**, 87-104, 2007.
- Ridgwell, A.**, and U. Edwards, Geological Carbon Sinks, in Greenhouse Gas Sinks, Eds. Reay, D., N. Hewitt, J. Grace, and, K. Smith, 2007.
- Lenton, T. M., M. S. Williamson, N. R. Edwards, R. J. Marsh, A. R. Price, **A. J. Ridgwell**, J. G. Shepherd, S. J. Cox, and the GENIE team, Millennial timescale carbon cycle and climate change in a new fast Earth system model, *Climate Dynamics*, doi:10.1007/s00382-006-0109-9 (2006).
- Cameron, D. R., T. M. Lenton, **A. J. Ridgwell**, J. G. Shepherd, R. J. Marsh, and the GENIE team, A factorial analysis of the marine carbon cycle controls on atmospheric CO₂, *Global Biogeochemical Cycles* **19**, doi:10.1029/2005GB002489, 2005.
- Ridgwell, A.**, and R. E. Zeebe, The role of the global carbonate cycle in the regulation and evolution of the Earth system, *EPSL* **234**, p. 299-315, 2005.
- Ridgwell, A.**, Changes in the mode of carbonate deposition: Implications for Phanerozoic ocean chemistry, *Marine Geology* **217**, 339-357, 2005.
- Jickells, T. D., Z. S. An, K. K. Andersen, A. R. Baker, G. Bergametti, N. Brooks, Cao J. J., P. W. Boyd, R. A. Duce, K. A. Hunter, H. Kawahata, N. Kubilay, J. laRoche, P. S. Liss, N. Mahowald, J. M. Prospero, **A. J. Ridgwell**, I. Tegen, and R. Torres, Global Iron Connections Between Desert Dust, Ocean Biogeochemistry and Climate, *Science* **308**, 67, 2005.
- M. A. Maslin, and **A. J. Ridgwell**, Mid-Pleistocene Revolution and the 'eccentricity myth', in *Early-Middle Pleistocene transitions: the land-ocean evidence*, Eds. Head, M. J., and P. L. Gibbard, Geological Society, London, Special Publications, 2005.
- Ridgwell, A. J.**, and M. J. Kennedy, Secular changes in the importance of neritic carbonate deposition as a control on the magnitude and stability of Neoproterozoic ice ages, in: *The Extreme Proterozoic: Geology, Geochemistry, and Climate*, Eds. Jenkins, G., et al., Geophysical Monograph Series Volume 146, American Geophysical Union, Washington DC, 2004.
- Ridgwell, A. J.**, M. J. Kennedy, and K. Caldeira, Carbonate deposition, climate stability, and Neoproterozoic ice ages, *Science* **302**, 859-882, 2003.
- Ridgwell, A. J.**, A. J. Watson, M. A. Maslin, and J. O. Kaplan, Implications of coral reef buildup for the controls on atmospheric CO₂ since the Last Glacial Maximum, *Paleoceanography* **18**, doi:10.1029/2003PA000893, 2003.
- Ridgwell, A. J.**, Implications of the glacial CO₂ "iron hypothesis" for Quaternary climate change, *Geochem. Geophys. Geosys.* **4**, doi:10.1029/2003GC000563, 2003.
- Ridgwell, A. J.**, An end to the 'rain ratio' reign?, *Geochem. Geophys. Geosys.* **4**, doi:10.1029/2003GC000512, 2003.
- Ridgwell, A. J.**, Dust in the Earth system: The biogeochemical linking of land, air, and sea, *Philosophical Transactions of the Royal Society A* **360**, 2905-2924, 2002.
- Ridgwell, A. J.**, and A. J. Watson, Feedback between aeolian dust, climate and atmospheric CO₂ in glacial time, *Paleoceanography* **17**, doi: 10.1029/2001PA000729, 2002.
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- Ridgwell, A. J.**, M. A. Maslin, and A. J. Watson, Reduced effectiveness of terrestrial carbon sequestration due to an antagonistic response of ocean productivity, *Geophys. Res. Lett.* **29**, doi: 10.1029/2001GL014304, 2002.
- Ridgwell, A. J.**, Glacial-interglacial perturbations in the global carbon cycle, PhD thesis, 134 pp., Univ. of East Anglia at Norwich, UK, 2001.
- Ridgwell, A. J.**, Climatic effect of Southern Ocean Fe fertilization: Is the jury still out?, *Geochem. Geophys. Geosys.* **1**, doi: 10.1029/2000GC000120, 2000.
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- 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.
- 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.
- Salje, E. K. H., **A. Ridgwell**, B. Güttler, 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.

ARTICLES, PRESS, 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.
- “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.
- “Robbing Peter to pay Paul”, NERC Annual Report 2001-2002.
- “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.
- Educational modeling program on the ‘Greenhouse Effect’, ‘Acorn User’ computing magazine, 1994.
- “Daisy World” simple homeostatic climate model, ‘Acorn User’ computing magazine, 1994.

EDITORIAL AND REVIEWING WORK

- Editor of Geoscientific Model Development (<http://www.geoscientific-model-development.net/>)
- 2009: *Geobiology*, *Nature*, *Nature Geoscience* × 2, *GRL* × 2, *Paleoceanography*
- 2008: *Geology* × 2, *Geoscientific Model Development* (as Editor), *GRL*, *Nature*, *Nature Geoscience*, *Netherlands Journal of Geoscience*, *Paleoceanography*
- 2007: *Biogeosciences* × 2, *Climatic Change*, *Geoscientific Model Development* (as Editor), *GRL*, *Paleoceanography*, *Science*
- 2006: *Biogeosciences*, *Climates of the Past*, *JGR-Biogeochemistry*, *NSERC*, *NSF*, *QSR*, *Geology*,
- 2005: *Global Biogeochemical Cycles*, *Geophysical Research Letters* × 2, *NERC (UK SOLAS program)*
- 2004: *American Chemical Society*, *ESF (EuroCLIMATE program)*, *Geophysical Research Letters*, *Geochemistry Geophysics Geosystems* × 2, *Global Biogeochemical Cycles*, *Journal of Quaternary Science*, *Paleoceanography*, *NSERC*, *NSF (Chemical Oceanography)* × 2, *NSF (Geology and Paleontology)*
- 2003: *Earth and Planetary Science Letters*, *Geochemistry Geophysics Geosystems* × 2, *Global Biogeochemical Cycles*, *NSF (Chemical Oceanography)* × 2
- 2002: *Quaternary Science Reviews*, *NSF*, *Paleoceanography*
- 2001: *AGU Monograph*, *Geophysical Research Letters*
- * Awarded the 2002 Editors’ Citation for Excellence in Refereeing for *Paleoceanography* (American Geophysical Union)

INTERESTS/ACTIVITIES

- Attempting to defy an inverse square law of attraction on a shear granite face with the aid of sticky rubber boots and a pair of daft-looking trousers. Ideally the relevant experiments are carried out on Yorkshire grit in the sunshine with a warm beer (or five) close at hand.
- Hiking and generally ambling about in the mountains in summer; skiing into snowdrifts at speed and eating snow in the winter.
- Opening tuna tins, scooping litter, and generally attending to the every need of 7(!) cats.