

# Dr Ben McNeil

Climate Change Research Centre  
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## Professional Interests and Expertise

• Climate Change Science • Energy and Climate Policy • Global Carbon Cycle • Ocean Acidification • Impacts of Climate Change on the Oceans • Geo-sequestration and Australia's CO<sub>2</sub> emissions • Long-term Carbon Sinks

## Academic Qualifications

- B. Eng (Env) Hons, Griffith University, Department of Environmental Sciences and Engineering, Brisbane, Queensland, Australia, 1996.
- Ph.D., University of Tasmania, Institute of Antarctic and Southern Ocean Studies, Hobart, Tasmania, Australia, 2001. *Dissertation: Southern Ocean Carbon Cycling.*
- M.Econ (Australian Political Economy) School of Economics and Business, University of Sydney, 2009.

## Peer-reviewed Publications

### Science

- McNeil, B.I., and R.J. Matear 2008: Southern Ocean acidification: A tipping point at 450-ppm atmospheric CO<sub>2</sub>, *Proceedings of the National Academy of the United States of America*, December 2, vol. 105 no. 48 18860-18864.
- McNeil, B.I., N. Metzl, R.M. Key and R.J. Matear 2007: An Empirical Estimate of the Southern Ocean air-sea CO<sub>2</sub> flux. *Global Biogeochemical Cycles*, Vol 21, GB3011, August 18.
- Matear R.J. and McNeil, B.I. 2007: On the Optimal Method to Determine Oceanic Anthropogenic CO<sub>2</sub> Uptake Under Global Warming. *Global Biogeochemical Cycles*, submitted.
- McNeil, B.I., and R.J. Matear 2007: Climate Change Feedbacks on Oceanic pH. *Tellus-B: Special issue for the 7th International Carbon Dioxide Conference*, 59B, 191-198.
- Matear R.J. and McNeil, B.I., 2006: Comment on "Pre-industrial to Modern Inter-decadal Variability in Coral Reef pH". *Science*, Vol 314, October 27, 595.

- McNeil, B.I., and R.J. Matear, 2006: Projected Climate Change Impact on Future Ocean Acidification, *Carbon Balance and Management*, Vol 1, No.1.
- McNeil, B.I., 2007: Global Importance of the Oceans and Coasts, Chapter 2 for “*Ecological Economics of the Oceans and Coasts*”, edited by Professor Murray Patterson and published by Edward Elgar, Cheltenham, UK.
- Waugh, D.W., T.M. Hall, B.I. McNeil and R.M. Key 2005: Anthropogenic CO<sub>2</sub> in the Oceans using transit-time distributions. *Tellus-B: Special issue for the 7th International Carbon Dioxide Conference*, Vol 58B, 376-389.
- McNeil, B.I., R.J. Matear, D.J. Barnes 2005: Reply to Comment by Kleypas et al., on "Coral reef calcification and climate change : the effect of ocean warming". *Geophysical Research Letters*, Vol 32, L08602, Apr 30, 2005.
- McNeil, B.I., R.J. Matear, D.J. Barnes 2004: Coral reef calcification and climate change : the effect of ocean warming *Geophysical Research Letters*, Vol 31, L22309, Nov 29, 2004.
- McNeil, B.I., R.J. Matear, R.M. Key, J.L. Bullister and J.L. Sarmiento, 2003: Anthropogenic CO<sub>2</sub> uptake by the ocean based on the global chlorofluorocarbon dataset *Science*, Vol 299, Jan 10, 235-239 .
- Matear R.J. and McNeil, B.I., 2003: Decadal accumulation of anthropogenic CO<sub>2</sub> in the Southern Ocean: a comparison of CFC-age derived estimates to multiple linear regression estimates. *Global Biogeochemical Cycles*, Vol 17, No 4, 1113-.
- McNeil, B.I., R.J. Matear and B. Tilbrook 2001: Accumulation and uptake of anthropogenic CO<sub>2</sub> in the Southern Ocean, south of Australia between 1968 to 1996 *Journal of Geophysical research*, Vol 106, No C12, 31431-31445.
- McNeil, B.I., R.J. Matear and B. Tilbrook 2001: Does carbon-13 track anthropogenic CO<sub>2</sub> in the Southern Ocean *Global Biogeochemical Cycles*, Vol 15, No 3, 597-.
- Matear, R.J., Hirst, T and B.I. McNeil 2000: Changes in dissolved oxygen in the Southern Ocean with climate change *Geochemistry, Geophysics, Geosystems*, Vol 1, Nov 21.

#### Climate Policy and Energy Economics

- McNeil, B.I. (2009) The Clean Industrial Revolution: Growing Australian Prosperity in a Greenhouse Age, Allen & Unwin, Sydney, pp286.
- McNeil, B.I. (2007) The Costs of Introducing Nuclear Power in Australia, *Journal of Australian Political Economy*, Vol 78.

- McNeil, B.I., 2006: Significance of the Oceanic CO<sub>2</sub> Sink for National Carbon Accounts. *Carbon Balance and Management*, Vol 2, No.1. Full Article.
- McNeil, B.I., 2006: Oceanic implications for Climate Change Policy. *Environmental Science and Policy*, Vol 9, Issue 7-8, pg 595-606.

### Other Published Writings

- McNeil, B.I., Low carbon the only way to go, May 5, 2009, *The Australian Financial Review*.
- McNeil, B.I., For Earth, a carbon price is priceless, Jun 16, 2008, *The Sydney Morning Herald*.
- McNeil, B.I., The Global Warming Paradox, July 13, 2007, *The Sydney Morning Herald*.
- McNeil, B.I., Climate change making Christmas fare a real turkey, Dec 21, 2006, *The Age*.
- McNeil, B.I., An Addiction that Fouls the Air, January 16, 2007, *Sydney Morning Herald*.
- McNeil, B.I., Governments in greenhouse pacts shouldn't throw reductions, August 6, 2005 *The Canberra Times*.
- McNeil, B.I., Endowed by culture of giving, December 15, 2004 *The Australian*.
- McNeil, B.I., Geosequestration: no silver bullet for greenhouse gas emissions, Nov 26, 2004, *Online Opinion*.

### Professional Experience

- Senior Lecturer / Queen Elizabeth II Research Fellow, Climate Change Research Centre, School of Mathematics, University of New South Wales, Sydney, Australia, (Jan 2008-present).
- Senior Research Fellow, Climate Change Research Centre, School of Mathematics, University of New South Wales, Sydney, Australia, (Jan 2007- Dec 2007).
- Lecturer / Postdoctoral Research Fellow, Centre for Environmental Modelling and Prediction, School of Mathematics, University of New South Wales, Sydney, Australia, (Nov 2003- Dec 2006).
- Postdoctoral Research Fellow, Atmospheric and Oceanic Science Program, Princeton University, New Jersey, USA (May 2001-Nov 2003).

### Teaching Experience

- Course coordinator and Lecturer: Fundamentals of Climate Change, Semester I, UNSW, 2007.
- Course coordinator and Lecturer : MSCI3001/MSCI5004 Physical Oceanography, Semester II, UNSW, 2005.
- Contributing Lecturer: GENS0501 Introduction to Marine Science, Semester II, UNSW, 2004, 2005.
- Contributing Lecturer: CHEM7300 Fundamentals of Physical Science – Climate Change, Semester II, UNSW, 2005.
- Contributing Lecturer: GENI004 Science and Cinema, Climate Change and Public Perception, “The Day After Tomorrow”, February 2005, UNSW.
- Annual invited lecture on “Climate Change Challenges”, 3<sup>rd</sup> year Marine Biology, University of Sydney, June 2004, 2005, 2006, 2007.
- Course coordinator and Lecturer: Scientia Challenge Program for Gifted Students, “Global Warming: What does the future hold?” 14- 15 July 2005, UNSW.

### Awards of Scientific Grants

- NSW Tall Poppy Science Award, Oct 23, 2008.
- JG Russell award (\$4,000) from the Australian Academy of Science aimed at financially helping talented younger researchers in the basic sciences as a token of the community's regard for them.
- January 2008- January 2012, Australian Research Council Queen Elizabeth II Fellowship, An Investigation into Oceanic CO<sub>2</sub> Variability and its Influence on Atmospheric CO<sub>2</sub> Concentrations, \$610,000.
- November 2003- November 2006, Australian Research Council Australian Postdoctoral Fellowship Grant (CSIRO), B.I. McNeil, (P.I: Matthew England and C.I: Richard Matear), *Southern Ocean Anthropogenic CO<sub>2</sub> Uptake*, \$193,035.
- UNSW Goldstar Award (\$30 000) for both 2005 and 2006

### Recent Invited Presentations

- Prime Minister Science, Engineering and Innovation Council, Exciting Science Early Career Researcher, June 22, 2007
- International Expert Workshop, *Uranium, Security and the Environment*, Adelaide, June 7-8, 2007

- 7<sup>th</sup> International Carbon Dioxide Conference, Boulder, Colorado, September 25-30, 2005
- CSIRO Annual Climate Science Meeting, Melbourne, Aus, Oct 4, 2004
- Gordon Research Conference – Chemical Oceanography, Tilton, NH, USA, Aug 10-15, 2003

### Impact and Contributions to the Scientific Community

- Expert Reviewer for the Working Group I contribution to the IPCC Fourth Assessment Report, *Climate Change 2007: The Physical Science Basis*.
- Expert Reviewer for the Working Group II contribution to the IPCC Fourth Assessment Report, *Climate Change 2007: Impacts, Adaptation and Vulnerability*.
- Contributing Author to *Ocean Acidification Due to Increasing Atmospheric Carbon Dioxide*, The Royal Society Policy Document 12/05, London, UK.

*Scientific Journal Reviews:* • Science • Global Biogeochemical Cycles • Geophysical Research Letters • Deep-sea Research • Journal of Geophysical Research • Journal of Climate

### Scientific Communication and Community Outreach

- Research has been highlighted in *New Scientist*, *ABC science online*, *Sydney Morning Herald*, *The Age*, *Washington Times*, *Sun-Herald*, *Daily Telegraph*, *The Scotsman*, *Hindu Times*.
- Radio and TV interviews relating to climate change field for *CNN International*, *Sky News*, *SBS World News*, *Quantum (ABC)*, *BBC-radio*, *ABC World at Noon*, *ABC Radio National – Breakfast*, *2SM*.
- Keynote speaker, Australian Service Learning Conference, May 5, 2007, Climate Change Science and Impacts.

### Awards

- University of new South Wales, Goldstar Award, 2005 and 2006 (\$40 000 research funds)
- Nov 2003 to Nov 2006, Australian Research Council, Australian Linkage Postdoctoral Fellowship (CSIRO)
- April, 1997 to Jan, 2001 - Antarctic Co-operative Research Centre Ph.D scholarship
- Jan-April, 1997 - CSIRO Summer Exchange Scholarship, Hobart, Australia

- Dec, 1996 – Shell Student Award (top 2% of engineering school)