

CURRICULUM VITAE

Stéphanie M. Downes

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RESEARCH INTERESTS

I am interested in the formation and subduction of Southern Ocean water masses; upper ocean stratification and mixing processes; present and future large-scale ocean circulation; wind stress variations, and the Antarctic Circumpolar Current and associated regions.

ACADEMIC HISTORY

- Mar 2009 – Present: Senior Research Assistant
Program in Atmospheric and Oceanic Sciences, Princeton University, Princeton, NJ
- Feb 2005 – Present: Doctor of Philosophy (Physical Oceanography) and
Graduate Certificate in Marine Sciences
Supervisors: Prof. Nathaniel Bindoff, Dr Stephen Rintoul and Dr Jason Roberts
Joint University of Tasmania and CSIRO Marine and Atmospheric Research PhD Program
- Mar 2001 – Nov 2004: Bachelor of Advanced Science (Honours 1)
Major: Physical Oceanography/ Meteorology; Supervisor: Prof. Matthew England
University of New South Wales
- Summer 2003/2004 and 2004/2005: Research position (Vacation scholarship)
Physical oceanography research in climate models of intermediate complexity
School of Mathematics at the University of NSW, Australia
- 2000: Higher School Certificate (UAI: 93.05; at Marist Sisters' College, Australia)

PUBLICATIONS

Conference Abstracts and Proceedings

- Dupre, S. M. (2005) Impacts of latitude shifts in the Southern Ocean westerly winds on past and present climates. Australian Institute of Physics 16th Biennial Congress, Australian National University, Canberra, Jan 31 - Feb 4, 2005 (p. 84).
- Downes, S. M. (2005) An analysis of the impacts on overturning circulation in the Southern Ocean. ACE CRC 2005 Symposium, Hobart, Tasmania, Aug 30 - 31, 2005.
- Downes, S. M. and N. L. Bindoff (2005) An analysis of the impacts on overturning circulation in the Southern Ocean. Greenhouse 2005: Action on Climate Change Conference, Melbourne, Victoria, Nov 13 - 17, 2005 (p. 154).
- Downes, S. M. and N. L. Bindoff (2006) Climate impacts on Southern Ocean mode and intermediate water masses during the 21st Century. ACE CRC 2006 Symposium, Hobart, Tasmania, Aug 29 - 30, 2006.
- Downes, S. M., N. L. Bindoff and S. R. Rintoul (2007) Climate impacts on Southern Ocean water masses during the 21st Century. 14th National Australian Meteorological and Oceanographic Society Conference, Adelaide, South Australia, Feb 5 - 8, 2007.
- Downes, S. M., N. L. Bindoff and S. R. Rintoul (2007) Multi-model analysis of subduction in the Southern Ocean in response to climate change. Greenhouse 2007: The Latest Science & Technology Conference, Sydney, Oct 2 - 5, 2007 (p.125).

- Downes, S. M., N. L. Bindoff and S. R. Rintoul (2007) Multi-model analysis of subduction in the Southern Ocean in response to climate change. ACE CRC 2007 Symposium, Hobart, Tasmania, Nov 20 - 21, 2007.
- Downes, S. M., N. L. Bindoff and S. R. Rintoul (2008) Changes in the subduction of Southern Ocean water masses in ten IPCC models. ASLO Ocean Sciences Meeting, Orlando, Florida, Mar 2 - 7, 2008 (p. 118).
- Downes, S. M., N. L. Bindoff and S. R. Rintoul (2009) Multi-model analysis of the subduction and circulation of Southern Ocean upper limb water masses in the 21st century. 9th International Conference on Southern Hemisphere Meteorology & Oceanography, Melbourne, Australia, Feb 9 – 13, 2009.
- Downes, S. M., N. L. Bindoff and S. R. Rintoul (2009) The subduction of SAMW and AAIW in the 21st century. Climate Change Prediction Program, Bethesda, Maryland, April 7 – 9, 2009.

Journals

- Downes, S. M., N. L. Bindoff and S. R. Rintoul (2008) *Impacts of climate change on the subduction of mode and intermediate water masses in the Southern Ocean*. Accepted, Journal of Climate.
- Downes, S. M., N. L. Bindoff and S. R. Rintoul. *Southern Ocean water mass properties over the late 20th century in IPCC models*. In preparation.
- Downes, S. M., N. L. Bindoff and S. R. Rintoul. *Projected changes in the subduction and transport of SAMW and AAIW using IPCC models*. In preparation.

Theses

- Dupre, S. M. (2004) *Impacts of latitude shifts in the Southern Ocean Westerly Winds on past and present climates*. Honours Thesis, University of New South Wales, Sydney, Australia.
- Downes, S.M. (2008) *An analysis of the impacts of climate change on the Southern Ocean overturning circulation*. PhD Thesis, University of Tasmania, Hobart, Australia (Submitted)

PRESENTATIONS

- 2005 AIP 16th Biennial Congress, ANU, Canberra, Jan 31 - Feb 4, 2005.
- ACE CRC 2005 Symposium, Hobart, Tasmania, Aug 30 - 31, 2005.
- Greenhouse 2005: Action on Climate Change Conference, Melbourne, Nov 13 - 17, 2005.
- Tasmanian Polar Network Inc. General Meeting, Hobart, Tasmania, March 3, 2006.
- ACE CRC 2006 Symposium, Hobart, Tasmania, Aug 29 - 30, 2006.
- 14th National AMOS Conference, Adelaide, South Australia, Feb 5 - 8, 2007.
- Greenhouse 2007: The Latest Science & Technology Conference, Sydney, Oct 2 - 5, 2007.
- ACE CRC 2007 Symposium, Hobart, Tasmania, Nov 20 - 21, 2007.
- ASLO Ocean Sciences Meeting, Orlando, Florida, Mar 2 - 7, 2008.
- Tasmanian Polar Network Inc. General Meeting, Hobart, Tasmania, March 6, 2009.

EMPLOYMENT HISTORY

- Dec 2004 - Jan 2005: Research Consultant in the School of Education and Early Childhood Studies, University of Western Sydney, Bankstown Campus, Australia
(*Editing and updating research papers and databases*)
- May 2002 – Nov 2004: Private Tutor for Power Coaching College, Sydney
(*Private tutoring in secondary school Mathematics*)

COMPUTER SKILLS

I am proficient in both Linux/UNIX and Microsoft Windows environments, and have intermediate to advanced experience using Microsoft Office, LATEX and MATLAB software. I have basic knowledge of Fortran programming and Ferret software.

SHORT COURSES, WORKSHOPS and FORUMS

- Express Time Management (Headcoach, Australia), Hobart, Australia, Apr 20, 2005
- Commercialisation Boot Camp (Australian Institute for Commercialisation), ACE CRC, Hobart, Australia, Oct 10 - 11, 2005
- International Forum on the Sub-Antarctic, Hobart, Australia, July 6 - 7, 2006
- Ocean Surface Topography Science Team Meeting, Hobart, Australia, Mar 12 - 15, 2007
- Ocean models fundamentals course (Dr. Stephen Griffies, GFDL/NOAA), Hobart, Australia, Nov 12 - 16, 2007

AWARDS

- UNSW School of Mathematics Senior Undergraduate Scholarship (2003)
- UNSW School of Mathematics Vacation Scholarship (2003/2004 and 2004/2005)
- The John MacIntyre Honours Year Scholarship in Marine Science (2004)
- Best AMOS Student Presentation at the 16th AIP Congress (2005)
- Antarctic Tasmania Top-up Scholarship (2005 to Present)
- University of Tasmania Masters/PhD Scholarship (2005/2006)
- Joint UTAS-CSIRO PhD Scholarship (2007 to Present)

MEMBERSHIPS

- Australian Meteorological and Oceanographic Society
- Advancing the Science of Limnology and Oceanography Society
- Tasmanian University Union Taiko Society

REFEREES

- Prof. Nathaniel Bindoff [Email: N.Bindoff@utas.edu.au / Phone: +61 3 6226 2986]
Institute of Antarctic & Southern Ocean Studies, University of Tasmania
- Dr Stephen Rintoul [Email: Steve.Rintoul@csiro.au / Phone: +61 3 6232 5393]
CSIRO Marine and Atmospheric Research, Hobart
- Prof. Richard Coleman [Email: Richard.Coleman@utas.edu.au / Phone: +61 3 6226 2108]
School of Geography & Environmental Studies, University of Tasmania