

Stephanie Waterman

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The University of British Columbia

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PROFESSIONAL EXPERIENCE

- 2014 - present Assistant Professor, Department of Earth, Ocean & Atmospheric Sciences
The University of British Columbia, Vancouver, Canada
- 2014 - present Adjunct Lecturer, Climate Change Research Centre
The University of New South Wales, Sydney, Australia
- 2012 - 2013 Research Fellow, Climate Change Research Centre
The University of New South Wales, Sydney, Australia
- 2009 - 2012 Research Fellow, School of Ocean and Earth Science
National Oceanography Centre, Southampton, UK
- 2009 - 2012 Research Associate, Grantham Institute for Climate Change
Imperial College London, London, UK

EDUCATION

- 2009 Ph.D., Physical Oceanography
Massachusetts Institute of Technology (MIT), Cambridge, USA &
Woods Hole Oceanographic Institution (WHOI), Woods Hole, USA
Thesis title: *Eddy-mean flow interactions in western boundary current jets*
Advisors: Nelson G. Hogg & Steven R. Jayne
- 2002 M.Sc., Aeronautics
California Institute of Technology (Caltech), Pasadena, USA
- 2001 B.Sc., Engineering Physics
Queen's University, Kingston, Canada
Thesis title: *Fluid flow control via the excitation of the small-scale structure of turbulence*
Advisor: Andrew R. Pollard

AWARDS AND HONORS

- 2015 Ruth and Paul Fye Award for Excellence in Oceanographic Research (Woods Hole Oceanographic Institution Best Graduate Student Paper Award in 2010-2015)
- 2015 Alfred P. Sloan Research Fellowship in Ocean Sciences
- 2012 Australian Research Council Discovery Early Career Researcher Award
- 2011 Royal Society/Centre National de la Recherche Scientifique International Exchanges Award
- 2010 Editors' Citation for Excellence in Refereeing for Geophysical Research Letters
- 2008 Graduate Student Council Teaching Award for the School of Science, MIT
- 2008 American Geophysical Union Outstanding Student Talk Award
- 2006 American Geophysical Union Outstanding Student Paper Award
- 2003 Presidential Fellowship, MIT
- 2001 Russel R. Vought Fellowship, Caltech
- 2001 National Science and Engineering Research Council of Canada Undergraduate Research Award
- 1999 National Science and Engineering Research Council of Canada Undergraduate Research Award

RESEARCH INTERESTS

- Observational & theoretical physical oceanography
- Arctic oceanography, in particular lateral & vertical mixing and their role in shelf-basin exchange
- Southern ocean dynamics, in particular the role of mesoscale & sub-mesoscale processes
- Western boundary current jets & their recirculation gyres, in particular the role of eddy fluxes in these systems
- Geophysical fluid dynamics, in particular jets, eddies & scale interactions

FUNDED RESEARCH GRANTS

- 2014 - 2019 National Science and Engineering Research Council of Canada Discovery Grant “Mixing, dissipation and scale interactions in the oceanic circulation from an integrated theoretical and observational perspective” (110K CAD, sole PI)
- 2014 Canada Foundation for Innovation John R. Evans Leaders Fund & B.C. Knowledge Development Fund “Multi-scale measurements from an autonomous ocean observing system in the Canadian Arctic” (296K CAD, sole PI)
- 2013 - 2018 National Science and Engineering Research Council of Canada Climate Change & Atmospheric Research grant “The Canadian Arctic GEOTRACES Program: Biogeochemical and tracer study of a rapidly changing Arctic Ocean” (1000K CAD, co-I)
- 2012 - 2014 Australian Research Council Discovery Early Career Researcher Award “Ingredients of the eddy soup in Southern Ocean dynamics: Processes, climate impacts and parameterization” (375K AUD, sole PI)
- 2012 - 2013 Royal Society/Centre National de la Recherche Scientifique International Exchanges program “Toward a model representation of the role of lee waves in ocean circulation” (11K GBP, co-I)
- 2008 - 2009 United States National Science Foundation Physical Oceanography program “Eddy-mean flow interactions in the Kuroshio Extension” (50K USD, co-I)

PUBLICATIONS

(KEY: my authorship underlined; supervised student/postdoc author denoted by *)

REFEREED PUBLICATIONS

- [21] Trossman, D. S., S. Waterman, K. L. Polzin, B. K. Arbic, S. T. Garner, A. C. Naveira-Garabato, and K. L. Sheen (2015). Internal lee wave closures: Parameter sensitivity and comparison to observations, *J. Geophys. Res. Oceans*, 120 (doi:10.1002/2015JC010892).
- [20] van Sebille, E., S. Waterman, *A. Barthel, R. Lumpkin, S. R. Keating, C. Fogwill and C. Turney (2015). Pairwise surface drifter separation in the western Pacific sector of the Southern Ocean. *J. Geophys. Res. Oceans*, 120, 6769-6781 (doi:10.1002/2015JC010972).
- [19] *Stewart, K. D., P. Spence, S. Waterman, J. Le Sommer, J.-M. Molines, J. M. Lilly and M. H. England (2015). Anisotropy of eddy variability in the global ocean. *Ocean Modelling*, 95, 53-65 (doi:10.1016/j.ocemod.2015.09.005).
- [18] Sheen, K. L., J. A. Brearley, A. C. Naveira Garabato, D. A. Smeed, L. St. Laurent, M. P. Meredith, A. M. Thurnherr and S. Waterman (2015). Modification of turbulent dissipation rates by a deep Southern Ocean eddy. *Geophys. Res. Lett.*, 42, 3450-3457 (doi:10.1002/2015GL063216).
- [17] Forryan, A. A. C. Naveira Garabato, K. L. Polzin and S. Waterman (2015). Rapid injection of near-inertial shear into the stratified upper ocean at an Antarctic Circumpolar Current front. *Geophys. Res. Lett.*, 42, 3431-3441 (doi:10.1002/2015GL063494).
- [16] Waterman, S. and J. M. Lilly (2015). Geometric decomposition of eddy feedbacks in barotropic systems. *J. Phys. Oceanogr.*, 45, 1009–1024 (doi: 10.1175/JPO-D-14-0177.1).
- [15] *Howard, E., A. McC. Hogg, S. Waterman and D. P. Marshall (2015). The injection of zonal momentum by buoyancy forcing in a Southern Ocean model. *J. Phys. Oceanogr.*, 45, 259-271 (doi:10.1175/JPO-D-14-0098.1).
- [14] Sheen, K. L., A. C. Naveira Garabato, J. A. Brearley, M. P. Meredith, K. L. Polzin, D. A. Smeed, A. Forryan, B. A. King, J. B. Sallee, L. St. Laurent, J. R. Ledwell, A. M. Thurnherr, J. M. Toole, S. Waterman and A. J. Watson (2014). Eddy-induced variability in Southern Ocean abyssal mixing on climatic time scales. *Nature Geosciences*, 7, 577-582 (doi: 10.1038/ngeo2200).
- [13] Waterhouse, A. F., J. A. MacKinnon, J. D. Nash, M. H. Alford, E. Kunze, H. L. Simmons, K. L. Polzin, L. C. St. Laurent, O. Sun, R. Pinkel, L. D. Talley, C. B. Whalen, T. N. Huussen, G. S. Carter, I. Fer, S. Waterman, A. C. Naveira Garabato, T. Sanford, C. Lee (2014). Global patterns of diapycnal mixing from measurements of the turbulent dissipation rate. *J. Phys. Oceanogr.*, 44, 1854-1871 (doi: 10.1175/JPO-D-13-0104.1).
- [12] Waterman, S., K. L. Polzin, A. C. Naveira Garabato, K. L. Sheen and A. Forryan (2014). Suppression of internal wave breaking in the Antarctic Circumpolar Current near topography. *J. Phys. Oceanogr.*, 44, (5), 1466-1492 (doi: 10.1175/JPO-D-12-0154.1).
- [11] Polzin, K. L., A. C. Naveira Garabato, T. H. Huussen, B. M. Sloyan, and S. Waterman (2014). Finescale parameterizations of turbulent dissipation. *J. Geophys. Res. Oceans*, 119, (2), 1383-1419 (doi: 10.1002/2013JC008979).

- [10] Brearley, J. A., K. L. Sheen, A. C. Naveira Garabato, D. A. Smeed, K. L. Speer, A. M. Thurnherr, M. P. Meredith and S. Waterman (2014). Deep boundary current disintegration in Drake Passage. *Geophys. Res. Lett.*, 41, (1), 121-127 (doi: 10.1002/2013GL058617).
- [9] Brearley, J. A., K. L. Sheen, A. C. Naveira Garabato, D. A. Smeed, and S. Waterman (2013). Eddy-induced modulation of turbulent dissipation over rough topography in the Southern Ocean. *J. Phys. Oceanogr.*, 43, (11), 2288-2308 (doi: 10.1175/JPO-D-12-0222.1).
- [8] Waterman, S. and B. J. Hoskins (2013). Eddy shape, orientation, propagation and mean flow feedback in western boundary current jets. *J. Phys. Oceanogr.*, 43, (8), 259-282 (doi: 10.1175/JPO-D-12-0152.1).
- [7] Sheen, K. L., J. A. Brearley, A. C. Naveira Garabato, S. Waterman, D. A. Smeed, J. R. Ledwell, M. P. Meredith, L. St. Laurent, A. M. Thurnherr, J. M. Toole, and A. J. Watson (2013). Rates and mechanisms of turbulent dissipation and mixing in the Southern Ocean: Results from the Diapycnal and Isopycnal Mixing Experiment in the Southern Ocean (DIMES). *J. Geophys. Res. Oceans*, 118, (6), 2774-2792 (doi: 10.1002/jgrc.20217).
- [6] Waterman, S., A. C. Naveira Garabato and K. L. Polzin (2013). Internal waves and turbulence in the Antarctic Circumpolar Current. *J. Phys. Oceanogr.*, 43, (2), 259-282 (doi: 10.1175/JPO-D-11-0194.1).
- [5] Waterman, S. and S. R. Jayne (2012). Eddy-driven recirculations from a localized, transient forcing. *J. Phys. Oceanogr.*, 42, (3), 430-447 (doi: 10.1175/JPO-D-11-060.1).
- [4] Waterman, S., N. G. Hogg and S. R. Jayne (2011). Eddy-mean flow interaction in the Kuroshio Extension region. *J. Phys. Oceanogr.*, 41, (6), 1182-1208 (doi: 10.1175/2010JPO4564.1).
- [3] Waterman, S. and S. R. Jayne (2011). Eddy-mean flow interactions in the along-stream development of a western boundary current jet: An idealized model study. *J. Phys. Oceanogr.*, 41, (4), 682-707 (doi: 10.1175/2010JPO4477.1).
- [2] Jayne, S., N. Hogg, S. Waterman, L. Rainville, K. Donohue, D. Watts, K. Tracey, J. McClean, M. Maltrud, B. Qiu, S. Chen, and P. Hacker (2009). The Kuroshio Extension and its recirculation gyres. *Deep Sea Research I*, 56, (12), 2088-2099 (doi: 10.1016/j.dsr.2009.08.006).
- [1] Joyce, T. M., J. Dunworth-Baker, R. S. Pickart, D. Torres and S. Waterman (2005). On the Deep Western Boundary Current south of Cape Cod. *Deep Sea Research II*, 52, (3-4), 615-625 (doi: 10.1016/j.dsr2.2004.12.013).

NON-REFEREED PUBLICATIONS

- [NR2] Waterman, S. N. (2009). Eddy-mean flow interactions in western boundary current jets. *Ph.D. Thesis, MIT-WHOI Joint Program in Oceanography*.
- [NR1] Hebert, D., B. Ruddick, J. R. Saylor and S. Waterman (2000). Differential mixing of salt and heat by breaking internal waves. *Eos Transactions of the American Geophysical Union*, 81, (48), 724.

CONFERENCE PROCEEDINGS

- [CP12] Turney, C. et al. Pronounced warming in the Indian and Pacific sectors of the Southern Ocean during the 1970s. *Geophysical Research Abstracts*, 17, Abstract EGU2015-2568.
- [CP11] Waterman, S., A. C. Naveira Garabato and K. L. Polzin (2012). The Southern Ocean FINEstructure project: Turbulent dissipation and mixing rates and mechanisms in a Southern Ocean mixing hotspot. *Geophysical Research Abstracts*, 14, Abstract EGU2012-8059 (**Invited**).
- [CP10] Waterman, S. N., A. C. Naveira Garabato and K. L. Polzin (2010). The Southern Ocean Fine Structure Project: Turbulent dissipation rates and mechanisms in a mixing hotspot. *Eos Trans. AGU*, 91, (26), Ocean Sci. Meet. Suppl., Abstract PO35K-11.
- [CP9] Waterman, S. N., S. R. Jayne and N. G. Hogg (2008). Eddy-mean flow interactions in western boundary current jets. *Geophysical Research Abstracts*, 10, Abstract EGU2008-A-00550.
- [CP8] Waterman, S. N., and N. Hogg (2006). Low-frequency motions in the Kuroshio region and their relation to simple dynamical models. *Eos Trans. AGU*, 87, (52), Fall Meet. Suppl., Abstract OS11B-1484.
- [CP7] Jayne, S. R., N. G. Hogg, L. Rainville and S. N. Waterman (2006). Low frequency variability of the deep ocean below western mid-latitude jets: New data from the Kuroshio Extension. *Eos Trans. AGU*, 87, (36), Ocean Sci. Meet. Suppl., Abstract OS54B-03.
- [CP6] Rainville, L., S. Jayne, N. Hogg and S. Waterman (2006). Upper ocean observations from moorings across the Kuroshio Extension during KESS. *Eos Trans. AGU*, 87, (36), Ocean Sci. Meet. Suppl., Abstract OS53E-02.

- [CP5] Waterman, S. N. and S. R. Jayne (2006). Zonal jet and recirculation gyres from the rectification of localized oscillatory forcing: A laboratory, numerical and theoretical study. *Eos Trans. AGU*, 87, (36), Ocean Sci. Meet. Suppl., Abstract OS45L-03.
- [CP4] McIlwain, S., T. Holme, S. Waterman and A. Pollard (2002). Effects of single, dual and quadruple tabs on the near field of round jets. *Proceedings, IUTAM Symposium on Turbulent Mixing and Combustion*, Kluwer Academic Pub., Pollard and Candel (eds.), 377-385.
- [CP3] Waterman, S., T. Holme, S. McIlwain and A. Pollard (2002). Investigation of various structure identification methods and the effects of tabs on the near field of round jets. *Proceedings of FEDSM02, 2002 ASME Fluids Engineering Division Summer Meeting*, Montreal, July 2002.
- [CP2] Ruddick, B., J. R. Saylor and S. Waterman (2001). Differential mixing of salt and heat by breaking internal waves. *Oceanography*, 14, (1), 47.
- [CP1] Hebert, D., B. Ruddick, J. R. Saylor and S. Waterman (2000). Differential mixing of salt and heat by breaking internal waves. *Eos Trans. AGU*, 81, (48), Fall Meet. Suppl., Abstract OS12C-02.

SELECT CONFERENCE PRESENTATIONS

(KEY: my authorship underlined; supervised student/postdoc author denoted by *)

- 2015 *Chanona, M., S. Waterman and Y. Gratton. Spatial and temporal variability of small-scale energy and inferred internal-wave driven mixing in the Canadian Arctic. ArcticNet Annual Scientific Meeting 2015, Vancouver Canada.
- 2015 *Scheifele, B., S. Waterman, J. Carpenter and L. Merckelbach. Estimating Mixing Rates and Turbulence from Glider-based Microstructure Measurements in the Beaufort Sea. ArcticNet Annual Scientific Meeting 2015, Vancouver Canada.
- 2015 *Thibault, J.-L., S. Waterman and P. Meyers. Toward the role of diapycnal mixing on shelf-basin exchange in the Arctic Ocean in a Numerical Model. ArcticNet Annual Scientific Meeting 2015, Vancouver Canada.
- 2015 *Barthel, A., S. Waterman and A. Hogg. Jet-topography effects on horizontal eddy mixing in the Southern Ocean. 26th IUGG General Assembly 2015, Prague CZ.
- 2015 *Stewart, K., J. Le Sommer, S. Waterman, P. Spence, J. M. Molines and M. England. The anisotropy of ocean eddies. 26th IUGG General Assembly 2015, Prague CZ.
- 2015 Waterman, S. and J. Lilly. A geometric decomposition of eddy-mean flow interactions. 26th IUGG General Assembly 2015, Prague CZ.
- 2015 *Stewart, K. D., S. Waterman, P. Spence, J. Le Sommer, J. M. Molines and M. H. England. Anisotropy of Ocean Eddies. *20th Conference on Atmospheric and Oceanic Fluid Dynamics*, Minneapolis USA.
- 2015 *Scheifele, B., S. Waterman and J. Carpenter. Glider deployments to measure microstructure on the Beaufort Sea Continental Shelf, Summer 2015. *49th CMOS Congress*, Whistler Canada.
- 2015 Waterman, S. and J. M. Lilly. A geometric decomposition of eddy-mean flow interactions. *49th CMOS Congress*, Whistler Canada.
- 2015 Waterman, S., K. Sheen, A. C. Naveira Garabato and K. Polzin. Rates and mechanisms of turbulent dissipation and mixing in the Southern Ocean. *49th CMOS Congress*, Whistler Canada (**Invited**).
- 2014 *Barthel, A., S. Waterman and A. Hogg. Jet-topography effects on horizontal eddy mixing in the Southern Ocean. *AGU Fall Meeting*, San Francisco USA.
- 2014 Waterman, S. and J. M. Lilly. Ingredients of the eddy soup: A geometric decomposition of eddy-mean flow interactions. *AGU Fall Meeting*, San Francisco USA (**Invited**).
- 2014 Klymak, J. M., S. Allen, R. Dewey, S. Waterman and R. Pawlolicz. Evidence for cross-shelf exchange catalyzed by a coastal canyon. *48th CMOS Congress*, Rimouski Canada.
- 2014 Waterman, S. and J. M. Lilly. The geometric ingredients of eddy-mean flow feedbacks. *48th CMOS Congress*, Rimouski Canada.
- 2014 Lilly, J. M., S. C. Olhede, A. M. Sykulski, S. Elipot and S. Waterman. New directions in oceanographic time series analysis. *2014 Ocean Sciences Meeting*, Honolulu USA.
- 2014 *Barthel, A., S. Waterman and A. Hogg. Jet-topography effects on eddy stirring in the Southern Ocean. *2014 Ocean Sciences Meeting*, Honolulu USA.
- 2014 Waterman, S. and J. M. Lilly. Geometric ingredients of eddy-mean flow feedbacks, and a time-varying extension. *2014 Ocean Sciences Meeting*, Honolulu USA.
- 2014 *Barthel, A., S. Waterman and A. Hogg. Jet-topography effects on eddy stirring in the Southern Ocean. *AMOS National Conference 2014*, Hobart Australia.
- 2014 Waterman, S. and J. M. Lilly. Geometric ingredients of eddy-mean flow feedbacks, and a time-varying extension. *AMOS National Conference 2014*, Hobart Australia.
- 2013 Brearley, A. J., K. L. Sheen, A. C. Naveira Garabato, D. A. Smeed and S. Waterman. Eddy-induced modulation of turbulent dissipation over rough topography: First year results from the DIMES mooring array. *IAHS - IAPSO - IASPEI Joint Assembly*, Gothenburg Sweden.

- 2013 Sheen, K. L., A. J. Brearley, A. C. Naveira Garabato, D. A. Smeed and S. Waterman. Rates and mechanisms of turbulent dissipation and mixing in the Southern Ocean: Results from the DIMES experiment. *IAHS - IAPSO - IASPEI Joint Assembly*, Gothenburg Sweden.
- 2013 Forryan, A., A. C. Naveira Garabato, K. L. Polzin and S. Waterman. Rapid injection of near-inertial kinetic energy into the stratified upper ocean at an Antarctic Circumpolar Current front. *IAHS - IAPSO - IASPEI Joint Assembly*, Gothenburg Sweden.
- 2013 Brearley, J. A., K. L. Sheen, A. C. Naveira Garabato, D. A. Smeed and S. Waterman. Eddies, internal waves & turbulent mixing: Results from the Diapycnal and Isopycnal Mixing Experiment in the Southern Ocean. *33rd CNLS Annual Conference: Ocean Turbulence*, Santa Fe USA.
- 2013 Waterman, S. and J. M. Lilly. Instantaneous covariance analysis of eddy variability in an unstable jet: A demonstration of concept. *33rd CNLS Annual Conference: Ocean Turbulence*, Santa Fe USA. **(Invited)**
- 2013 Waterman, S., A. C. Naveira Garabato and K. L. Polzin. Internal waves and turbulence in the Antarctic Circumpolar Current: Thought-provoking results from the Southern Ocean FINEstructure project. *AMOS National Conference 2013*, Melbourne Australia.
- 2012 Naveira Garabato, A. C., A. J. Brearley, K. L. Sheen and S. Waterman. From mesoscale eddies to small-scale turbulence in the Antarctic Circumpolar Current. *2012 AGU Fall Meeting*, San Francisco USA. **(Invited)**
- 2012 Naveira Garabato, A. C., S. Waterman, K. L. Polzin and B. M. Sloyan. Internal waves and turbulence in the Antarctic Circumpolar Current. *International Polar Year 2012 Conference*, Montreal Canada. **(Invited)**
- 2012 Sheen, K. L., J. A. Brearley, A. C. Naveira Garabato, D. A. Smeed and S. N. Waterman. Investigating turbulent mixing rates and the internal wave field in the Southern Ocean: Microstructure and finestructure data from DIMES. *International Polar Year 2012 Conference*, Montreal Canada.
- 2012 Brearley, J. A., K. L. Sheen, A. C. Naveira Garabato, D. A. Smeed and S. Waterman. First year observations of Antarctic Circumpolar Current variability and internal wave activity from the DIMES Mooring Array. *International Polar Year 2012 Conference*, Montreal Canada.
- 2012 Waterman, S., A. C. Naveira Garabato and K. L. Polzin. Observations of internal waves and turbulence in the Antarctic Circumpolar Current. *2012 Ocean Sciences Meeting*, Salt Lake City USA.
- 2011 Waterman, S., A. C. Naveira Garabato and K. L. Polzin. Internal waves and turbulence in the Antarctic Circumpolar Current. *Balance, Boundaries and Mixing in the Climate System Workshop*, Montreal Canada.
- 2011 Waterman, S., A. C. Naveira Garabato, K. L. Polzin and A. Meyer. Internal wave evolution in the Antarctic Circumpolar Current: Lessons learned from 3D ray tracing. *Challenger Society Ocean Modeling Meeting*, Reading UK.
- 2011 Naveira Garabato, A. C., S. Waterman and K. L. Polzin. Rates and mechanisms of turbulent dissipation in the Antarctic Circumpolar Current. *IUGG General Assembly*, Melbourne Australia.
- 2011 Waterman, S., A. C. Naveira Garabato and K. L. Polzin. Turbulent dissipation rates in the Southern Ocean: Lessons learned from observations in a mixing hot spot. *AMS 18th Conference on Atmospheric and Oceanic Fluid Dynamics*, Spokane USA.
- 2010 Waterman, S. Resolving the ocean mixing problem: Progress through observations. *UK-Australia Frontiers of Science Meeting*, Perth Australia. **(Invited)**
- 2010 Waterman, S. and B. J. Hoskins. Eddy-mean flow interactions in western boundary current jets: A new perspective based on eddy shape and propagation. *Challenger Society Ocean Modeling Meeting*, Southampton UK.
- 2010 *Conchon, A., S. Waterman and A. C. Naveira Garabato. Jet-topography interactions in leaky Southern Ocean jets. *14th Biennial Challenger Society Conference for Marine Science*, Southampton UK.
- 2010 Waterman, S., A. C. Naveira Garabato and K. L. Polzin. The Southern Ocean FINEstructure project: Turbulent dissipation and mixing rates and mechanisms in a mixing hotspot. *14th Biennial Challenger Society Conference for Marine Science*, Southampton UK.
- 2010 Naveira Garabato, A., S. Waterman and K. Polzin. The Southern Ocean FINEstructure project: Turbulent dissipation and mixing rates and mechanisms in a mixing hotspot. *International Polar Year: Oslo Science Conference*, Oslo Norway.
- 2009 Waterman, S., A. Naveira Garabato, A. Thompson and C. Wilson. Leaky ACC jets. *Challenger Society Ocean Modeling Meeting*, Oxford UK.
- 2009 Naveira Garabato, A., S. Waterman, K. Polzin, H. Phillips, N. Bindoff, M. Broadbridge, G. Damerell, A. Forryan, A. Meyer, B. Sloyan, and D. Stevens. The Southern Ocean Finestructure (SOFINE) project. *IAMAS - IAPSO - IACS Joint Assembly*, Montreal Canada.
- 2009 Waterman, S. N., S. R. Jayne and N. G. Hogg. Eddy-mean flow interactions in western boundary current jets: Theory and observations. *AMS 17th Conference on Atmospheric and Oceanic Fluid Dynamics*, Stowe USA.
- 2009 Waterman, S. N., S. R. Jayne and N. G. Hogg. Eddy-mean flow interactions in western boundary current jets. *CLIVAR WGOMD Workshop on Ocean Mesoscale Eddies*, Exeter UK.
- 2008 Waterman, S. N., S. R. Jayne and N. G. Hogg. Eddy-mean flow interactions in western boundary current jets. *2008 Ocean Sciences Meeting*, Orlando USA. **(Winner of AGU Outstanding Student Talk Award)**
- 2008 Jayne, S. R., N. G. Hogg, L. Rainville, S. N. Waterman, K. A. Donohue, D. R. Watts, J. L. McClean, M. E. Maltrud, B. Qiu and P. Hacker. Recirculation in the Kuroshio Extension. *2008 Ocean Sciences Meeting*, Orlando USA.
- 2007 Waterman, S. and S. Jayne. Eddy-mean flow interactions in western boundary current jets. *AMS 16th Conference on Atmospheric and Oceanic Fluid Dynamics*, Santa Fe USA.

- 2006 Waterman, S. N. and S. R. Jayne. Zonal jets from the rectification of localized oscillatory forcing. *2006 Ocean Sciences Meeting*, Honolulu USA. **(Winner of AGU Outstanding Student Paper Award)**
- 2006 Waterman, S. N. and S. R. Jayne. Zonal jet and recirculation gyres from the rectification of localized oscillatory forcing. *Chapman Conference on Jets and Annular Structures in Geophysical Fluids*, Savannah USA.
- 2005 Waterman, S. N. and S. R. Jayne. Recirculation gyres from the rectification of localized, oscillatory forcing. *Meeting on Eddies and Ocean Circulation*, Cambridge USA. **(Invited)**
- 2005 Waterman, S. N. and S. R. Jayne. Rectification of localized oscillatory forcing. *NCAR Geophysical Turbulence Program Workshop on Coherent Structures*, Boulder USA.
- 2001 Ruddick, B., D. Hebert, J. R. Saylor and S. Waterman. Differential mixing of salt and heat by breaking internal waves. *Oceanography Society Biennial Scientific Meeting*, Miami USA.

SELECT SEMINARS AND OTHER INVITED PRESENTATIONS

- 2015 Physical Oceanography and Climate Seminar, National Oceanography Centre, Southampton UK
- 2015 Oceanography and Climate Sack Lunch Seminar, Massachusetts Institute of Technology, Boston USA
- 2014 Physical Oceanography Seminar, University of British Columbia, Vancouver Canada
- 2013 ARC Centre of Excellence for Climate System Science Annual Workshop, Lorne Australia **(keynote address)**
- 2013 Department of Earth & Planetary Sciences Departmental Seminar, Weizmann Institute of Science, Rehovot Israel
- 2013 School of Oceanography Physical Oceanography Seminar, University of Washington, Seattle USA
- 2013 Institute for Marine & Antarctic Studies Departmental Seminar, University of Tasmania, Hobart Australia
- 2013 Research School of Earth Sciences Departmental Seminar, The Australian National University, Canberra Australia
- 2012 Atmosphere, Ocean & Climate Seminar Series, University of East Anglia, Norwich UK
- 2012 Physical Oceanography & Climate Seminars, Bangor University, Bangor UK
- 2012 Earth, Ocean & Atmospheric Sciences Departmental Seminar, University of British Columbia, Vancouver Canada
- 2012 Climate Change Research Centre Seminar Series, University of New South Wales, Sydney Australia
- 2011 Physical Oceanography and Climate Seminars, National Oceanography Centre, Southampton UK
- 2011 Applied Mathematics & Mathematical Physics Seminars, Imperial College London, London UK
- 2011 School of Oceanography Physical Oceanography Seminar, University of Washington, Seattle USA
- 2011 NorthWest Research Associates, Seattle USA
- 2011 Atmospheric, Oceanic & Planetary Physics Seminar, Oxford University, Oxford UK
- 2010 Climate Change Research Centre Seminar Series, University of New South Wales, Sydney Australia
- 2010 Physical Oceanography Seminar, British Antarctic Survey, Cambridge UK
- 2010 Atmospheric & Oceanic Sciences Departmental Seminar, McGill University, Montreal Canada
- 2010 CSIRO Marine and Atmospheric Research, Hobart Australia
- 2009 Ocean Science Seminar Series, Proudman Oceanographic Laboratory, Liverpool UK
- 2009 Environmental Science & Engineering Seminar Series, California Institute of Technology, Pasadena USA
- 2009 Graduate School of Oceanography Physical Oceanography Seminar, University of Rhode Island, Narragansett USA
- 2008 Space & Atmospheric Physics Seminar, Imperial College London, London UK
- 2008 Program in Atmospheres, Oceans and Climate Sack Lunch Seminar Series, Massachusetts Institute of Technology, Boston USA
- 2008 Applied Modeling & Computation Group Seminar Series, Imperial College London, London UK

TEACHING EXPERIENCE

- 2015 **EOSC 112: The Fluid Earth**, Department of Earth, Ocean & Atmospheric Sciences, *University of British Columbia*
- 2014 - 2015 **EOSC 473/573: Oceanographic Methods**, Department of Earth, Ocean & Atmospheric Sciences, *University of British Columbia* (Co-Instructor)
- 2013 **MSCI 3001: Physical Oceanography & MSCI 5004: Oceanographic Processes**, School of Biological, Earth & Environmental Sciences, *University of New South Wales* (Guest Lecturer)
- 2013 **ARCCSS Climate Science Winter School on Climate Modeling** (Lecturer & Demonstrator)

- 2011 - 2012 **SOES 2010: Physical Oceanography II & SOES 3042: Computational Data Analysis for Geophysicists & Ocean Scientists**, School of Ocean & Earth Science, *University of Southampton* (Guest Lecturer)
- 2007 - 2008 **12.800: Fluid Dynamics of Oceans & Atmospheres**, Program In Atmospheres, Oceans & Climate, *Massachusetts Institute of Technology* (Teaching Assistant)
- 2002 - 2003 Teacher of English as a foreign language, *EOS English Language School*, Suwon South Korea

STUDENT SUPERVISION

- Undergraduate** Emma Howard, *Australian National University*, 2013
Thesis title: *Sources of momentum in the Southern Ocean*
- M. Sc./M. Eng.** Melanie Chanona, *University of British Columbia*, 2015 - present
Project topic: *Spatial and temporal variability of small-scale energy and inferred internal-wave driven mixing in the Canadian Arctic*
- Jacquie-Lee Thibault, *University of British Columbia*, 2015 - present
Project topic: *The role of diapycnal mixing on shelf-basin exchange in the Arctic Ocean in a numerical model*
- Andrew Gravelle, *University of Southampton*, 2011-2012
Thesis title: *Ray tracing observed internal waves in the Southern Ocean*
- Anna Conchon, *École Nationale Supérieure de Techniques Avancées*, 2010
Project title: *Jet-topography interactions in leaky Southern Ocean jets*
- Ph.D.** Ben Scheifele, *University of British Columbia*, 2014 - present
Thesis topic: *Shelf-basin exchange processes along the Canadian Arctic coastline*
- Alice Barthel, *University of New South Wales*, 2013 - present
Thesis topic: *Southern Ocean eddy mixing: The effects of jet-topography interactions*
- Postdoctoral** Kial Stewart, *University of New South Wales*, 2014 - 2015
Project topic: *Eddy geometry and mean flow feedback as a function of model resolution*

FIELD EXPERIENCE

- 2015 **Canadian Arctic GEOTRACES Programme**, *CCGS Amundsen* (organizer of the glider program; shore-side support for a Ocean Microstructure Glider deployment in the Amundsen Gulf)
- 2013 - 2014 **Australasian Antarctic Expedition**, *Akademik Shokalskiy* (co-leader of the "Blue Oceanography" science program overseeing float & drifter deployments and XBT surveys across the Polar Front in the Southern Ocean)
- 2013 **Open Ocean to the Inner Sea**, *RV Falkor* (co-investigator overseeing MVP, CTD & ADCP surveys to investigate shelf-basin exchange on the North Pacific coast)
- 2010 - 2011 **Diapycnal & Isopycnal Mixing Experiment in the Southern Ocean (DIMES)**, *RRS James Cook* (watch leader overseeing mooring operations and microstructure, CTD/LADCP & tracer surveys in Drake Passage in the Southern Ocean on the UK2 cruise)
- 2008 **Southern Ocean Finestructure (SOFine)**, *RRS James Cook* (watch leader overseeing mooring operations and microstructure & CTD/LADCP surveys on the Kerguelen Plateau in the Southern Ocean)
- 2006 **Kuroshio Extension System Study (KESS)**, *RV Melville* (participated in mooring operations and XBT & CTD/LADCP surveys in the Northeastern Pacific on the KESS mooring recovery cruise)
- 2006 **CLIVAR MOde Water Dynamic Experiment (CLIMODE)**, *RV Atlantis* (participated in AFIS/FILIS trials and CTD/LADCP surveys in the North Atlantic in winter)
- 2004 **Kuroshio Extension System Study (KESS)**, *RV Thompson* (participated in mooring and weather buoy operations and profiling floats deployments in the Northeastern Pacific on the KESS mooring deployment cruise)

OTHER ACTIVITIES

Member	Canadian Meteorological and Oceanographic Society Australian Meteorological and Oceanographic Society European Geosciences Union Challenger Society for Marine Science American Geophysical Union American Meteorological Society Association of Polar Early Career Scientists
Reviewer	Nature Geosciences Journal of Physical Oceanography Ocean Modelling Journal of Climate Journal of Fluid Mechanics Geophysical Research Letters Journal of Geophysical Research Deep Sea Research Journal of Marine Research Journal of Atmospheric & Oceanic Technology Biogeosciences National Science Foundation Australian Research Council
Convener	Mesoscale and submesoscale processes, 2016 Ocean Sciences Meeting Oceanic Boundary Current Systems, 26th IUGG General Assembly 2015 Advances in Flow-Topography Interactions, 2012 Ocean Sciences Meeting
Representative	WHOI Educational Assembly & the MIT-WHOI Joint Committee on Oceanography ARC Centre of Excellence for Climate System Science (Associate Investigator)
Outreach	NSF MPOWIR (Mentoring Physical Oceanography Women to Increase Retention) ESWN (Earth Science Women's Network) KEYs (Keys to Empowering Youth) Public outreach volunteer with Imperial College & the Natural History Museum London

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