Wilbert Weijer

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BACKGROUND

Nationality: American.

PUBLICATION STATISTICS

34 publications in peer reviewed literature; H-factor: 12 (ResearcherID; 9/23/2015)

POSITIONS HELD

2006-present Scientist 3, Los Alamos National Laboratory, Los Alamos, NM.
2009-present Research Scientist, the New Mexico Consortium, Los Alamos, NM.
2003-2005 Postdoc, Scripps Institution of Oceanography, La Jolla, CA.
1999-2002 Postdoc, Institute for Marine and Atmospheric Research Utrecht (IMAU) Utrecht, the Netherlands.

EDUCATION

2000 Ph.D., Utrecht University, Utrecht, the Netherlands (Physical Oceanography).
1995 M.Sc., Utrecht University, Utrecht, the Netherlands (Geophysics; *cum laude*).
1994 M.Sc., Utrecht University, Utrecht, the Netherlands (Physical Oceanography; *cum laude).*
1990 B.Sc., Utrecht University, Utrecht, the Netherlands (Geophysics; with honors).

RESEARCH INTERESTS

- Variability and stability of the Atlantic Meridional Overturning Circulation
- Agulhas Leakage and global impacts
- Topographically trapped barotropic variability
- Pacific Decadal Variability
- Dynamics of the Southern Ocean
- Sediment transport and the Zapiola Rise

PUBLICATIONS IN REFEREED JOURNALS

Weijer, W., M. E. Maltrud, W. B. Homoky, K. L. Polzin, and L. R. M. Maas, 2015: Eddy-driven sediment transport in the Argentine Basin: is the height of the Zapiola Rise hydrodynamically controlled? Journal of Geophysical Research Oceans, **120**, doi: 10.1002/2014JC010573.

Downes, S. M., **W. Weijer**, N. Jeffery, M. Mazloff, and J. Russell, 2015: Southern Ocean dynamics and biogeochemistry in a changing climate: Introduction and overview. Deep-Sea Research II, **114**, 1-2. doi: 10.1016/j.dsr2.2015.02.013.

Weijer, W., 2015: Modal variability in the Southeast Pacific Basin: Energetics of the 2009 event. Deep-Sea Research II, **114**, 3-11, doi: 10.1016/j.dsr2.2012.10.002.

van Sebille, E., P. Scussolini, J. Durgadoo, F. Peeters, A. Biastoch, **W. Weijer**, C. Turney, C. Paris, and R. Zahn, 2015: Ocean currents generate large footprints in marine palaeoclimate proxies. Nature Communications, 6, 6521, doi:10.1038/ncomms7521.

Weijer, W., and E. van Sebille, 2014: Impact of Agulhas Leakage on the Atlantic overturning circulation in the CCSM4. Journal of Climate, **27**, 101-110.

den Toom, M., H. A. Dijkstra, **W. Weijer**, M. W. Hecht, M. E. Maltrud, and E. van Sebille, 2014: Sensitivity of a strongly eddying global ocean to North Atlantic freshwater perturbations. Journal of Physical Oceanography, **44**, 464-481.

Weijer, W., V. V. Zharkov, D. Nof, H. A. Dijkstra, W. P. M. de Ruijter, A. Terwisscha van Scheltinga, and F. Wubs, 2013: Agulhas ring formation as a barotropic instability of the retroflection. Geophysical Research Letters, **40**, 5435-5438, doi:10.1002/2013GL057751.

Weijer, W., E. Muñoz, N. Schneider, and F. Primeau, 2013: Pacific Decadal Variability: Paced by Rossby Basin Modes? Journal of Climate, **26**, 1445-1456.

Weijer, W., M. E. Maltrud, M. W. Hecht, H. A. Dijkstra, and M. Kliphuis, 2012: Response of the Atlantic Ocean circulation to Greenland ice sheet melting in a strongly-eddying ocean model. Geophysical Research Letters, **39**, L09606, doi:10.1029/2012GL051611.

Weijer, W., B. M. Sloyan, M. E. Maltrud, N. Jeffery, M. W. Hecht, C. A. Hartin, E. van Sebille, I. Wainer, and L. Landrum, 2012: The Southern Ocean and its Climate in CCSM4. Journal of Climate, **25**, 2652-2675.

Muñoz, E., **W. Weijer**, S. Grodsky, S. C. Bates, and I. Wainer, 2012: Mean and variability of the tropical Atlantic Ocean in the CCSM4. Journal of Climate, **25**, 4860-4882.

Muñoz, E., B. Kirtman, and **W. Weijer**, 2011: Varied representation of the Atlantic meridional overturning across multidecadal ocean reanalyses. Deep Sea Research, **58**, 1848-1857.

Zharkov, V., D. Nof and **W. Weijer**, 2012: Retroflection from a double slanted coastline – a model for the Agulhas leakage variability. Ocean Science, **6**, 997-1011.

Weijer, W., 2012: An almost-free barotropic mode in the Australian-Antarctic Basin. Geophysical Research Letters, **37**, L10602, doi: 10.1029/2010GL042657.

Weijer, W., S. T. Gille and F. Vivier, 2009: Modal decay in the Australia-Antarctic Basin. Journal of Physical Oceanography, **39**, 2893-2909.

Evans, K. J., D. W. I. Rouson, A. Salinger, M. A. Taylor, **W. Weijer** and J. B. White, 2009: A scalable and adaptable solution framework within components of the Community Climate System Model. Lecture Notes in Computer Science, **5545**, 332-341.

Weijer, W.: 2008: Normal Modes of the Mascarene Basin. Deep-Sea Research I, **55**, 128-136.

Weijer, W., S. T. Gille, F. Vivier and H. A. Dijkstra, 2007: Multiple oscillatory modes of the Argentine Basin. Part I: Statistical analysis. Journal of Physical Oceanography, **37**, 2855-2868.

Weijer, W., S. T. Gille, F. Vivier and H. A. Dijkstra, 2007: Multiple oscillatory modes of the Argentine Basin. Part II: The spectral origin of basin modes. Journal of Physical Oceanography, **37**, 2869-2881.

Weijer, W., and S. T. Gille, 2005: Energetics of wind-driven barotropic variability in the Southern Ocean. Journal of Marine Research**, 63**, 1101-1125.

Weijer, W., and S. T. Gille, 2005: Adjustment of the Southern Ocean to wind forcing on synoptic time scales. Journal of Physical Oceanography, **35**, 2076-2089.

Weijer, W., 2005: High-frequency wind forcing of a channel model of the ACC: Normal mode excitation. Ocean Modelling, **9**, 31-50.

Dijkstra, H. A., and **W. Weijer**, 2005: Stability of the global ocean circulation: basic bifurcation diagrams. Journal of Physical Oceanography, **35**, 933-948.

Dijkstra, H. A., L. A. te Raa and **W. Weijer**, 2004: A systematic approach to determine thresholds of the ocean's thermohaline circulation. Tellus, **56A**, 362-370.

Dijkstra, H. A., and **W. Weijer**, 2003: Stability of the global ocean circulation: the connection of equilibria in a hierarchy of models. Journal of Marine Research, **61**, 725-743.

Weijer, W., H. A. Dijkstra, H. Oksuzoglu, F. W. Wubs and A. C. de Niet, 2003: A fully-implicit model of the global ocean circulation. Journal of Computational Physics, **192**, 452-470.

Dijkstra, H. A., **W. Weijer** and J. D. Neelin, 2003: Imperfections of the three-dimensional thermohaline circulation: Hysteresis and unique-state regimes. Journal of Physical Oceanography, **33**, 2796-2814.

Weijer, W., and H. A. Dijkstra, 2003: Multiple oscillatory modes of the global ocean circulation. Journal Physical Oceanography, **33**, 2197-2213.

Weijer, W., W. P. M. de Ruijter, A. Sterl and S. S. Drijfhout, 2002: Response of the Atlantic overturning circulation to South Atlantic sources of buoyancy. Global and Planetary Change, **34**, 293-311.

Weijer, W., and H. A. Dijkstra, 2001: A bifurcation study of the three-dimensional thermohaline ocean circulation: the double-hemispheric case. Journal of Marine Research, **59**, 599-631.

Weijer, W., W. P. M. de Ruijter and H. A. Dijkstra, 2001: Stability of the Atlantic overturning circulation: Competition between Bering Strait freshwater flux and Agulhas heat and salt sources. Journal of Physical Oceanography, **31**, 2385-2402.

Weijer, W., W. P. M. de Ruijter, H. A. Dijkstra and P. J. van Leeuwen, 1999: Impact of interbasin exchange on the Atlantic overturning circulation. Journal of Physical Oceanography, **29**, 2266-2284.

De Ruijter, W. P. M., A. Biastoch, S. S. Drijfhout, J. R. E. Lutjeharms, R. P. Matano, T. Pichevin, P. J. van Leeuwen and **W. Weijer**, 1999: Indian-Atlantic inter-ocean exchange: Dynamics, estimation and impact. Journal of Geophysical Research, **104**, 20885-20910.

PAPERS SUBMITTED

Biastoch, A., J. Durgadoo, A. K. Morrison, E. van Sebille, **W. Weijer**, and Stephen M. Griffies, 2015: Atlantic Multidecadal Oscillation covaries with Agulhas Leakage. Submitted to Nature Geosciences.

PAPERS IN PREPARATION

Weijer, W., and N. Schneider: Pacific Decadal Variability and the role of internal ocean modes.

OTHER PUBLICATIONS

Weijer, W., 2013: Modal variability in the Bellingshausen Basin. Contribution to the science highlights of the Associate Directorate for Theory, Simulation and Computation.

Kinstle, C. M., and **W. Weijer**, 2012: An investigation of Bjerknes Compensation in the Southern Ocean in the CCSM4. SULI final report.

Weijer, W., M. E. Maltrud, M. W. Hecht, H. A. Dijkstra, M. A. Kliphuis, 2012: The Atlantic Meridional Overturning Circulation and its sensitivity to enhanced runoff from the Greenland Ice Sheet. Contribution to the science highlights of the Associate Directorate for Theory, Simulation and Computation.

Weijer, W., E. Muñoz, N. Schneider, and F. Primeau, 2011: Low-frequency variability of the climate system: A modal approach. Contribution to the highlights of the Associate Directorate for Theory, Simulation and Computation.

Weijer, W., 2009: Modal variability of the Southern Ocean. Contribution to the science highlights of the Associate Directorate for Theory, Simulation and Computation.

Evans, K. J., R. B. Lowrie, **W. Weijer**, C. L. Fryer and T. Evans, 2006: A New Generation of Algorithms for Coupled Physics Problems. White paper for the Modeling Complex Systems Grand Challenge.

The Climate, Ocean and Sea Ice Modeling (COSIM) Team, 2006: Abrupt Climate Change. White paper for the Modeling Complex Systems Grand Challenge.

The Climate, Ocean and Sea Ice Modeling (COSIM) Team, 2006: Predicting the Societal Impacts of Regional Climate Change: A Grand Challenge in Modeling Complex Systems.

Weijer, W., 2000: Impact of interocean exchange on the Atlantic overturning circulation. Ph. D. thesis.

Weijer, W., 1995: Impact of depth-dependent viscosity on multi-phase mantle circulation. M. Sc. thesis (Geophysics).

Weijer, W., 1994: A phase-tracking model for the interaction between the overturning circulation and ice sheets. M. Sc. thesis (Physical Oceanography).

INVITED LECTURES

2015 University of Oxford, Oxford, United Kingdom.

University of Reading, Reading, United Kingdom.
Met Office, Exeter, United Kingdom.

2014 University of California at Irvine, Irvine, CA.

2013 Texas A&M University, College Station, TX.
University of Texas at Arlington, Arlington, TX.
University of Cape Town, Cape Town, South Africa.
Ocean Gateways Past and Present conference, Jerusalem, Israel.
University of Nevada, Reno, NV.

2010 New Mexico Academy of Sciences, Albuquerque, NM.
CSIRO, Hobart, Australia.

2009 International Pacific Research Center, Honolulu, HI.
University of California at Irvine, Irvine, CA.
Institute for Marine and Atmospheric Research, Utrecht, the Netherlands.
Royal Netherlands Institute for Sea Research, Den Burg, the Netherlands.

2005 Proudman Oceanographic Laboratory, Liverpool, U.K.
Institute for Marine and Atmospheric Research, Utrecht, the Netherlands.
Los Alamos National Laboratory, Los Alamos, NM.

2004 National Center for Atmospheric Research, Boulder, CO.
Naval Postgraduate School, Monterey, CA.
Lamont-Doherty Earth Observatory, Palisades, NY.

2002 AGU Fall Meeting.

2001 University of Bern, Bern, Switzerland.

PROPOSALS, AWARDS AND GRANTS

Jones, P. W., P. R. Rasch, **W. Weijer**, 2015: High-Latitude Application and Testing of Global and Regional Climate Models (DOE's RGCM program; $2.5M)

Weijer, W., N. Jeffery, S. Price, and M. Maltrud, 2012: Multidecadal variability in an eddy-resolving ocean model (proposal for Institutional Computing, awarded 1.1M cpu hours).

Weijer, W., N. Jeffery, S. Price, and M. Maltrud, 2011: Multidecadal variability in an eddy-resolving ocean model (proposal for Institutional Computing, awarded 1.1M cpu hours).

Weijer, W., and F. Primeau, 2009: The role of basin modes in pacing Pacific Decadal Variability (NSF-OCE, awarded $588,573).

Weijer, W., 2008: Los Alamos National Laboratory award for excellence in student mentoring.

Weijer, W., and M. Hecht, 2008: Instability of the oceanic meridional overturning circulation in stand-alone ocean models: problem solved in high resolution? (proposal for Institutional Computing, awarded 1.11M cpu hours).

Dijkstra, H. A., and **W. Weijer**, 2008: Stability of the Atlantic meridional overturning circulation (Dutch Computing Challenge Project, awarded 0.75M cpu hours).

Nof, D., and **W. Weijer**, 2007: The role of Agulhas Rings in climate instability (IGPP, awarded $149,873).

W. Weijer, S. T. Gille and H. A. Dijkstra, 2004: Adjustment of the ACC to variability of Southern Ocean winds: A modal point of view (NSF-OCE, awarded $193,998).

TEACHING EXPERIENCE

2012	Teacher of Descriptive Physical Oceanography for New Mexico Tech students and LANL postdocs and staff.
2011	Organizer of and lecturer at the CESM tutorial at Los Alamos National Laboratory (http://oceans11.lanl.gov/twiki/bin/view/Cosim/TutorialCESM).
2010	Lecturer on the role of the oceans in the climate system for the New Mexico Academy of Sciences.
2008	Co-organizer of, and participant in a panel discussion on climate change for a Café Scientifique, an initiative to bring science to high school students of northern New Mexico.
2006	Lecturer at the Los Alamos Summer School.
1996-1998	TA in Dynamical Oceanography, Tensorial Calculus, Advanced Classical Mechanics.

STUDENT MENTORING

2015	Travis Hodos (US Air Force Academy, summer student)
2012	Keith McElroy (Graduate Research Assistant, New Mexico Tech)
	Caroline Kinstle (SULI summer student, University of Michigan)
2009	Jonas Thies (Visiting graduate student, Groningen University)
	Erik Bernsen (Visiting graduate student, Utrecht University)
2006-2007	Giuseppe Colantuono (Florida State University)

POSTDOCTORAL ADVISEES

2010-2011	Ernesto Muñoz (the New Mexico Consortium, now at NCAR)
2008-2010	Volodymyr Zharkov (Florida State University, now at COAPS)

SELECTION OF SERVICE ACTIVITIES

2015-present	Vice chair of Task Team 3 of the US AMOC Science Team.
2014	Co-editor of special issue (April 2015) of Deep Sea Research II, “Southern Ocean Dynamics and Biogeochemistry”.
2012-present	U.S. AMOC Science Team member.
2012	Panelist for NSF-OCE.
	Organizer of: The Southern Ocean and its Role in the Climate System. Topical session at the AGU Ocean Sciences Meeting, Salt Lake City, UT.

2011-present	Leader of the working group on Arctic/Antarctic Climate Change for the Energy Climate Initiative of the Energy Security Center at Los Alamos National Laboratory.
2011	Leader of the Climate Study Group, an effort to facilitate discussions among different climate science disciplines at Los Alamos National Laboratory.
2010	Organizer of: Advances in Computational Oceanography. Topical session at the AGU Ocean Sciences Meeting, Portland, OR.
	Organizer of: Dynamics and Impact of the Meridional Overturning Circulation. Topical session at the AGU Ocean Sciences Meeting, Portland, OR.
2009	Participant in "AGU Climate Science Q&A for Copenhagen".
2008	Organizer of: Nonlinear dynamics of the ocean circulation. Topical session at the EGU General Assembly, Vienna, Austria.
	Organizer of: Implicit and Adjoint Techniques and Their Application to Ocean General Circulation and Biogeochemical Problems. Topical session at the AGU Ocean Sciences Meeting, Orlando, FL.
	Organizer of the POP implicit time stepping project workshop, Orlando, FL.
2007	Organizer of: Advanced Numerical Methods and Their Applications in Ocean Modeling. Mini-symposium at SIAM conference on Mathematical & Computational Issues in the Geosciences, Santa Fe, NM.
2006	Organizer of: The Southern Ocean and Its Margins: Sediment Archives and Dynamics of Environmental Change and Variability. Topical session at the AGU Ocean Sciences Meeting.
2005	Reviewer of tenure request for South Africa's National Research Foundation (NRF).
2004-2005	Reviewer for NASA national student competitions (SCOPE)
2003-2004	Organizer of the seminar series of the Physical Oceanography Research Department at Scripps (32 seminars in 3 academic quarters).
1999-present	Reviewer for the following scientific journals: Communications in Computational Physics, Dynamics of Atmospheres and Oceans, Geophysical Research Letters, Journal of Computational Physics, Journal of Climate, Journal of Fluid Mechanics, Journal of Geophysical Research, Journal of Marine Research, Journal of Physical Oceanography, Lecture Notes in Computer Science, Monthly Weather Review, Nature, Nature Geoscience, Nonlinear Processes in Geophysics, Ocean Dynamics, Ocean Science, Paleoceanography, Reviews of Geophysics, Tellus A.
1999-present	Reviewer of proposals for NSF, NOAA, NERC, NWO.

FIELDWORK EXPERIENCE

1992	11-day oceanographic cruise to the Bay of Biscay. Expedition leader: Leo Maas.