

## Christopher S. Meinen – Curriculum Vitae

Christopher S. Meinen  
Atlantic Oceanographic and Meteorological Laboratory  
National Oceanic and Atmospheric Administration  
4301 Rickenbacker Causeway  
Miami, FL 33149  
Email: Christopher.Meinen@noaa.gov

Office Ph# (305) 361-4355  
FAX# (305) 361-4392

### *PROFESSIONAL EXPERIENCE*

**Oceanographer**, Atlantic Oceanographic and Meteorological Laboratory,  
National Oceanic and Atmospheric Administration, 10/2004–present

**Assistant Scientist**, Cooperative Institute for Marine and Atmospheric Studies,  
Univ. of Miami, 8/2002–9/2004

**Postdoctoral Fellow and Affiliate Researcher**, Department of Oceanography,  
Univ. of Hawaii at Manoa, 8/2000–7/2002

**Postdoctoral Researcher**, Joint Institute for the Study of the Atmosphere and Ocean,  
Univ. of Washington, 3/1998–8/2000

### *EDUCATIONAL HISTORY*

**Ph.D. in Oceanography (Physical Option)**, Univ. of Rhode Island, Kingston, RI, 1998  
Dissertation title: “Transport of the North Atlantic Current”  
Doctoral Advisor: Prof. D. Randolph Watts

**B.A. in Physics and Mathematics, Magna cum Laude**, Luther College, Decorah, IA, 1992

### *HONORS AND AWARDS*

**NOAA – 2013-2014 AOML-PhOD Outstanding Scientific Paper Award**, for “Temporal variability of the Meridional Overturning Circulation at 34.5°S: Results from two pilot boundary arrays in the South Atlantic” by C. S. Meinen, et al., J. Geophys. Res., 118 (12), 6461-6478, 2013.

**NOAA – 2011 AOML Outstanding Scientific Paper Award**, for “Florida Current Transport Variability: An Analysis of Annual and Longer-Period Signals” by C. S. Meinen, et al., Deep Sea Res. I, 57 (7), 835-846, 2010.

**US Department of Commerce 2007 Bronze Medal - Western Boundary Time Series** as part of the Meridional Overturning Circulation team

**NOAA – 2002 OAR Outstanding Scientific Paper Award**, for “Observations of the warm water volume changes in the equatorial Pacific and their relationship to El Nino and La Nina” by C. S. Meinen and M. J. McPhaden, J. Clim. 13, 3551-3559, 2000.

**Sigma Xi**, inducted at the Univ. of Rhode Island

**Office of Naval Research - Secretary of the Navy Fellowship**, 1992-1995

**Phi Beta Kappa, Sigma Pi Sigma, Pi Mu Epsilon** – Luther College

# Christopher S. Meinen – Curriculum Vitae

## *SCIENTIFIC STEERING PANELS*

**SAMOC - Executive Committee** – 2016-present

**SAMOC - Science Team** – 2016-present

**IAPSO - Executive Committee** – 2011-2019

**U.S. National Committee for Geodesy and Geophysics, NAS** – ex-officio 2017-2019

**U.S. AMOC - Executive Committee** – 2013-2015

**U.S. AMOC - Task Team 1** – member: 2008-present; vice-chair: 2013-2014; chair: 2014-2015

**U.S. CLIVAR - Phenomena, Observations, & Synthesis Panel** – 2007-2010

## *GRANTS AND PROPOSALS*

### **Southwest Atlantic Meridional Overturning Circulation Project**

Principle investigators: Christopher S. Meinen, Renellys C. Perez, Shenfu Dong and

Silvia L. Garzoli (emeritus)

Funding agency: NOAA

Grant period: Continuing (2008-present)

Grant amount: \$158,070 (FY19 budget)

### **Combining coastal altimetry and in situ observations to improve Meridional Overturning Circulation estimates in the South Atlantic**

Principle investigators: Matthieu Le Hénaff, Renellys Perez, and Christopher S. Meinen

Funding agency: NASA

Grant period: 2018-2020

Grant amount: \$161,878

### **Measuring interannual variability of the AMOC and meridional ocean heat transport at 26.5°N: The RAPID-MOCHA Array**

Principle investigators: William E. Johns, Molly O. Baringer, and Christopher S. Meinen

Funding agency: NSF

Grant period: 2013-2019

Grant amount: \$3,828,652

### **South Atlantic-North Atlantic Meridional Overturning Circulation (MOC) Linkages: Analysis of the Upper and Lower Limbs With In Situ Instruments**

Principle investigators: Christopher S. Meinen, Renellys Perez, and Matthieu Le Hénaff

Funding agency: NOAA

Grant period: 2016-2019

Grant amount: \$353,031

### **Western Boundary Time Series Project**

Principle investigators: Molly O. Baringer, Christopher S. Meinen, and Silvia L. Garzoli

Funding agency: NOAA

Grant period: Continuing (2000-2017)

Grant amount: \$382,010 (FY17 budget)

# Christopher S. Meinen – Curriculum Vitae

## *GRANTS AND PROPOSALS CONTINUED*

### **An Observing System for the Meridional Overturning Circulation and Ocean Heat Transport in the Subtropical North Atlantic: Extension of the RAPID-MOCHA Program**

Principle investigators: William E. Johns, Molly O. Baringer, Lisa M. Beal, and Christopher S. Meinen  
Funding agency: NSF  
Grant period: 2007-2014  
Grant amount: \$3,944,401

### **PIRATA Northeast Extension**

Principle investigators: Rick Lumpkin, Claudia Schmid, Greg Foltz, and Christopher S. Meinen  
Funding agency: NOAA  
Grant period: Continuing (2006-2013)  
Grant amount: \$188,000 (FY12 budget)

### **A Proposal for an Innovative New Oceanographic Tool to Monitor Long-Term Climate Signals in Near-Real Time: An Expendable-Pod System for Transmitting Data from Subsurface Moored Sensors to Land via Satellite**

Principle investigators: Ulises Rivero, Christopher S. Meinen, and Silvia L. Garzoli  
Funding agency: NOAA  
Grant period: 2009-2012  
Grant amount: \$373,000

### **Collaborative Research: Gulf Stream Re-Analysis - Structure, Transport & Dynamics**

Principle investigator: Christopher S. Meinen  
Funding agency: NSF  
Grant period: 2004-2007  
Grant amount: \$260,875

### **Interannual Variability in Warm Water Exchange between the Tropical Pacific and the Subtropics**

Principle investigator: Christopher S. Meinen  
Funding agency: NSF  
Grant period: 2002-2003  
Grant amount: \$52,692

## *RESEARCH CRUISES*

Southwest Atlantic Meridional Overturning Circulation cruise: Oct. 2018

Position: co-Chief Scientist      Vessel: ARA Puerto Deseado

Meridional Overturning Circulation Heat-flux Array cruise: May 2017

Position: co-Chief Scientist      Vessel: R/V Endeavor

Meridional Overturning Circulation Heat-flux Array cruise: Oct. 2015

Position: co-Chief Scientist      Vessel: R/V Endeavor

Meridional Overturning Circulation Heat-flux Array cruise: Mar. 2014

Position: co-Chief Scientist      Vessel: R/V Atlantic Explorer

## Christopher S. Meinen – Curriculum Vitae

### *RESEARCH CRUISES CONTINUED*

- Southwest Atlantic Meridional Overturning Circulation cruise: Dec. 2012  
Position: co-Chief Scientist Vessel: N. Oc. Alpha-Crucis
- Meridional Overturning Circulation Heat-flux Array cruise: Sep. 2012  
Position: co-Chief Scientist Vessel: R/V Endeavor
- Western Boundary Time Series – Florida Straits cruise: May 2012  
Position: co-Chief Scientist Vessel: R/V F. G. Walton Smith
- Meridional Overturning Circulation Heat-flux Array cruise: Mar.-Apr. 2011  
Position: co-Chief Scientist Vessel: R/V Knorr
- Western Boundary Time Series cruise: Mar.-Apr. 2010  
Position: Chief Scientist Vessel: R/V Oceanus
- Meridional Overturning Circulation Heat-flux Array cruise: Nov.-Dec. 2009  
Position: co-Chief Scientist Vessel: RRS Discovery
- Western Boundary Time Series – Florida Straits cruise: Jun. 2009  
Position: co-Chief Scientist Vessel: R/V F. G. Walton Smith
- Western Boundary Time Series cruise: Apr.-May 2009  
Position: Chief Scientist Vessel: NOAA Ship Ronald H. Brown
- Southwest Atlantic Meridional Overturning Circulation cruise: Mar. 2009  
Position: Chief Scientist Vessel: N. H. Cruzeiro do Sul
- Western Boundary Time Series cruise: Sep. 2008  
Position: Chief Scientist Vessel: R/V Cape Hatteras
- Western Boundary Time Series – Florida Straits cruise: Jul. 2008  
Position: co-Chief Scientist Vessel: R/V F. G. Walton Smith
- Meridional Overturning Circulation Heat-flux Array cruise: Apr. 2008  
Position: co-Chief Scientist Vessel: R/V Seward Johnson
- Western Boundary Time Series cruise: Sep. 2007  
Position: Chief Scientist Vessel: NOAA Ship Ronald H. Brown
- Meridional Overturning Circulation Heat-flux Array cruise: Sep.-Oct. 2006  
Position: co-Chief Scientist Vessel: R/V Seward Johnson
- PIRATA Northeast Extension cruise: May-Jun. 2006  
Position: co-Chief Scientist Vessel: NOAA Ship Ronald H. Brown
- Western Boundary Time Series cruise: Sep.-Oct. 2005  
Position: Chief Scientist Vessel: NOAA Ship Ronald H. Brown
- Meridional Overturning Circulation Heat-flux Array cruise: May-Jun. 2005  
Position: co-Chief Scientist Vessel: R/V Knorr
- Western Boundary Time Series cruise: Sep.-Oct. 2004  
Position: Chief Scientist Vessel: NOAA Ship Ronald H. Brown
- Western Boundary Time Series cruise: Feb.-Mar. 2003  
Position: Chief Scientist Vessel: NOAA Ship Ronald H. Brown
- Hawaii Ocean Mixing Experiment cruise: Jan. 2001  
Position: Scientist Vessel: R/V Kaimikai-o-Kanaloa
- North Atlantic Current cruise: Jun.-Jul. 1995  
Position: Student Scientist Vessel: C/R/V Hudson
- Subantarctic Flux and Dynamics Experiment cruise: Feb.-Mar. 1995  
Position: Student Scientist Vessel: R/V Melville

## Christopher S. Meinen – Curriculum Vitae

### REFEREED SCIENTIFIC JOURNAL ARTICLES

Meinen, Christopher S., Ryan H. Smith, and Rigoberto F. Garcia, **Evaluating pressure gauges as a potential future replacement for electromagnetic cable observations of the Florida Current at 27°N**, *J. Oper. Oceanogr.*, (submitted), 2020.

Dong, Shenfu, Hosmay Lopez, Sang-Ki Lee, Christopher Meinen, Gustavo Goni, and Molly Baringer, **What caused the large-scale heat deficit in the South Atlantic Ocean during 2009-2012?**, *Geophys. Res. Lett.*, (submitted), 2020.

McCarthy, Gerard D., Peter J. Brown, Charles N. Flagge, Gustavo Goni, Loic Houpert, Christopher W. Hughes, Rebecca Hummels, Mark Inall, Kerstin Jochumsen, Karin M. H. Larsen, Pascale Lherminier, Christopher S. Meinen, Benjamin I. Moat, Darren Rayner, Monika Rhein, Achim Roessler, Claudia Schmid, and David A. Smeed, **Sustainable observations of the AMOC: Methodology and Technology**, *Rev. Geophys.*, 58 (1), 1-34, doi: 10.1029/2019RG000654, 2020.

Meinen, Christopher S., William E. Johns, Ben I. Moat, Ryan H. Smith, Elizabeth M. Johns, Darren Rayner, Eleanor Frajka-Williams, Rigoberto F. Garcia, and Silvia L. Garzoli, **Structure and variability of the Antilles Current at 26.5°N**, *J. Geophys. Res.*, 124 (6), 3700-3723, doi: 10.1029/2018JC014836, 2019.

Valla, Daniel, Alberto R. Piola, Christopher S. Meinen, and Edmo Campos, **Abysal transport variations in the Southwest South Atlantic: first insights from a long-term observation array at 34.5°S**, *Geophys. Res. Lett.*, 46 (12), 6699-6705, doi: 10.1029/2019GL082740, 2019.

Kersalé, Marion, Renellys C. Perez, Sabrina Speich, Christopher S. Meinen, Tarron Lamont, Matthieu Le Hénaff, Marcel A. van den Berg, Sudip Majumder, Isabelle J. Ansorge, Shenfu Dong, Claudia Schmid, Thierry Terre, and Silvia L. Garzoli, **Shallow and deep eastern boundary currents in the South Atlantic at 34.5°S: mean structure and variability**, *J. Geophys. Res.*, 124(3), 1634-1659, doi: 10.1029/2018JC014554, 2019.

Domingues, Ricardo, William E. Johns, and Christopher S. Meinen, **Mechanisms of eddy-driven variability of the Florida Current**, *J. Phys. Oceanogr.*, 49 (5), 1319-1338, doi: 10.1175/JPO-D-18-0192.1, 2019.

Frajka-Williams, Eleanor, Isabelle J. Ansorge, Johanna Baehr, Harry L. Bryden, Maria Paz Chidichimo, Stuart A. Cunningham, Gokhan Danabasoglu, Shenfu Dong, Kathleen A. Donohue, Shane Elipot, Patrick Heimbach, N. Penny Holliday, Rebecca Hummels, Laura C. Jackson, Johannes Karstensen, Matthias Lankhorst, Isabela A. Le Bras, M. Susan Lozier, Elaine L. McDonagh, Christopher S. Meinen, Herle Mercier, Benjamin I. Moat, Renellys C. Perez, Christopher G. Piecuch, Monika Rhein, Meric A. Srokosz, Kevin E. Trenberth, Sheldon Bacon, Gael Forget, Gustavo Goni, Dagmar Kieke, Jannes Koelling, Tarron Lamont, Gerard D. McCarthy, Christian Mertens, Uwe Send, David A. Smeed, Sabrina Speich, Marcel van den Berg, Denis Volkov, and Chris Wilson, **Atlantic Meridional Overturning Circulation: Observed transport and variability**, *Front. Mar. Sci.*, 6:260, doi: 10.3389/fmars.2019.00260, 2019.

Lee, Sang-Ki, Rick Lumpkin, Molly O. Baringer, Christopher S. Meinen, Marlos Goes, Shenfu Dong, Hosmay Lopez, and Stephen G. Yeager, **Global meridional overturning circulation inferred from a data-constrained ocean & sea-ice model**, *Geophys. Res. Lett.*, 46, 1521-1530, doi: 10.1029/2018GL080940, 2019.

## Christopher S. Meinen – Curriculum Vitae

### REFEREED SCIENTIFIC JOURNAL ARTICLES CONTINUED

Meinen, Christopher S., Sabrina Speich, Alberto R. Piola, Isabelle Ansorge, Edmo Campos, Marion Kersalé, Thierry Terre, Maria Paz Chidichimo, Tarron Lamont, Olga T. Sato, Renellys C. Perez, Daniel Valla, Marcel van den Berg, Matthieu Le Hénaff, Shenfu Dong, and Silvia L. Garzoli, **Meridional Overturning Circulation transport variability at 34.5°S during 2009-2017: Baroclinic and barotropic flows and the dueling influence of the boundaries**, *Geophys. Res. Lett.*, 45(9), 4180-4188, doi: 10.1029/2018GL077408, 2018.

Valla, Daniel, Alberto R. Piola, Christopher S. Meinen, and Edmo Campos, **Strong mixing and recirculation in the northwestern Argentine Basin**, *J. Geophys. Res.*, 123(7), 4624-4648, doi: 10.1029/2018JC013907, 2018.

Smeed, David A., Simon A. Josey, Claudie Beaulieu, William E. Johns, Ben I. Moat, Eleanor Frajka-Williams, Darren Rayner, Christopher S. Meinen, Molly O. Baringer, Harry L. Bryden, and Gerard D. McCarthy, **The North Atlantic Ocean is in a state of reduced overturning**, *Geophys. Res. Lett.*, 45, 1527-1533, doi: 10.1002/2017GL076350, 2018.

Szuts, Zoltan B., and Christopher S. Meinen, **Florida Current salinity and salinity transport: mean and decadal changes**, *Geophys. Res. Lett.*, 44(20), 10,495-10,503, doi: 10.1002/2017GL074538, 2017.

Meinen, Christopher S., Silvia L. Garzoli, Renellys C. Perez, Edmo Campos, Alberto R. Piola, Maria Paz Chidichimo, Shenfu Dong, and Olga T. Sato, **Characteristics and causes of Deep Western Boundary Current transport variability at 34.5°S during 2009-2014**, *Ocean Sci.*, 13, 175-194, doi:10.5194/os-13-175-2017, 2017.

Meinen, Christopher S., and Douglas S. Luther, **Structure, Transport, and Vertical Coherence of the Gulf Stream from the Straits of Florida to the Southeast Newfoundland Ridge**, *Deep Sea Res. I*, 111, 137-154, doi:10.1016/j.dsr.2016.03.002, 2016.

Frajka-Williams, Eleanor, Christopher S. Meinen, William E. Johns, David A. Smeed, Aurelie Duchez, Adam J. Lawrence, David A. Cuthbertson, Gerard D. McCarthy, Harry L. Bryden, Molly O. Baringer, Ben I. Moat, and Darren Rayner, **Compensation between meridional flow components of the AMOC at 26°N**, *Ocean Sci.*, 12, 481-493, doi:10.5194/os-12-481-2016, 2016.

Baringer, M.O., M. Lankhorst, D. Volkov, S. Garzoli, S. Dong, U. Send, and C.S. Meinen, **Meridional overturning circulation observations in the North Atlantic Ocean, in State of the Climate in 2015**, J. Blunden and D.S. Arndt (eds.), *Bull. Am. Met. Soc.*, 97(8), S84-S87, 2016.

Garzoli, Silvia L., Shenfu Dong, Rana Fine, Christopher S. Meinen, Renellys C. Perez, Claudia Schmid, Erik van Sebille, and Qi Yao, **The fate of the Deep Western Boundary Current in the South Atlantic**, *Deep Sea Res. I*, 103, 125-136, doi:10.1016/j.dsr.2015.05.008, 2015.

Perez, Renellys C., Molly O. Baringer, Shenfu Dong, Silvia L. Garzoli, Marlos Goes, Gustavo J. Goni, Rick Lumpkin, Christopher S. Meinen, Rym Msadek, and Ulises Rivero, **Measuring the Atlantic Meridional Overturning Circulation**. *Mar. Tech. Soc. J.*, 49 (2), 167-177, doi:10.4031/MTSJ.49.2.14, 2015.

## Christopher S. Meinen – Curriculum Vitae

### REFEREED SCIENTIFIC JOURNAL ARTICLES CONTINUED

McCarthy, Gerard D., David A. Smeed, William E. Johns, Eleanor Frajka-Williams, Ben I. Moat, Darren Rayner, Molly O. Baringer, Christopher S. Meinen, Julie Collins, and Harry L. Bryden, **Measuring the Atlantic Meridional Overturning Circulation at 26°N**, *Prog. Oceanogr.*, 130, 91-111, 2015.

Baringer, Molly O., Gerard McCarthy, Josh Willis, David A. Smeed, Darren Rayner, William E. Johns, Christopher S. Meinen, Matthew Lankhorst, Uwe Send, Stuart A. Cunningham, Torsten O. Kanzow, **Global oceans: Meridional Overturning Circulation observations in the North Atlantic Ocean**, in *State of the Climate in 2014*, J. Blunden and D.S. Arndt (eds.), *Bull. Am. Met. Soc.*, 96(7), S78-S80, 2015.

Dong, Shenfu, Molly O. Baringer, Gustavo J. Goni, Christopher S. Meinen, and Silvia L. Garzoli, **Seasonal Variations in the South Atlantic Meridional Overturning Circulation from Observations and Numerical Models**, *Geophys. Res. Lett.*, 41, 4611-4618, doi:10.1002/2014GL060428, 2014.

Meinen, Christopher S., and Silvia L. Garzoli, **Attribution of Deep Western Boundary Current variability at 26.5°N**, *Deep Sea Res. I*, 90, 81-90, doi:10.1016/j.dsr.2014.04.016, 2014.

Garcia, Rigoberto F., and Christopher S. Meinen, **Accuracy of Florida Current volume transport measurements at 27°N using multiple observational techniques**, *J. Atmos. Ocean. Tech.*, 31 (5), 1169-1180, doi:10.1175/JTECH-D-13-00148.1, 2014.

Smeed, David A., Gerard McCarthy, Stuart A. Cunningham, Eleanor Frajka-Williams, Darren Rayner, William E. Johns, Christopher S. Meinen, Molly O. Baringer, Ben I. Moat, Aurelie Duchez, and Harry L. Bryden, **Observed decline of the Atlantic Meridional Overturning Circulation 2004 to 2012**, *Ocean Sci.*, 10, 29-38, doi:10.5194/os-10-29-2014, 2014.

Baringer, Molly O., Gerard McCarthy, Josh Willis, Matthew Lankhorst, David A. Smeed, Uwe Send, Darren Rayner, William E. Johns, Christopher S. Meinen, Stuart A. Cunningham, Torsten O. Kanzow, Eleanor Frajka-Williams, and Jochem Marotzke, **Global oceans: Meridional Overturning Circulation observations in the North Atlantic Ocean**, in *State of the Climate in 2013*, J. Blunden and D.S. Arndt (eds.), *Bull. Am. Met. Soc.*, 95, S67-S69, 2014.

Meinen, Christopher S., Sabrina Speich, Renellys C. Perez, Shenfu Dong, Alberto R. Piola, Silvia L. Garzoli, Molly O. Baringer, Sergey Gladyshev, and Edmo J. D. Campos, **Temporal variability of the Meridional Overturning Circulation at 34.5°S: Results from two pilot boundary arrays in the South Atlantic**, *J. Geophys. Res.*, 118 (12), 6461-6478, doi:10.1002/2013JC009228, 2013.

Szuts, Zoltan B., and Christopher Meinen, **Salinity transport in the Florida Straits**, *J. Atmos. Ocean. Tech.*, 30, 971-983, doi:10.1175/JTECH-D-12-00133.1, 2013.

Frajka-Williams, Eleanor, William E. Johns, Christopher S. Meinen, Lisa M. Beal, and Stuart A. Cunningham, **Eddy impacts on the Florida Current**, *Geophys. Res. Lett.*, 40 (2), 349-353, 2013.

## Christopher S. Meinen – Curriculum Vitae

### REFEREED SCIENTIFIC JOURNAL ARTICLES CONTINUED

Meinen, Christopher S., William E. Johns, Silvia L. Garzoli, Erik van Sebille, Darren Rayner, Torsten Kanzow, and Molly O. Baringer, **Variability of the Deep Western Boundary Current at 26.5°N during 2004-2009**, *Deep Sea Res. II*, 85, 154-168, doi:10.1016/j.dsr2.2012.07.036, 2013.

Baringer, Molly O., William E. Johns, Gerard McCarthy, Josh Willis, Silvia Garzoli, Matthew Lankhorst, Christopher S. Meinen, Uwe Send, William R. Hobbs, Stuart A. Cunningham, Darren Rayner, David A. Smeed, Torsten O. Kanzow, Patrick Heimback, Eleanor Frajka-Williams, Allison Macdonald, Shenfu Dong, and Jochem Marotzke, **Meridional Overturning Circulation and Heat Transport Observations in the Atlantic Ocean**, in **State of the Climate in 2012**, J. Blunden and D.S. Arndt (eds.), *Bull. Am. Met. Soc.*, 94, S65-S68, 2013.

Meinen, Christopher S., Alberto R. Piola, Renellys C. Perez, and Silvia L. Garzoli, **Deep Western Boundary Current transport variability in the South Atlantic: Preliminary results from a pilot array at 34.5°S**, *Ocean Sci.*, 8, 1041-1054, doi:10.5194/os-8-1041-2012, 2012.

McCarthy, Gerard D., Eleanor Frajka-Williams, William E. Johns, Molly O. Baringer, Christopher S. Meinen, Harry L. Bryden, Darren Rayner, Aurelie Duchez, Chris Roberts and Stuart Cunningham, **Observed Interannual Variability of the Atlantic Meridional Overturning Circulation at 26.5°N**, *Geophys. Res. Lett.*, 39, L19609, doi:10.1029/2012GL052933, 2012.

Baringer, Molly O., Stuart A. Cunningham, Christopher S. Meinen, Silvia Garzoli, Josh Willis, Matthew Lankhorst, Allison Macdonald, Uwe Send, William R. Hobbs, Eleanor Frajka-Williams, Torsten O. Kanzow, Darren Rayner, William E. Johns, and Jochem Marotzke. **Global oceans: Meridional overturning circulation observations in the subtropical North Atlantic**, in **State of the Climate in 2011**, J. Blunden and D.S. Arndt (eds.), *Bull. Am. Met. Soc.*, 93(7):S78-S81, 2012.

Perez, Renellys C., Silvia L. Garzoli, Christopher S. Meinen, and Ricardo P. Matano, **Geostrophic Velocity Measurement Techniques for the Meridional Overturning Circulation and Meridional Heat Transport in the South Atlantic**, *J. Atmos. Ocean. Tech.*, 28, 1504-1521, doi:10.1175/JTECH-D-11-00058.1, 2011.

van Sebille, Erik, Molly O. Baringer, William E. Johns, Christopher S. Meinen, Lisa M. Beal, M. Femke de Jong, and Hendrik M. van Aken, **Propagation Pathways of Classical Labrador Sea Water from its Source Region to 26°N**, *J. Geophys. Res.*, 116, C12027, doi:10.1029/2011JC007171, 2011.

Turk, Daniela, Christopher S. Meinen, David Antoine, Michael J. McPhaden, and Marlon R. Lewis, **Implications of changing El Niño patterns for biological dynamics in the equatorial Pacific ocean**, *Geophys. Res. Lett.*, 38, L23603, doi:10.1029/2011GL049674, 2011.

Johns, William E., Molly O. Baringer, Lisa M. Beal, Stuart A. Cunningham, Torsten Kanzow, Harry L. Bryden, Joel J.-M. Hirschi, Jochem Marotzke, Christopher S. Meinen, Benjamin Shaw, and Ruth Curry, **Continuous, Array-Based Estimates of Atlantic Ocean Heat Transport at 26.5°N**, *J. Clim.*, 24(5), 2429-2449, doi:10.1175/2010JCLI3997.1, 2011.



## Christopher S. Meinen – Curriculum Vitae

### REFEREED SCIENTIFIC JOURNAL ARTICLES CONTINUED

Rayner, Darren, Joel J-M. Hirschi, Torsten Kanzow, William E. Johns, Stuart A. Cunningham, Paul G. Wright, Eleanor Frajka-Williams, Harry L. Bryden, Christopher S. Meinen, Molly O. Baringer, Jochem Marotzke, and Lisa M. Beal, **Monitoring the Atlantic Meridional Overturning Circulation**, *Deep Sea Res. II*, 48, 1744-1753, doi:10.1016/j.dsr2.2010.10.056, 2011.

Baringer, Molly O., Torsten Kanzow, Christopher S. Meinen, Stuart A. Cunningham, Darren Rayner, William E. Johns, Harry L. Bryden, Eleanor Frajka-Williams, Joel J-M. Hirschi, Maria Paz Chidichimo, Lisa M. Beal and Jochem Marotzke, **Meridional Overturning Circulation Observations in the Subtropical North Atlantic**, in **State of the Climate in 2010**, Blunden, J., D. S. Arndt, M. O. Baringer (eds.), *Bull. Am. Met. Soc.*, 92, S95-S98. doi: 10.1175/1520-0477-92.6.S1, 2011.

Turk, Daniela, Christopher J. Zappa, Christopher S. Meinen, James R. Christian, David T. Ho, Andrew G. Dickson, and Wade R. McGillis, **Rain impacts on CO<sub>2</sub> exchange in the western equatorial Pacific**, *Geophys. Res. Lett.*, 37, L23610, doi:10.1029/2010GL045520, 2010.

Kanzow, Torsten, Stuart A. Cunningham, William E. Johns, Joel J-M. Hirschi, Jochem Marotzke, Molly O. Baringer, Christopher S. Meinen, Maria P. Chidichimo, Christopher Atkinson, Lisa M. Beal, Harry L. Bryden, and Julie Collins, **Seasonal Variability of the Atlantic Meridional Overturning Circulation at 26.5°N**, *J. Clim.*, 23(21), 5678-5698, 2010.

Meinen, Christopher S., Molly O. Baringer, and Rigoberto F. Garcia, **Florida Current Transport Variability: An Analysis of Annual and Longer-Period Signals**, *Deep Sea Res. I*, 57 (7), 835-846, doi:10.1016/j.dsr.2010.04.001, 2010.

Baringer, Molly O., Torsten O. Kanzow, Christopher S. Meinen, Stuart A. Cunningham, Darren Rayner, William E. Johns, Harry L. Bryden, Joel J-M. Hirschi, Lisa M. Beal, and Jochem Marotzke, **The Meridional Overturning Circulation**, in **State of the Climate in 2009**, D. S. Arndt, M. O. Baringer, and M. R. Johnson (eds.), *Bull. Am. Met. Soc.*, 91(6), 66-69, 2010.

Meinen, Christopher S., Douglas S. Luther, and Molly O. Baringer, **Structure, transport and potential vorticity of the Gulf Stream at 68°W: Revisiting older data sets with new techniques**, *Deep Sea Res. I*, 56 (1), 41-60, doi:10.1016/j.dsr.2008.07.010, 2009.

Dong, Shenfu, Silvia L. Garzoli, Molly O. Baringer, Christopher S. Meinen, and Gustavo J. Goni, **Interannual Variations in the Atlantic Meridional Overturning Circulation and its Relationship with the Net Northward Heat Transport in the South Atlantic**, *Geophys. Res. Lett.*, 36, L20606, doi:10.1029/2009GL039356, 2009.

Baringer, Molly O., Christopher S. Meinen, Gregory C. Johnson, Torsten O. Kanzow, Stuart A. Cunningham, William E. Johns, Lisa M. Beal, Joel J-M. Hirschi, Darren Rayner, Hannah R. Longworth, Harry L. Bryden, and Jochem Marotzke, **The Meridional Overturning Circulation**, in **State of the Climate in 2008**, T.C. Peterson and M.O. Baringer (eds.), *Bull. Am. Met. Soc.*, 90(8), s59-s62, 2009.

Peng, Ge, Zulema Garraffo, George R. Halliwell, Ole M. Smedstad, Christopher S. Meinen, Villy Kourafalou, and Patrick Hogan, **Temporal variability of the Florida Current transport at 27°N**, In **Ocean Circulation and El Nino: New Research**, J.A. Long and D.S. Wells (ed.). Nova Science Publishers, New York, 119-137, 2009.

## Christopher S. Meinen – Curriculum Vitae

### REFEREED SCIENTIFIC JOURNAL ARTICLES CONTINUED

DiNezio, Pedro N., Lewis J. Gramer, William E. Johns, Christopher S. Meinen, and Molly O. Baringer, **Observed Interannual Variability of the Florida Current: Wind Forcing and the North Atlantic Oscillation**, *J. Phys. Oceanogr.*, 39(3), 721-736, doi:10.1175/2008JPO4001.1, 2009.

Meinen, Christopher S., **Accuracy in mooring motion temperature correction**, *J. Atmos. Oceanic Technol.*, 25(12), 2293-2303, doi:10.1175/2008JTECHO555.1, 2008.

Kanzow, Torsten, Joël J-M. Hirschi, Christopher Meinen, Darren Rayner, Stuart A. Cunningham, Jochem Marotzke, William E. Johns, Harry L. Bryden, Lisa M. Beal, and Molly O. Baringer, **A Prototype System for Observing the Atlantic Meridional Overturning Circulation - Scientific Basis, Measurement and Risk Mitigation Strategies, and First Results**, *J. Operational Oceanogr.*, 1(1), 19-28, 2008.

Baringer, Molly O., and Christopher S. Meinen, **The Meridional Overturning Circulation**, in **State of the Climate in 2007**, D. H. Levinson and J. H. Lawrimore (eds.), *Bull. Am. Met. Soc.*, 89(7), s49-s51, doi:10.1175/BAMS-89-7-StateoftheClimate, 2008.

Cunningham, Stuart A., Torsten Kanzow, Darren Rayner, Molly O. Baringer, William E. Johns, Jochem Marotzke, Hannah R. Longworth, Elizabeth M. Grant, Joël J-M. Hirschi, Lisa M. Beal, Christopher S. Meinen, and Harry L. Bryden, **Temporal Variability of the Atlantic Meridional Overturning Circulation at 26.5°N**, *Science*, 317, 935, doi: 10.1126/science.1141304, 2007.

Kanzow, Torsten, Stuart A. Cunningham, Darren Rayner, Joël J-M. Hirschi, William E. Johns, Molly O. Baringer, Harry L. Bryden, Lisa M. Beal, Christopher S. Meinen, and Jochem Marotzke, **Observed flow compensation associated with the Meridional Overturning at 26.5°N in the Atlantic**, *Science*, 317, 938, doi: 10.1126/science.1141293, 2007.

Baringer, Molly O., and Christopher S. Meinen, **The Meridional Overturning Circulation and Oceanic Heat Transport**, in **Supplement to State of the Climate in 2006**, A. Arguez, ed., *Bull. Am. Met. Soc.*, 88(6), s1-s135, doi: 10.1175/BAMS-88-6-StateoftheClimate, 2007.

Meinen, Christopher S., Molly O. Baringer, and Silvia L. Garzoli, **Variability in Deep Western Boundary Current transports: Preliminary results from 26.5°N in the Atlantic**, *Geophys. Res. Lett.*, 33, L17610, doi:10.1029/2006GL026965, 2006.

Tracey, Karen L., D. Randolph Watts, Christopher S. Meinen, and Douglas S. Luther, **Synoptic maps of temperature and velocity within the Subantarctic Front south of Australia**, *J. Geophys. Res.*, 111, C10016, doi:10.1029/2005JC002905, 2006.

Baringer, Molly O., and Christopher S. Meinen, **Thermohaline Circulation**, in **State of the Climate in 2005**, K. A. Shein, ed., *Bull. Am. Met. Soc.*, 87(6), s1-s102, doi: 10.1175/BAMS-87-6-shein, 2006.

Mooers, Christopher N. K., Christopher S. Meinen, Molly O. Baringer, Inkweon Bang, Robert Rhodes, Charlie N. Barron, and Frank Bub, **Cross Validating Ocean Prediction and Monitoring Systems**, *EOS*, 86(29), 269, 272-273, 2005.

## Christopher S. Meinen – Curriculum Vitae

### *REFEREED SCIENTIFIC JOURNAL ARTICLES CONTINUED*

Meinen, Christopher S., **Temporal Sampling: How many sections are needed to quantify the mean transport and structure of a meandering current?**, *J. Atmos. Oceanic Technol.*, 22(4), 476-489, 2005.

Meinen, Christopher S., **Meridional Extent and Interannual Variability of the Pacific Ocean Tropical–Subtropical Warm Water Exchange**, *J. Phys. Oceanogr.*, 35(3), 323-335, 2005.

Meinen, Christopher S., Silvia L. Garzoli, William E. Johns, and Molly O. Baringer, **Transport Variability of the Deep Western Boundary Current and the Antilles Current off Abaco Island, Bahamas**, *Deep Sea Res. I*, 51(11), 1397-1415, 2004.

Chave, Alan D., Douglas S. Luther, and Christopher S. Meinen, **Correction of Motional Electric Field Measurements for Galvanic Distortion**, *J. Atmos. Ocean. Technol.*, 21(2), 317-330, 2004.

Meinen, Christopher S., Douglas S. Luther, D. Randolph Watts, Alan D. Chave, and Karen L. Tracey, **Mean Stream coordinates Structure of the Subantarctic Front: Temperature, Salinity, and Absolute Velocity**, *J. Geophys. Res.*, 108(C8), 3263, doi:10.1029/2002JC001545, 2003.

Meinen, Christopher S., and Douglas S. Luther, **Comparison of Methods of Estimating Mean Synoptic Current Structure in “Stream Coordinates” with an Example from the Antarctic Circumpolar Current**, *Deep Sea Res. I*, 50(2), 201-220, 2003.

Hendry, Ross M., D. Randolph Watts, and Christopher S. Meinen, **Newfoundland Basin Sea Level Variability from TOPEX/POSEIDON Altimetry and Inverted Echo Sounder/Bottom Pressure Measurements**, *Canadian J. Remote Sensing*, 28(4), 544-555, 2002.

Meinen, Christopher S., Douglas S. Luther, D. Randolph Watts, Karen L. Tracey, Alan D. Chave, and James Richman, **Combining Inverted Echo Sounder and Horizontal Electric Field Recorder Measurements to Obtain Absolute Velocity Profiles** *J. Atmos. Ocean. Technol.*, 19(10), 1653-1664, 2002.

Meinen, Christopher S., and Douglas S. Luther, **Estimating Mooring Motion when the Pressure Sensors Fail: A Method Employing Inverted Echo Sounders**, *J. Atmos. Ocean. Technol.*, 19(9), 1451-1460, 2002.

Meinen, Christopher S., Michael J. McPhaden, and Gregory C. Johnson, **Vertical Velocities and Transports in the Equatorial Pacific during 1993–1999**, *J. Phys. Oceanogr.*, 31(11), 3230-3248, 2001.

Meinen, Christopher S., and Michael J. McPhaden, **Interannual Variability in Warm Water Volume Transports in the Equatorial Pacific during 1993–1999**, *J. Phys. Oceanogr.*, 31(5), 1324-1345, 2001.

Meinen, Christopher S., **Structure of the North Atlantic Current in Stream–Coordinates and the Circulation in the Newfoundland Basin**, *Deep Sea Res. I*, 48(7), 1553-1580, 2001.

## Christopher S. Meinen – Curriculum Vitae

### *REFEREED SCIENTIFIC JOURNAL ARTICLES CONTINUED*

Meinen, Christopher S., and D. Randolph Watts, **Vertical Structure and Transport on a Transect Across the North Atlantic Current near 42°N: Time series and Mean**, *J. Geophys. Res.*, 105(C9), 21869-21892, 2000.

Meinen, Christopher S., and Michael J. McPhaden, **Observations of Warm Water Volume Changes in the Equatorial Pacific and their Relationship to El Niño and La Niña**, *J. Climate*, 13(20), 3551-3559, 2000.

Meinen, Christopher S., D. Randolph Watts, and R. Allyn Clarke, **Absolutely Referenced Geostrophic Velocity and Transport on a Section Across the North Atlantic Current**, *Deep Sea Res. I*, 47(2), 309-322, 2000.

Meinen, Christopher S., and D. Randolph Watts, **Calibrating Inverted Echo Sounders Equipped with Pressure Sensors**, *J. Atmos. Ocean. Technol.*, 15(6), 1339-1345, 1998.

Meinen, Christopher S., and D. Randolph Watts, **Further Evidence that the Sound Speed Algorithm of Del Grosso is More Accurate than that of Chen and Millero**, *J. Acoust. Soc. Am.*, 102(4), 2058-2062, 1997.

Kellogg, Richard L. and Christopher Meinen, **A Gravity Investigation of the Fayette Structural Zone and Surrounding Area, Northeast Iowa**, *J. Iowa Acad. Sci.*, 100(3), 72-77, 1993.

## Christopher S. Meinen – Curriculum Vitae

### *NON-REFEREED SCIENCE, WORKSHOP AND TECHNICAL REPORTS*

Meinen, Christopher S., **Collected notes on the basics of pressure-equipped inverted echo sounder (PIES) analysis**, *NOAA Technical Report, OAR-AOML-51*, 18pp., doi:10.25923/2sfh-7827, 2019.

Garcia, Rigoberto F., Christopher S. Meinen, Ryan H. Smith, and Denis L. Volkov, **Oceanographic data collected in the Straits of Florida at 27°N during the year 2017, including the estimated Florida Current transport**, *NOAA Data Report, OAR-AOML-76*, 81 pp., doi:10.25923/3ak8-d940, 2019.

Molinari, Robert L., and Christopher S. Meinen, **Subtropical Atlantic Climate Studies (STACS): What physical oceanographers do**, *NOAA Technical Report, OAR-AOML-49*, 29 pp., doi:10.7289/V5/TR-OAR-AOML-49, 2017.

Garcia, Rigoberto F., Christopher S. Meinen, and Ryan H. Smith, **Oceanographic data collected in the Straits of Florida at 27°N during the year 2016, including the estimated Florida Current transport**, *NOAA Data Report, OAR-AOML-74*, 74 pp., doi:10.7289/V5/DR-AOML-74, 2017.

Garcia, Rigoberto F., Christopher S. Meinen, and Ryan H. Smith, **Oceanographic data collected in the Straits of Florida at 27°N during the year 2000, including the estimated Florida Current transport**, *NOAA Data Report, OAR-AOML-73*, 26 pp., doi:10.7289/V5/DR-AOML-73, 2017.

Garcia, Rigoberto F., Christopher S. Meinen, and Ryan H. Smith, **Oceanographic data collected in the Straits of Florida at 27°N during the year 2001, including the estimated Florida Current transport**, *NOAA Data Report, OAR-AOML-72*, 59 pp., doi:10.7289/V5/DR-AOML-72, 2017.

Garcia, Rigoberto F., Christopher S. Meinen, and Ryan H. Smith, **Oceanographic data collected in the Straits of Florida at 27°N during the year 2002, including the estimated Florida Current transport**, *NOAA Data Report, OAR-AOML-71*, 65 pp., doi:10.7289/V5/DR-AOML-71, 2017.

Garcia, Rigoberto F., Christopher S. Meinen, and Ryan H. Smith, **Oceanographic data collected in the Straits of Florida at 27°N during the year 2003, including the estimated Florida Current transport**, *NOAA Data Report, OAR-AOML-70*, 56 pp., doi:10.7289/V5/DR-AOML-70, 2017.

Garcia, Rigoberto F., Christopher S. Meinen, and Ryan H. Smith, **Oceanographic data collected in the Straits of Florida at 27°N during the year 2004, including the estimated Florida Current transport**, *NOAA Data Report, OAR-AOML-69*, 82 pp., doi:10.7289/V5/DR-AOML-69, 2017.

Garcia, Rigoberto F., Christopher S. Meinen, and Ryan H. Smith, **Oceanographic data collected in the Straits of Florida at 27°N during the year 2005, including the estimated Florida Current transport**, *NOAA Data Report, OAR-AOML-68*, 66 pp., doi:10.7289/V5/DR-AOML-68, 2017.

## Christopher S. Meinen – Curriculum Vitae

### *NON-REFEREED SCIENCE, WORKSHOP AND TECHNICAL REPORTS CONTINUED*

Garcia, Rigoberto F., Christopher S. Meinen, and Ryan H. Smith, **Oceanographic data collected in the Straits of Florida at 27°N during the year 2006, including the estimated Florida Current transport**, *NOAA Data Report, OAR-AOML-67*, 72 pp., doi:10.7289/V5/DR-AOML-67, 2017.

Garcia, Rigoberto F., Christopher S. Meinen, and Ryan H. Smith, **Oceanographic data collected in the Straits of Florida at 27°N during the year 2007, including the estimated Florida Current transport**, *NOAA Data Report, OAR-AOML-66*, 60 pp., doi:10.7289/V5/DR-AOML-66, 2017.

Garcia, Rigoberto F., Christopher S. Meinen, and Ryan H. Smith, **Oceanographic data collected in the Straits of Florida at 27°N during the year 2008, including the estimated Florida Current transport**, *NOAA Data Report, OAR-AOML-65*, 50 pp., doi:10.7289/V5/DR-AOML-65, 2017.

Garcia, Rigoberto F., Christopher S. Meinen, and Ryan H. Smith, **Oceanographic data collected in the Straits of Florida at 27°N during the year 2009, including the estimated Florida Current transport**, *NOAA Data Report, OAR-AOML-64*, 68 pp., doi:10.7289/V5/DR-AOML-64, 2017.

Garcia, Rigoberto F., Christopher S. Meinen, and Ryan H. Smith, **Oceanographic data collected in the Straits of Florida at 27°N during the year 2010, including the estimated Florida Current transport**, *NOAA Data Report, OAR-AOML-63*, 70 pp., doi:10.7289/V5/DR-AOML-63, 2017.

Meinen, Christopher, and Renellys Perez, **South Atlantic Meridional Overturning Circulation - SAMOC VI Workshop Report**, February 21, 2016, New Orleans, LA, 2016.

Garcia, Rigoberto F., Christopher S. Meinen, and Ryan H. Smith, **Oceanographic data collected in the Straits of Florida at 27°N during the year 2011, including the estimated Florida Current transport**, *NOAA Data Report, OAR-AOML-62*, 67 pp., doi:10.7289/V5/DR-AOML-62, 2016.

Garcia, Rigoberto F., Christopher S. Meinen, and Ryan H. Smith, **Oceanographic data collected in the Straits of Florida at 27°N during the year 2012, including the estimated Florida Current transport**, *NOAA Data Report, OAR-AOML-61*, 56 pp., doi:10.7289/V5/DR-AOML-61, 2016.

Garcia, Rigoberto F., Christopher S. Meinen, and Ryan H. Smith, **Oceanographic data collected in the Straits of Florida at 27°N during the year 2013, including the estimated Florida Current transport**, *NOAA Data Report, OAR-AOML-59*, 65 pp., doi:10.7289/V5/DR-AOML-59, 2016.

Garcia, Rigoberto F., Christopher S. Meinen, and Ryan H. Smith, **Oceanographic data collected in the Straits of Florida at 27°N during the year 2014, including the estimated Florida Current transport**, *NOAA Data Report, OAR-AOML-58*, 75 pp., doi:10.7289/V5Z60M26, 2016.

Garcia, Rigoberto F., Christopher S. Meinen, and Ryan H. Smith, **Oceanographic data collected in the Straits of Florida at 27°N during the year 2015, including the estimated Florida Current transport**, *NOAA Data Report, OAR-AOML-57*, 77 pp., doi:10.7289/V5J38QKF, 2016.

## Christopher S. Meinen – Curriculum Vitae

### *NON-REFEREED SCIENCE, WORKSHOP AND TECHNICAL REPORTS CONTINUED*

Danabasoglu, G., R. Curry, A. Karspeck, C. Meinen, R. Msadek, M. Patterson, R. Perez, A. Schmittner, L. Thompson, and S. Yeager, **2014 U.S. AMOC Science Team annual report on progress and priorities**, *U.S. CLIVAR Project Office, Report 2015-1*, 165 pp., 2015.

Ansorge, Isabel J., Molly O. Baringer, Edmo J. D. Campos, Shenfu Dong, Rana A. Fine, Silvia L. Garzoli, Gustavo Goni, Christopher S. Meinen, Renellys Perez, Alberto Piola, Michael J. Roberts, Sabrina Speich, Janet Sprintall, Thierry Terre, and Marcel A. Van Den Berg, **Basin-Wide Oceanographic Array Bridges the South Atlantic**, *EOS Transactions*, 95 (6), 53-54, 2014.

Danabasoglu, Gokhan, Ruth Curry, Patrick Heimbach, Yochanan Kushnir, Chris Meinen, Rym Msadek, Mike Patterson, Luanne Thompson, Steve Yeager, and Rong Zhang, **2013 U.S. AMOC Science Team annual report on progress and priorities**, *U.S. CLIVAR Project Office, Report 2014-4*, 162pp, 2014.

Garzoli, Silvia, Povl Abrahamsen, Isabel Ansorge, Arne Biastoch, Edmo Campos, Mauricio Mata, Christopher Meinen, Jose Pelegri, Renellys Perez, Alberto Piola, Chris Reason, Michael Roberts, Sabrina Speich, Janet Sprintall, Randy Watts, and all of the AMOC IV participants, **South Atlantic Meridional Overturning Circulation (SAMOC) - Fourth Workshop**, *CLIVAR Exchanges*, 58, 2-4, 2012.

Cunningham, Stuart, Molly Baringer, Bill Johns, John Toole, Svein Osterhus, Juergen Fischer, Alberto Piola, Elaine McDonagh, Susan Lozier, Uwe Send, Torsten Kanzow, Jochem Marotzke, Monika Rhein, Silvia Garzoli, Steve Rintoul, Bernadette Sloyan, Sabrina Speich, Lynne Talley, Johanna Baehr, Christopher Meinen, Anne-Marie Treguier, and Pascal Lherminier, **The present and future system for measuring the Atlantic meridional overturning circulation and heat transport**, *In OceanObs09: Sustained Ocean Observations and Information for Society (Volume 2)*, J. Hall, D.E. Harrison, and D. Stammer (eds.). European Space Agency Publication, WPP-306, 16 pp., 2010.

Garzoli, Silvia L., Olaf Boebel, Harry Bryden, Rana A. Fine, Masao Fukasawa, Sergey Gladyshev, Greg Johnson, Mike Johnson, Alexander MacDonald, Christopher S. Meinen, Herle Mercier, Alejandro Orsi, Alberto Piola, Steve Rintoul, Sabrina Speich, Martin Visbeck, Rik Wanninkhof, **Progressing towards global sustained deep ocean observations**, *In OceanObs09: Sustained Ocean Observations and Information for Society (Volume 2)*, J. Hall, D.E. Harrison, and D. Stammer (eds.). European Space Agency Publication, WPP-306, 12 pp., 2010.

Send, U., R. Davis, J. Fischer, S. Imawaki, W. Kessler, C. Meinen, B. Owens, D. Roemmich, T. Rossby, D. Rudnick, J. Toole, S. Wijffels, L. Beal, **A global boundary current circulation observing network**, *In OceanObs09: Sustained Ocean Observations and Information for Society (Volume 2)*, J. Hall, D.E. Harrison, and D. Stammer (eds.). European Space Agency Publication, WPP-306, 12 pp., 2010.

Meinen, Christopher S., and Molly O. Baringer, **Atlantic Meridional Overturning Circulation shows significant changes in early data from international monitoring systems at 26.5°N**, *U.S. CLIVAR Variations*, 6(1), 1-3, 2008.

## Christopher S. Meinen – Curriculum Vitae

### *NON-REFEREED SCIENCE, WORKSHOP AND TECHNICAL REPORTS CONTINUED*

Meinen, Christopher, Silvia Garzoli, Tom Delworth, and John Marshall, **Atlantic Decadal Variability: Combining observations and models to investigate predictability**, NOAA/AOML workshop report, January 10-12, 2007, Miami, FL, 2007.

Baringer, Molly O., Christopher S. Meinen and Silvia L. Garzoli, **The Meridional Overturning Circulation and Oceanic Heat Transport**, in **Annual Report: The State of the Ocean and the Ocean Observing System for Climate**, J. Levy, Ed., Office of Climate Observation, Climate Program Office, National Oceanic and Atmospheric Administration, 68-73, 2006.

Baringer, Molly O., Christopher S. Meinen and Silvia L. Garzoli, **Western Boundary Time Series in the Atlantic Ocean**, in **Annual Report: The State of the Ocean and the Ocean Observing System for Climate**, J. Levy, Ed., Office of Climate Observation, Climate Program Office, National Oceanic and Atmospheric Administration, 150-158, 2006.

Tracey, Karen L., Christopher S. Meinen, and D. Randolph Watts, **North Atlantic Current Inverted Echo Sounder Data Report for August 1993 – July 1995**, University of Rhode Island, Graduate School of Oceanography, GSO Technical Report 96-7, 1996.

Meinen, Christopher S., Erik Fields, Robert S. Pickart, and D. Randolph Watts, **Ray Tracing on Topographic Rossby Waves**, University of Rhode Island, Graduate School of Oceanography, GSO Technical Report 93-1, 1993.

Meinen, Christopher, and Randy Watts, **How the Path Curvature of the Gulf Stream Affects the Cross-Stream Slope of the Thermocline**, *The SYNOPSIS*, 2(4), pg. 8, August 1991.

Meinen, Christopher, and Paul Ferlemann, **The Study of a Hypothesized Structural Zone Using the Gravity Method of Geophysical Exploration**, *J. Undergrad. Res. Phys.*, 10(1), 1991.



## Christopher S. Meinen – Curriculum Vitae

### *SELECTED SCIENTIFIC MEETING ABSTRACTS*

Meinen, C. S., S. Speich, A. R. Piola, I. Ansorge, E. Campos, M. Kersalé, T. Terre, M.-P. Chidichimo, T. Lamont, O. T. Sato, R. C. Perez, D. Valla, M. van den Berg, M. Le Hénaff, S. Dong, and S. L. Garzoli, **Meridional Overturning Circulation transport variability at 34.5° during 2009-2017**, 2019. (27th IUGG General Assembly, July 7-18, Montreal, Canada.)

Meinen, C. S., **Observed Meridional Overturning Circulation transport variability in the North and South Atlantic: Recent results on structure, time scale, and amplitude**, 2018. (2018 International AMOC Science Meeting, July 24-27, Miami, Florida: **Invited talk**.)

Meinen, C. S., S. Speich, A. R. Piola, I. Ansorge, E. Campos, M. Kersalé, T. Terre, M.-P. Chidichimo, T. Lamont, O. T. Sato, R. C. Perez, D. Valla, M. van den Berg, M. Le Hénaff, S. Dong, and S. L. Garzoli, **Meridional Overturning Circulation transport variability at 34.5°S during 2009-2017: Baroclinic and barotropic flows and the dueling influence of the boundaries**, 2018. (2018 International AMOC Science Meeting, July 24-27, Miami, Florida.)

Meinen, C. S., S. Speich, R. C. Perez, M. Kersalé, M.-P. Chidichimo, D. Valla, M. Le Hénaff, S. Dong, T. Lamont, O. Sato, T. Terre, A. R. Piola, E. Campos, I. Ansorge, and S. L. Garzoli, **Daily MOC measurements at 34.5°S in the South Atlantic: Results during 2009-2010 and 2013-2015 using near-boundary moorings and satellite winds**, 2018. (2018 Ocean Sciences Meeting, February 11-16, Portland, Oregon.)

Meinen, C. S., **The role of the Deep Western Boundary Current in the North and South Atlantic: Relationships between the upper and lower limbs of the MOC**, 2017. (IAPSO-IAMAS-IAGA Joint Assembly, August 27-September 1, Cape Town, South Africa: **Invited talk**.)

Meinen, C. S., S. L. Garzoli, R. C. Perez, E. Campos, A. R. Piola, M.-P. Chidichimo, S. Dong, and O. T. Sato, **Characteristics and causes of Deep Western Boundary Current transport variability at 34.5°S during 2009-2014**, 2017. (IAPSO-IAMAS-IAGA Joint Assembly, August 27-September 1, Cape Town, South Africa.)

Meinen, C. S., S. L. Garzoli, E. J. Campos, A. R. Piola, M. P. Chidichimo, R. C. Perez, S. Dong, and O. T. Sato, **Deep Western Boundary Current variability at 34.5°S during 2009-2015**, 2016. (2016 Ocean Sciences Meeting, February 21-26, New Orleans, Louisiana.)

Meinen, C. S., **Monitoring Florida Current transport at 27°N using pressure gauges**, 2015. (2015 RAPID/USAMOC International Science Meeting, July 21-24, Bristol, United Kingdom.)

Meinen, C. S., E. J. D. Campos, S. L. Garzoli, A. R. Piola, M. P. Chidichimo, R. C. Perez, and S. Dong, **Deep Western Boundary Current measurements at 34.5°S in the South Atlantic: Observed variability and structure during 2009-2014**, 2015. (26th IUGG General Assembly, June 22-July 2, Prague, Czech Republic.)

Meinen, C. S., W. E. Johns, S. Speich, D. A Smeed, R. C. Perez, G. McCarthy, S. Dong, A. R. Piola, S. L. Garzoli, E. Frajka-Williams, M. O. Baringer and E. Campos, **Observed MOC variability at 26.5°N and 34.5°S: Structure and time scale similarities and differences in the North and South Atlantic**, 2014. (2014 Fall AGU Meeting, December 15-19, San Francisco, California.)

## Christopher S. Meinen – Curriculum Vitae

### *SELECTED SCIENTIFIC MEETING ABSTRACTS CONTINUED*

Meinen, C. S., R. C. Perez, S. Dong, A. R. Piola, S. L. Garzoli, and E. Campos, **Observed Deep Western Boundary Current variability at 34.5°S during 2009-2012**, 2014. (2014 USAMOC Annual Meeting, September 9-11, Seattle, Washington.)

Meinen, C. S., S. Speich, R. C. Perez, S. Dong, A. R. Piola, S. L. Garzoli, M. Baringer, S. Gladyshev, and E. J. D. Campos, **Temporal variability of the Meridional Overturning Circulation at 34.5S: Results from two pilot boundary arrays in the South Atlantic**, 2014. (Ocean Sciences meeting, February 23-28, Honolulu, Hawaii.)

Meinen, C. S., S. Speich, R. C. Perez, S. Dong, A. R. Piola, S. L. Garzoli, M. Baringer, S. Gladyshev, and E. J. D. Campos, **Western and Eastern Boundary measurements at 34.5°S in the South Atlantic: Preliminary results of MOC-related variability**, 2013. (IAHS-IAPSO-IASPEI Joint Assembly, July 22-26, Gothenburg, Sweden.)

Meinen, C. S., S. Speich, A. R. Piola, R. C. Perez, S. Dong, S. L. Garzoli, M. Baringer, and E. Campos, **Meridional overturning estimates using pilot array data at 34.5°S in the Atlantic**, 2013. (U.S. AMOC/U.K. RAPID International Science Meeting, July 16-19, Baltimore, Maryland.)

Meinen, C. S., S. Speich, A. R. Piola, R. C. Perez, S. Dong, and S. L. Garzoli, **Boundary Current measurements at 34.5°S in the South Atlantic: Preliminary results of MOC-related variability**, 2012. (2012 AMOC Annual PI Meeting, August 15-17, Boulder, Colorado.)

Meinen, C. S., and S. L. Garzoli, **Physical mechanisms involved in Deep Western Boundary Current variability at 26.5°N**, 2012. (EGU General Assembly, April 22-27, Vienna, Austria.)

Meinen, C. S., S. L. Garzoli, R. C. Perez, and A. Piola, **Atlantic Meridional Overturning Circulation: Deep Western Boundary Current transport variability in the South Atlantic - Preliminary results from a pilot array at 34.5°S**, 2011. (2011 World Climate Research Program Open Science Conference, October 24-28, Denver, Colorado.)

Meinen, C. S., W. E. Johns, S. L. Garzoli, E. van Sebille, D. Rayner, T. Kanzow and M. O. Baringer, **Atlantic Meridional Overturning Circulation: Variability of the Deep Western Boundary Current at 26.5°N during 2004-2009**, 2011. (2011 World Climate Research Program Open Science Conference, October 24-28, Denver, Colorado.)

Meinen, C. S., W. E. Johns, S. L. Garzoli, S. A. Cunningham and T. Kanzow, **Variability of the Deep Western Boundary Current at 26.5°N**, 2011. (2011 RAPID-U.S. AMOC International Science Meeting, July 12-15, Bristol, United Kingdom.)

Meinen, C. S., S. L. Garzoli, M. O. Baringer, S. A. Cunningham, D. Rayner, and W. E. Johns, **Variability of the Antilles Current and Deep Western Boundary Current at 26.5°N**, 2010. (2010 RAPID Annual Meeting, July 14-16, Exeter, United Kingdom.)

Meinen, C. S., S. L. Garzoli, A. Piola, M. O. Baringer, E. Campos, and S. Speich, **Variability of the Western Boundary Components of the Meridional Overturning Circulation in the South Atlantic**, 2010. (2010 Ocean Sciences meeting, February 22-26, Portland, Oregon.)

## Christopher S. Meinen – Curriculum Vitae

### *SELECTED SCIENTIFIC MEETING ABSTRACTS CONTINUED*

Meinen, C. S., S. L. Garzoli, M. O. Baringer, and R. F. Garcia, **Variability of the Antilles Current and Deep Western Boundary Current from four years of PIES and CPIES data at 26.5°N**, 2009. (2009 RAPID Annual Meeting, July 7-9, Edinburgh, United Kingdom.)

Meinen, C. S., M. O. Baringer, and R. F. Garcia, **Florida Current Transport Variability: An Analysis of Annual and Longer-Period Signals**, 2008. (2008 RAPID Annual Meeting, June 30-July 2, Cambridge, United Kingdom.)

Meinen, C. S., M. O. Baringer, and R. F. Garcia, **Variations of the Florida Current transport from 1964 to 2007 and the relationship to forcing**, 2008. (2008 Ocean Sciences Meeting, March 2-7, Orlando, Florida.)

Meinen, C. S., D. S. Luther, and M. O. Baringer, **Evolution of the Gulf Stream structure, transport, and vertical coherence from the Straits of Florida to the Southeast Newfoundland Ridge**, 2007. (EGU General Assembly, April 15-20, Vienna, Austria.)

Meinen, C. S., M. O. Baringer, and S. L. Garzoli, **Variability of the Western Boundary Currents in the Subtropical North Atlantic**, 2006. (Rapid Climate Change International Conference, October 24-27, Birmingham, United Kingdom.)

Meinen, C. S., M. O. Baringer, and S. L. Garzoli, **Variability in transports along the subtropical Atlantic western boundary: Implications for monitoring the MOC**, 2006. (EGU General Assembly, April 2-7, Vienna, Austria.)

Meinen, C. S., and D. S. Luther, **Revisiting the Gulf Stream: What can be learned when new techniques are applied to old data sets?**, 2006. (Ocean Sciences meeting, February 20-24, Honolulu, HI.)

Meinen, C. S., M. O. Baringer, D. Shoosmith, and R. F. Garcia, **The Florida Current: Long term measurements of the transport of the upper limb of the Meridional Overturning Cell**, 2005. (CLIVAR Atlantic Science Conference, January 31-February 2, Miami, FL.)

Meinen, C. S., and S. L. Garzoli, **North Brazil Current: Rings, Retroflexion, and Transports**, 2004. (1st International CLIVAR Science Conference, June 21-25, Baltimore, MD.)

Meinen, C. S., S. L. Garzoli, W. E. Johns, and M. O. Baringer, **Transport Variability of the Deep Western Boundary Current and the Antilles Current off Abaco Island, Bahamas**, AGU, 85 (OS21F-09), 2004. (Ocean Sciences Meeting, January 26-30, Portland, OR.)

Meinen, C., **Meridional Extent of the Pacific Ocean Tropical-Subtropical Warm Water Exchange**, Geophysical Research Abstracts, 5 (00977), 2003. (EGS-AGU-EGU Joint Assembly, April 6-11, Nice, France.)

Meinen, C. S., D. S. Luther, A. D. Chave, D. R. Watts, **Structure of the Subantarctic Front and the Absolute Horizontal and Vertical Velocity Associated with the Front**, 2002. (WOCE and Beyond: Achievements of the World Ocean Circulation Experiment Conference, November 18-22, San Antonio, TX.)

Meinen, C. S., and D. S. Luther, **Synoptic Structure of the Sub-Antarctic Front Southwest of Tasmania: Temperature, Salinity, and Absolute Velocity**, AGU, 83 (OS32T-02), 2002. (Ocean Sciences Meeting, February 11-15, Honolulu, HI)

## Christopher S. Meinen – Curriculum Vitae

### *SELECTED SCIENTIFIC MEETING ABSTRACTS CONTINUED*

Luther, D. S., and C. S. Meinen, **Comparison of Methods of Estimating Mean Synoptic Current Structure in “Stream Coordinates” Reference Frames: Impact on Structure, Transport and Dynamical Inferences With an Example From the Antarctic Circumpolar Current**, AGU, 83 (OS32T-01), 2002. (Ocean Sciences Meeting, February 11-15, Honolulu, HI)

Meinen, C. S., M. J. McPhaden, and G. C. Johnson, **Vertical Velocities and Transports in the Equatorial Pacific During 1993–1999**, AGU, 81 (OS71B-12), 2000. (AGU Fall Meeting, December 15-19, San Francisco, CA)

Meinen, C. S., and M. J. McPhaden, **Observations of Warm Water Volume Changes in the Equatorial Pacific and Their Relationship to El Niño and La Niña**, AGU, 80, (OS22M-04), 2000. (Ocean Sciences Meeting, January 24–28, San Antonio, TX)

Meinen, C. S., and M. J. McPhaden, **Warm Water Volume Changes and Transports in the Tropical Pacific During the 1997–1998 El Niño**, AGU, 79 (OS41H-01), 1998. (AGU Fall Meeting, December 6-10, San Francisco, CA)

Meinen, C. S., and D. R. Watts, **Absolute Transport of the North Atlantic Current at 42°N and the Circulation in the Newfoundland Basin**, (NAt-04af), 1998. (The 1998 Conference of the World Ocean Circulation Experiment Ocean Circulation and Climate, May 24-29, Halifax, Canada)

Meinen, C. S., D. R. Watts, and R. A. Clarke, **Transport of the North Atlantic Current (NAC) at 42.5°N**, AGU, 79 (OS11J-02), 1998. (Ocean Sciences Meeting, February 9-13, San Diego, CA)

Watts, D. R., and C. S. Meinen, **Empirical Determination of the Gravest Vertical Structure**, AGU, 79 (OS41D-08), 1998. (Ocean Sciences Meeting, February 9-13, San Diego, CA)

Meinen, C. S., and D. R. Watts, **On Topographic Rossby Waves in the Mid-Atlantic Bight**, AGU, 75 (O42N-11), 191, 1994. (Ocean Sciences Meeting, February 21-25, San Diego, CA)