

## Magdalena Andres

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Woods Hole Oceanographic Institution, 266 Woods Hole Road, MS 21, Woods Hole, MA 02543  
Phone: (w) 508-289-2660 (c) 401-423-2406 Email: mandres@whoi.edu  
Citizenship: U.S.A.

## Education

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- Ph.D. in Physical Oceanography 2008  
University of Rhode Island, Graduate School of Oceanography  
Thesis: *An Observational Study of the Kuroshio in the East China Sea: Local, Regional, and Basin-wide Perspectives on a Western Boundary Current*  
Advisor: Mark Wimbush
- M.S. in Geochemical/Geological Oceanography 2001  
University of Rhode Island  
Thesis: *Hafnium Isotope Ratio in Mid-Ocean Ridge Basalts: a Global Survey and Focus on the Southern Mid-Atlantic Ridge (40°S to 55°S)*  
Advisor: Jean-Guy Schilling
- B.S. in Chemical Engineering 1995  
University of Rhode Island

## Academic and Professional Appointments

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- Assistant Scientist Aug. 2011 – present  
Woods Hole Oceanographic Institution, Physical Oceanography Department
- Postdoctoral Scholar, Ocean and Climate Change Institute 2009 – 2011  
Woods Hole Oceanographic Institution, Physical Oceanography Department  
Mentors: Jiayan Yang, Young-Oh Kwon, Claudia Cenedese
- Graduate Research Assistant 2003 – 2008  
University of Rhode Island, Graduate School of Oceanography,  
Physical Oceanography Program, Narragansett, RI
- Graduate Research Assistant 1999 – 2001  
University of Rhode Island, Graduate School of Oceanography,  
Geological Oceanography Program, Narragansett, RI
- Research Engineer 1995 – 1999  
MPM Corporation, Franklin, MA

## Research Interests

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Western boundary current variability, upper-ocean/ deep-ocean interactions, interactions of eddies with islands.

## Funded Grants

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*Kuroshio Transport: Interannual to Decadal Variability and the Underlying Mechanisms*, NSF, OCE-1028739, \$542,013, 10/1/2010 – 9/30/2013, **M. Andres**, J. Yang, and Y.-O. Kwon, Co-PIs.

*Modeling Interactions between the Gulf Stream and Deep Western Boundary Current by the Tail of the Grand Banks*, WHOI-internal, OCCI-16293, \$49,874 9/15/2011 – 9/14/2013, **M. Andres**, M. McCartney, Co-PIs.

## Pending Proposal

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*ReACTIONZ: Response of Abyssal Currents to Topographic Influences in the Ocean Northeast of New Zealand*, NSF August 2011, OCE-1153706, \$4,112,193 1/1/2012 – 12/31/2017, A. Macdonald, **M. Andres**, Co-PIs.

## Teaching Experience

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### Lecturer:

|   |                  |
|---|------------------|
| Bryant University, <i>Oceanography</i>              | summer term 2009 |
| University of Rhode Island, <i>The Ocean Planet</i> | summer term 2009 |
| Mater Ecclesiae College, <i>Physics</i>             | spring term 2009 |

### Teaching Assistant:

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|---|----------------|
| University of Rhode Island, <i>Introduction to Physical Oceanography (graduate level)</i> | fall term 2005 |
| University of Rhode Island, <i>Introduction to Engineering (undergraduate level)</i>      | fall term 1995 |

## Outreach Activities

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| Middle School Lab-Module Guest-Instructor<br>8 <sup>th</sup> grade science classes, Lawn Avenue School, Jamestown, RI | November 22, 2010                                 |
| Graduate Physical Oceanography Instructor<br>NF-POGO Center of Excellence at the Bermuda Institute of Ocean Sciences  | Sept. 27 – Oct. 1, 2010 & Aug. 22 – Aug. 26, 2011 |
| Undergraduate Physical Oceanography Instructor<br>Woods Hole Partnership in Education Program                         | June 23 – 24, 2010 & June 9 – 13, 2011            |

## Field Experience

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| <i>R/V Kagoshima-maru</i> , East China Sea<br>Recovered and redeployed IES instruments south of Okinawa, Japan. | June 4 – 11, 2010       |
| <i>R/V Universitatis</i> , Adriatic Sea<br>Recovered various instruments, made hydrographic measurements.       | September 13 – 23, 2006 |
| <i>R/V Kagoshima-maru</i> , East China Sea<br>Recovered IES instruments deployed across the Kuroshio.           | November 17 – 20, 2004  |

## Fellowships

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| WHOI Ocean and Climate Change Institute Postdoctoral Scholarship | 2009 – 2011 |
| University of Rhode Island Fellowship                            | 2007        |
| National Defense Science and Engineering Graduate Fellowship     | 1999 – 2001 |

## Honors and Professional Memberships

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| Webb Award   | 2008       |
| Lance A. Ricci Award   | 2006       |
| President's Award for Student Excellence in Chemical Engineering | 1995       |
| Tau Beta Pi  | 1994       |
| AiChe Annual Chapter Award for Scholastic Achievement            | 1994       |
| University College Scholar                                       | 1992       |
| Phi Eta Sigma Freshman Honor Society                             | 1992       |
| American Geophysical Union member                                | since 2005 |
| Sigma Xi member  | since 2008 |

## Publications

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### *Submitted publication*

**Andres, M.**, J. Yang, and Y.-O. Kwon, Interaction of Rossby waves with ridges and the resulting western boundary current variability, *Journal of Physical Oceanography*, submitted.

### *Refereed publications*

**Andres, M.**, Y.-O. Kwon, and J. Yang, Observations of the Kuroshio's barotropic and baroclinic responses to basin-wide wind forcing, *Journal of Geophysical Research*, 116, C04011, doi:10.1029/2010JC006863, 2011.

**Andres, M.**, J.-H. Park, M. Wimbush, X. Zhu, H. Nakamura, K. Kim, and K.-I. Chang, Manifestation of the Pacific Decadal Oscillation in the Kuroshio, *Geophysical Research Letters*, 36, L16602, doi:10.1029/2009GL039216, 2009.

**Andres, M.**, J.-H. Park, M. Wimbush, X. Zhu, K.-I. Chang, and H. Ichikawa, Study of the Kuroshio/Ryukyu Current system based on satellite altimeter and *in situ* measurements, *Journal of Oceanography*, 64, 937-950, 2008.

**Andres, M.**, M. Wimbush, J.-H. Park, K.-I. Chang, B.-H. Lim, D.R. Watts, H. Ichikawa, W. J. Teague, Observations of Kuroshio flow variations in the East China Sea, *Journal of Geophysical Research*, 113, C05013, doi:10.1029/2007JC004200, 2008.

Park, J.-H., **M. Andres**, P.J. Martin, M. Wimbush, and D.R. Watts, Second-mode internal tides in the East China Sea deduced from historical hydrocasts and a model, *Geophysical Research Letters*, 33(5), 2006.

Blichert-Toft, J., A. Agranier, **M. Andres**, R. Kingsley, J.-G. Schilling, and F. Albarede, Geochemical segmentation of the Mid-Atlantic Ridge north of Iceland and ridge-hot spot interaction in the North Atlantic, *Geochemistry, Geophysics, and Geosystems*, 6(1), doi:10.1029/2004GC000788, 2005.

**Andres, M.**, J. Blichert-Toft, J.-G. Schilling, Nature of the depleted upper mantle beneath the Atlantic: evidence from Hf isotopes in normal mid-ocean ridge basalts from 79°N to 55°S, *Earth and Planetary Science Letters*, 225 89-103, 2004.

**Andres, M.**, J. Blichert-Toft, and J.-G. Schilling, Hafnium isotopes in basalts from the southern Mid-Atlantic Ridge from 40°S to 55°S: Discovery and Shona plume-ridge interactions and the role of recycled sediments, *Geochemistry Geophysics Geosystems*, 3(10), 8502, doi:10.1029/2002GC000324, 2002.

### *Non-refereed publication*

**Andres, M.**, K.-I. Chang, C.-S. Hong, H. Ichikawa, D.-K. Lee, J.-H. Lee, B.-H. Lim, D.A. Mitchell, J.-H. Park, W. Teague K. Tracey, D.R. Watts, M. Wimbush, East China Sea Kuroshio 2002-2004 data report, GSO Technical Report No. 2005-02, 2005.

## Patent

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G. Pham-Van-Diep and **M. Andres**, Method and apparatus for forming droplets, United States Patent, US 6,260,741 B1, 2001.

## Presentations at Scientific Meetings

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**Andres, M.**, Barotropic and Baroclinic Responses to Basin-Wide Wind Forcing: Insights on the Kuroshio from Observations and OFES Model Output, *International Union of Geodesy and Geophysics General Assembly*, Melbourne, Australia, June 28 - July 7, 2011. Talk.

- Andres, M.**, The barotropic response of the Kuroshio to wind forcing: Remote forcing of the Kuroshio in the East China Sea: observations and OFES data, 3<sup>rd</sup> *OFES International Workshop held at JAMSTEC*, Yokohama, Japan, November 2010. Invited talk.
- Andres, M.**, Remote forcing of the Kuroshio in the East China Sea: transport variability at interannual to decadal time scales, *International Symposium on Boundary Current Dynamics*, Qingdao, China, May 2010. Invited talk.
- Andres, M.**, Y.-O. Kwon, and J. Yang, Local versus remote forcing of interannual to decadal variability in the Kuroshio, *Ocean Sciences Meeting*, Portland, OR. February 2010. Poster.
- Andres, M.**, J.-H. Park, M. Wimbush, X.-H. Zhu, and K.-I. Chang, Manifestation of the Pacific Decadal Oscillation in the North Pacific Western Boundary Current System, *US CLIVAR Western Boundary Current Workshop*, Phoenix, AZ. January 2009. Poster.
- Andres, M.**, J.-H. Park, M. Wimbush, and K.-I. Chang, 10-70 day variability of Kuroshio transport in the East China Sea, *Ocean Sciences Meeting*, Orlando, FL, March 2008. Poster.
- Andres, M.**, J.-H. Park, M. Wimbush, K.I. Chang, and H. Ichikawa, Observations of Kuroshio Variability in the East China Sea, 14<sup>th</sup> *Annual PAMS/JECSS Meeting*, Hiroshima, Japan, May 2007. Invited talk.
- Andres, M.**, J.-H. Park, and M. Wimbush, Variation of the Kuroshio in the East China Sea, *Ocean Sciences Meeting*, Honolulu, Hawaii, February 2006. Talk.
- Andres, M.**, J. Blichert-Toft, and J.-G. Schilling, Hf isotope compositions of MORB from the Mid-Atlantic Ridge (40°S to 55°S), *American Geophysical Union Meeting*, May, 2001. Poster.

## Presentations at Seminar Series

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- “Barotropic and Baroclinic Responses to Basin-Wide Wind Forcing: Insights on the Kuroshio from Observations and a 2-Layer Model”*  
 University of Rhode Island, January 28, 2011.  
 Scripps Institution of Oceanography, April 14, 2011.  
 Woods Hole Oceanographic Institution, May 3, 2011.  
 National Institute of Water and Atmospheric Research (New Zealand), July 4, 2011.
- “Uses and Abuses of CPIES in the Kerama Gap”*  
 WHOI Buoy Lunch, July 12, 2010.
- “Observations of the Kuroshio in the East China Sea: Local, Regional, and Basin-wide Perspectives on a Western Boundary Current”*  
 Woods Hole Oceanographic Institution, May, 2009.  
 University of Massachusetts-Dartmouth, March, 2009.  
 Naval Research Laboratory, Stennis Space Center, January, 2009.  
 University of Delaware, September, 2008.
- “Observations of the Kuroshio-Ryukyu Current System”*  
 University of Rhode Island/ Graduate School of Oceanography, April 8, 2008.
- “Kuroshio Observations in the East China Sea”* in a Symposium in Honor of Mark Wimbush,  
 University of Rhode Island/ Graduate School of Oceanography, October 17, 2008.