Gustavo Mastrorocco Marques

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EMPLOYMENT

*** Postdoctoral Research Associate** **Jul 2015 - present**
Program in Atmospheric and Oceanic Sciences, Princeton University

EDUCATION

*** PhD in Meteorology & Physical Oceanography** **Sep 2010 - May 2015**

Rosenstiel School of Marine & Atmospheric Science, University of Miami

Dissertation title: *On the processes controlling Antarctic dense shelf water outflows*

Advisor: Dr. Tamay M. Özgökmen

*** M.Sc. in Physical Oceanography** **Sep 2007 - May 2010**

School for Marine Science and Technology, University of Massachusetts Dartmouth

Thesis title: *Secondary Flow Associated with Transient Tidal Eddy Motion in the Western Gulf of Maine*

Advisor: Dr. Wendell S. Brown

*** B.Sc., Oceanography** **Jan 2002- Dec 2006**

Oceanographic Institute of the University of Sao Paulo (IOUSP), Sao Paulo, SP, Brazil

Thesis title: *Assessment of the Toxicity Field of Santos/Sao Vicente Sewage Outfall between Hydrodynamic Dispersion Models Coupled with an Empirical Ecotoxicological Model*

Advisor: Dr. Joseph Harari

PEER-REVIEWED PUBLICATIONS

- **Marques, G.M.**, M. G. Wells, L. Padman, and T.M. Özgökmen, (2016). Flow splitting in numerical simulations of oceanic dense-water outflows. Submitted to *Ocean Modelling*.
- **Marques, G.M.** and T.M. Özgökmen, (2014). On Modeling Turbulent Exchange in Buoyancy-Driven Fronts. *Ocean Modelling*, 83, pp. 43-62, doi:10.1016/j.ocemod.2014.08.006.
- **Marques, G. M.**, L. Padman, S. R. Springer, S. L. Howard, and T. M. Özgökmen (2014). Topographic vorticity waves forced by Antarctic dense shelf water outflows, *Geophys. Res. Lett.*, 41, doi:10.1002/2013GL059153.
- Brown, W.S. and **Marques, G.M.**, (2012). Tidal eddy motions in the western Gulf of Maine, Part 1: Primary Structure. *Continental Shelf Research*, doi:10.1016/j.csr.2012.08.018.
- **Marques, G.M.** and Brown, W.S., (2012). Tidal eddy motions in the western Gulf of Maine, Part 2: Secondary Flow. *Continental Shelf Research*, doi:10.1016/j.csr.2012.02.008.

HONORS AND AWARDS

- Earned a scientific initiation scholarship from the Foundation for Research Support of the State of São Paulo (FAPESP), 2006.

Experience at sea (summary)

- Cruises around São Paulo and Rio de Janeiro, Brazil. Observation of physical, biological, geological and chemical properties.
- Coastal cruises around Massachusetts, USA. Observation of physical properties.
- Cruise around Florida, USA. Observation of physical properties.
- Instruments deployed: glider, CTD, ADCP, rosette, Niskin and Nansen bottles, fluorometer, plankton net, Van Veen grab, box-corer, fish net, moorings and side-scan sonar.
- Total of approximately 21 days at sea.

Courses, Workshops and Meetings

- *Rising Coastal Seas on a Warming Earth II*, NYU Abu Dhabi Institute, Abu Dhabi - United Arab Emirates, May 16-18, 2016.
- *Using Satellite Observations to Advance Climate Models*, Keck Institute for Space Studies, California Institute of Technology, Pasadena - CA , Aug 31-Sep 4, 2015.
- *Summer School in Fluid Dynamics of Sustainability and the Environment*, Department of Applied Mathematics and Theoretical Physics at the University of Cambridge, UK, Sep 1-12, 2014.
- *All Hands Meeting*, Consortium for Advanced Research on Transport of Hydrocarbon in the Environment, Hollywood - FL, Apr 30-May 2, 2014
- *All Hands Meeting/Tutorials*, Consortium for Advanced Research on Transport of Hydrocarbon in the Environment, Miami - FL, Oct 2-4, 2013
- *All Hands Meeting/Tutorials*, Consortium for Advanced Research on Transport of Hydrocarbon in the Environment, Miami - FL, May 29-31, 2013
- *All Hands Meeting*, Consortium for Advanced Research on Transport of Hydrocarbon in the Environment, Miami - FL, Nov 8-9, 2012.
- *ROMS/TOMS User Workshop*, Rio de Janeiro, Brazil, Oct 22-25, 2012.
- *Coastal Modeling Summer School* organized by the CNRS and University of Toulon in La Londe des Maures, France, Sep 18-23, 2011.
- *Glider training*, Coastal Ocean Observation Laboratory, Rutgers University - NJ, January 9-11, 2008.
- *Course on physical and biological ocean modeling: Biogeochemical (ROMS-NPZ-PISES) and individual based (IBM) modeling*, Universidad de Concepcion, Dichato, Chile, Jul 03-14, 2007, (SACC - CRN Scholarship).
- *Modeling the ocean in the climate system*, Dr. William George Large. III Brazilian Symposium of Oceanography, Brazil. Dec 04-08, 2006.

Teaching

- Lectured, Ocean Physics for Climate, GEO-425, Princeton University, Fall 2015.
- Workshop, Introduction to the Regional Ocean Modeling System (ROMS). University of Miami, Fall 2013.
- Lectured, Atmospheric and Oceanic Turbulence, RSMAS/MPO-664. University of Miami, Fall 2013.
- Lectured, Geophysical Fluid Dynamics I, RSMAS/MPO-511. University of Miami, Fall 2011, 2012 and 2013.
- Teaching Assistant, Survey of Oceanography, MSC-101. University of Miami, Fall 2012.
- Teaching Assistant, Numerical Methods in Fluid Dynamics, RSMAS/MPO-662. University of Miami, Fall 2011.

Oral Presentations

- *Changes in bottom water formation in the western Ross Sea due to the melting of ice shelves in West Antarctica.* Rising Coastal Seas on a Warming Earth II, Abu Dhabi - United Arab Emirates, May 16-18, 2016.

- *Flow Splitting in Numerical Simulations of Oceanic Dense-Water Outflows.* Ocean Science Meeting, New Orleans - LA, USA, February 21-26, 2016.
- *Topographic vorticity waves forced by Antarctic dense shelf water outflows.* Ocean Science Meeting, Honolulu - HI, USA, February 23-28, 2014.
- *On modeling the turbulent exchange in buoyancy-driven fronts.* ROMS/TOMS User Workshop at the Windsor Atlantica Hotel, Petropolis Conference Room, Rio de Janeiro, Brazil, October 22, 2012.
- *Lagrangian Coherent Structures Introduced by Overflows.* LAPCOD V, Miami Beach - FL, USA. June 11-15, 2012.
- *Transient Tidal Eddy Motion and Associated Secondary Flow in the Western Gulf of Maine.* Graduate School of Oceanography, University of Rhode Island, USA, June 6, 2010.
- *Oil Spill Sensitivity Mapping.* First Oceanography Thematic Week, Oceanographic Institution, University of Sao Paulo, Brazil, 28 Aug - 01 Sep 2006.

Conference Abstracts

- **Marques, G.M.**, L. Padman and Özgökmen, T.M. (2013). Idealized Numerical Model Simulations of AABW Production in the NW Ross Sea: Sensitivity to Grid Resolution, Mixing Models and Background Stratification. In: Gordon Research Conference on Coastal Ocean Circulation, Biddeford, ME, USA.
- **Marques, G.M.**, and Özgökmen, T.M. (2011). Comparing mixing and coherent turbulent features using an OGCM and a non-hydrostatic spectral element model. In: Coastal Modeling Summer School, University of Toulon in La Londe des Maures, France.
- **Marques, G.M.**, and Brown, W. S. (2010). Secondary Circulation Associated with Strong Tidal Flow in the Western Gulf of Maine. In: 2010 Ocean Sciences Meeting, Portland, Oregon, USA.
- **Marques, G.M.**, and Brown, W. S. (2009). Transient tidal eddy motion in the Western Gulf of Maine: preliminary dynamical results. In: Gordon Research Conference on Coastal Ocean Circulation, New London, NH, USA.
- **Marques, G.M.**, and Brown, W. S. (2008). Preliminary measurements of the water properties in the western Great South Channel. In: Mid-Atlantic Bight Physical Oceanography and Meteorology Meeting 2008, Woods Hole, Massachusetts, USA.
- **Marques, G.M.**, Leo, F. C., Pucci, M. C. J., Vaz, A. C., Marquez, A. L., Tessler, M. G., and Gherardi, D. (2006). Characterization of biological and socioeconomic resources of the south coast of Sao Paulo for the mapping of environmental sensitivity to oil. In: III Brazilian Symposium of Oceanography, Brazil.
- **Marques, G.M.** and Harari, J. (2006). Assessment of the near field associated with the Santos sewage outfall using a non-hydrostatic model and fecal coliform analysis. In: III Brazilian Symposium of Oceanography, Brazil.
- **Marques, G.M.**, Sousa, E. C. P. M. (2006). Assessment of the effluent toxicity from the Santos/Sao Vicente sewage pre-conditioning station during 24 hours - Summer 2006. In: 14th International Symposium on Scientific Initiations University of Sao Paulo, Brazil.

Professional Activities

Reviewer for Ocean Modeling, Deep Sea Research, Ocean Science and National Science Foundation.

Member of the American Geophysical Union, 2009-present, and the American Meteorological Society, 2013-present.

Last update: October 13, 2016