

## Caroline Muller

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CONTACT INFORMATION	Princeton University/GFDL 201 Forrestal Road Princeton, NJ 08540 USA	(917) 353-1492 carolinemuller123@gmail.com
RESEARCH EXPERIENCE	<p>2012 <b>Laboratoire d'Hydrodynamique (LadHyX), CNRS, École Polytechnique, France</b> CNRS researcher</p> <p>2010 - 2012 <b>Princeton University/GFDL, Program in Atmospheric and Oceanic Sciences</b> Associate Research Scholar, with Isaac Held</p> <p>2008 - 2010 <b>Massachusetts Institute of Technology, Dept. of Earth, Atmospheric, and Planetary Sciences</b> Postdoctoral Associate, with Paul O'Gorman</p> <p>2003 - 2008 <b>New York University, Courant Institute of Mathematical Sciences</b> Ph.D. research, with Oliver Bühler</p> <p>Summers of 2004, 2005 and 2006 <b>NASA Goddard Institute for Space Studies</b> Summer internships, with Vittorio Canuto and Armando Howard</p> <p>2001 - 2002 <b>Georgia Institute of Technology, Aerospace Engineering Dept</b> Masters research, with Panagiotis Tsiotras</p> <p><b>Princeton University, Electrical Engineering Dept, Research Experience for Undergraduates</b> Summer 2000, with Stephen Forrest – Final presentation chosen for public display at <a href="http://www.princeton.edu/~pccm/outreach/reuarchive/reuprojects2000.htm">http://www.princeton.edu/~pccm/outreach/reuarchive/reuprojects2000.htm</a></p>	
HONORS AND AWARDS	2009 Geophysical Research Letter publication selected to be an editor's highlight	
	2007 Sandra Bleistein Prize for notable achievement in applied mathematics Courant Institute of Mathematical Sciences	
	2007 Best Poster Presentation Award AMS 16 <sup>th</sup> Conference on Atmospheric and Oceanic Fluid Dynamics	
	2007 Nominated for Outstanding Teaching Award New York University College of Arts and Sciences	
	2003–2008 Henry MacCracken Fellowship New York University Graduate School of Arts and Sciences	
	1999 Ranked first on the competitive entrance exam Mathematics major Supaéro, École Nationale Supérieure de l'Aéronautique et de l'Espace	
EDUCATION	<p><b>Courant Institute of Mathematical Sciences, New York University</b> Ph.D. in Applied Mathematics, May 2008 M.S. in Mathematics, May 2005</p> <ul style="list-style-type: none"><li>• Dissertation Topic: Wave-induced mixing in the abyssal ocean</li><li>• Advisor: Oliver Bühler</li></ul> <p><b>Georgia Institute of Technology</b> M.S. in Aerospace Engineering, Dec 2002 - selective dual degree program with Supaéro</p>	

- Master's thesis topic: A wavelet method for solving optimal control problems
- Advisor: Panagiotis Tsiotras

**Supaéro, École Nationale Supérieure de l'Aéronautique et de l'Espace, France**

Engineering degree, March 2003

- Ranked first on the competitive entrance exam for Supaéro Mathematics major

TEACHING  
EXPERIENCE

Spring 2008 Lecturer, Calculus II  
 Spring 2007 Lecturer, Calculus III  
 Fall 2006 Lecturer, Calculus II  
 Spring 2006 Lecturer, PreCalculus  
 Fall 2005 Lecturer, Calculus II  
 Spring 2005 Teaching Assistant, Quantitative Reasoning  
 Fall 2004 Teaching Assistant, Quantitative Reasoning  
 Fall 2003 Teaching Assistant, Business Calculus

PUBLICATIONS

C.J. Muller, 2012, *Impact of convective organization on the response of tropical precipitation extremes to warming*, J. Climate, submitted

C.J. Muller, I.M. Held, 2012, *Detailed investigation of the self-aggregation of convection in cloud-resolving simulations*, J. Atmos. Sci., **69**

C.J. Muller, P.A. O’Gorman, 2011, *An energetic perspective on the regional response of precipitation to climate change*, Nature Climate Change, **1**

C.J. Muller, P.A. O’Gorman, L.E. Back, 2011, *Intensification of precipitation extremes with warming in a cloud resolving model*, J. Climate, **24**

P.A. O’Gorman, C.J. Muller, 2010, *How closely do changes in surface and column water vapor follow Clausius-Clapeyron scaling in climate-change simulations?*, Environ. Res. Lett., **5**; see **ERL news article** about this paper at <http://environmentalresearchweb.org/cws/article/news/42289>

V.M. Canuto, A.M. Howard, Y. Cheng, C.J. Muller, A. Leboissetier and S.R. Jayne, 2010, *Ocean turbulence III: New GISS vertical mixing scheme*, Ocean Modelling, **34**

C.J. Muller, L.E. Back, P.A. O’Gorman, and K.A. Emanuel, 2009, *A model for the relationship between tropical precipitation and column water vapor*, Geophys. Res. Lett., **36**; chosen to be an **Editor’s Highlight**

C.J. Muller and O. Bühler, 2009, *Saturation of the internal tides and induced mixing in the abyssal ocean*, J. Phys. Oceanogr. **39**

C.J. Muller, 2008, *Wave-induced mixing above the abyssal seafloor*, Ph.D. Thesis, New York University

O. Bühler and C.J. Muller, 2007, *Instability and focusing of internal tides in the deep ocean*, J. Fluid Mech. **588**

LANGUAGES

Fluent in French (native) and English, basic German

OTHER ACTIVITIES

Guitar, Climbing, Volleyball, WxChallenge with the MIT team (the North American collegiate weather forecasting competition)