

## Ross Tulloch

---

CONTACT INFORMATION	Courant Institute of Mathematical Sciences Department of Mathematics New York University 251 Mercer Street New York, New York 10012 USA	646.270.9064 tulloch@cims.nyu.edu <a href="http://www.cims.nyu.edu/~tulloch">http://www.cims.nyu.edu/~tulloch</a>
RESEARCH INTERESTS	I am interested in assessing the variability of the meridional overturning circulation on decadal timescales with the goal of understanding how the variability affects climate, which mechanisms generate it, and to what extent it is predictable. I am also interested in applying geophysical fluid dynamics theory to atmospheric and oceanic observations.	
EDUCATION	Courant Institute of Mathematical Sciences, New York University Ph.D. in Atmosphere-Ocean Science and Mathematics, Jan 2009 <ul style="list-style-type: none"><li>• Dissertation: <i>Geostrophic dynamics at surfaces in the atmosphere and ocean</i></li><li>• Advisor: Shafer Smith</li></ul> Simon Fraser University, Canada M.S. in Applied and Computational Mathematics, Aug 2003 <ul style="list-style-type: none"><li>• Dissertation Topic: Next-order free surface quasigeostrophic dynamics</li><li>• Advisor: David Muraki</li></ul> B.A.Sc. in Engineering Science, Electronics Option, Aug 2002 <ul style="list-style-type: none"><li>• First Class Honors</li></ul>	
PUBLICATIONS	R. Tulloch, J. Marshall and K. S. Smith, Interpretation of the propagation of surface altimetric observations in terms of planetary waves and geostrophic turbulence, <i>J. Geophys. Res. Oceans</i> , (accepted). R. Tulloch and K. S. Smith, Quasigeostrophic turbulence with explicit surface dynamics: Application to the atmospheric energy spectrum, <i>J. Atmos. Sci.</i> , (accepted) R. Tulloch and K. S. Smith, A note on the numerical representation of surface dynamics in quasigeostrophic turbulence: Application to the nonlinear Eady model, <i>J. Atmos. Sci.</i> , (accepted) R. Tulloch, <i>Geostrophic dynamics at surfaces in the atmosphere and ocean</i> , Ph.D. Thesis, New York University, 2009 R. Tulloch and K. S. Smith, A theory for the atmospheric energy spectrum: Depth-limited temperature anomalies at the tropopause, <i>Proc. Natl. Acad. Sci.</i> , v103, no. 40, 14690-14694, 2006 R. Tulloch, <i>Free Surface Quasigeostrophy: Bridging the gap between surface quasigeostrophy and shallow-water</i> , M.Sc. Thesis, Simon Fraser University, 2003	

## TALKS

*What dynamics does the mesoscale ocean surface reflect? The horizontal transition scale between buoyancy- and PV-driven baroclinic instability*, AGU Fall Meeting, San Francisco, CA. (December 2008)

*What dynamics does the mesoscale ocean surface reflect? The horizontal transition scale between buoyancy- and PV-driven baroclinic instability*, AGU Ocean Sciences Meeting, Orlando, FL. (March 2008)

*A baroclinic model for the atmospheric energy spectrum*, Turbulent Theory and Modeling Workshop, The National Center for Atmospheric Research (February 2008)

*The effect of tropopause temperature anomalies on the atmospheric energy spectrum*, Applied Mathematics Colloquium, Columbia University (November 2007)

*A balanced model for the forward energy cascade near the tropopause*, AMS 16th Conference on Atmospheric and Oceanic Fluid Dynamics, Santa Fe, NM. (June 2007)

TEACHING EXPERIENCE	Spring	2007	Calculus II	Lecturer
	Fall	2006	Computing in Finance	T.A.
	Spring	2006	Calculus II	Lecturer
	Fall	2005	Mathematical Patterns in Nature	T.A.
	Spring	2005	Partial Differential Equations	T.A.
	Fall	2004	Elementary Statistics	T.A.
	Spring	2004	Business Calculus	T.A.
	Fall	2003	Precalculus	T.A.

INDUSTRIAL AND RESEARCH INTERNSHIPS	Summer	2008	Catastrophe model development, Risk Management Solutions.	
	Spring	2002	Design & simulation of digital memories, VLSI Design Lab, SFU.	
	Summer	2000	Digital Design Engineer, Cogent ChipWare, Inc.	
	Fall	1999	Product Engineer, PMC-Sierra, Inc.	
	Spring	1999	Digital Design Engineer, Nortel Networks Corp.	

SUMMER SCHOOLS	2006	Modern Mathematical Methods in Physical Oceanography, Breckenridge		
	2003	Modern Applied Mathematics in Atmosphere and Ocean Sciences, APAM/UCLA		

PROFESSIONAL MEMBERSHIPS	American Meteorological Society
	American Geophysical Union
	American Mathematical Society

REFERENCES **David Holland**, Courant Institute of Mathematical Sciences, New York University, 212.998.3245, holland@cims.nyu.edu

**Richard Kleeman**, Courant Institute of Mathematical Sciences, New York University, 212.998.3233, kleeman@cims.nyu.edu

**Andrew Majda**, Courant Institute of Mathematical Sciences, New York University, 212.998.3323, jonjon@cims.nyu.edu

**John Marshall**, Dept. of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology, 617.253.9615, jmarsh@mit.edu

**Shafer Smith**, Courant Institute of Mathematical Sciences, New York University, 212.998.3176, shafer@cims.nyu.edu