

# Samantha Oestreicher

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## Education

### **PhD: University of Minnesota- Mathematics 2013**

Minneapolis, MN GPA: 3.8  
Thesis Advisor: Richard McGehee  
Topic: Dynamics of Glacial Cycles in Paleoclimate Models containing Terrestrial Carbon.

### **MS: University of Minnesota- Mathematics 2011**

Minneapolis, MN GPA: 3.8  
Thesis Advisor: Richard McGehee  
Topic: Dynamical Systems in Climate Change.  
Math Climate Research Network Research Assistantship

### **Post-Baccalaureate Mathematics Program: Smith College 2008**

Northampton, MA GPA: 3.9 Center for Women in Mathematics  
NSF Fellowship for Learning

### **BA: Smith College- Theater, minor: Mathematics 2005**

Northampton, MA GPA: 3.8  
Dean's List and First Group Scholar 2001-2005

## Research Interests

Dynamical Systems, Whole Earth Dynamics, Climate Change

## Research Experience

Researcher, Los Alamos National Laboratory at Center for Nonlinear Studies Summer 2011  
Advisor: Beth Wingate. Completed new theory for splitting fast/slow ocean dynamics to rotating shallow water equations. Wrote documentation following work effort and created Mathematica programs for verification and imaging.

Seminar Leader, Math Climate Research Network 2010-present  
Primary organizer of PaleoCarbon webinar. Coordinated meeting times, speakers and topics across 4 time zones for 12 different institutions. Led webinars and maintained web content.

Research Assistant, LANL Summer 2010  
Advisor: Mathew Hecht and Beth Wingate. Programmed initial Matlab code to identify eddies in POP, CESM output. Developed exploratory program to classify the ocean flow into laminar, quasi-geostrophic and Coriolis flow types.

Researcher, Smith College Summer 2008  
Advisor: Chris Golé. Developed models of Phyllotaxis plant growth dynamics. Designed Mathematica programs determining possible growth ordering which do not spiral in a Fibonacci pair. Spent a week at Harvard working under Jacques Dumais.

## Conference Talks

- Women in Mathematics in New England (WiMiN) 9/27/2010  
*Underwater Mathematics: Illuminating Deep-Reaching Ocean Eddies in Climate Models.*
- Smith Women in Mathematics (SMath) 9/26/2010  
*Climate Change through the lens of a Mathematician.*
- Los Alamos National Laboratories Student Symposium 8/04/2010  
Symposium Winner.  
*Arctic Eddies Uncovered: Illumination anomalous deep-reaching Ocean Eddies.*

## Selected Seminar Talks

- LANL COSIM 8/17/2011  
*Dynamics of Paleoclimate Phenomenon: Can the past help us understand the future?*
- MCRN PaleoCarbon Webinar 3/3/2011  
*Graphing Latitude vs Land Percentage in Matlab.*
- UMN Climate Change Seminar & MCRN Paleo-Carbon Webinar 2/15/2011  
*Peatlands: Methane vs. CO<sub>2</sub> a conceptual model by Froking, Roulet, and Fuglestedt.*
- UMN Climate Change Seminar 12/8/2010  
*Greenhouse gas forcing and Vostok temperature relationship over the last 400kyr: A review of Hansen's contributions on the relationship.*
- MCRN PaleoCarbon Webinar & UMN Climate Change Seminar 11/3/2010  
*Adding Carbon to Conceptual Models: an Introduction to Hogg's Model and others.*
- MCRN PaleoCarbon Webinar 10/29/2010  
*Low-Order Dynamical Model of Global Carbon in the Pleistocene by Maasch and Saltzmann.*
- LANL COSIM 8/26/2010  
*Measuring the balance of forces yielding potential enstrophy in POP.*
- LANL COSIM 8/12/2010  
*Update on Quasigeostrophic Balance Parameters in Northern Atlantic.*
- NCAR IMAGE Summer Graduate School on Climate Change 7/21/2010  
*Budyko Model with Dynamic Carbon and Ice Line.*
- UMN Climate Change Seminar 4/15/2010  
*Myth Busting: Burning Peatlands. Will climate change cause peatlands fires, expelling large amounts of carbon into the atmosphere?*
- UMN Climate Change Seminar 11/04/2009  
*Mauna Loa Observatory shows sensitivity to distant climate change: why MLO is still a good proxy for global carbon levels.*

## Teaching Experience

Teaching Assistant, University of Minnesota:

*College Algebra*, Fall 2008

*Topics in Elementary Mathematics II*, Spring 2009

*Linear Algebra and Differential Equations for Engineers*, Fall 2009

*Linear Algebra and Differential Equations for Engineers*, Spring 2010

Tutoring:

University of Minnesota, Mathematics 2008-present

Smith College, Mathematics 2007-2008

## Affiliations

AWM, AMS, SIAM