Carina Saxton Young

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OBJECTIVE

I am a recent graduate with degrees in Earth and Atmospheric Sciences and Mathematics. My work as a research assistant and technician has relied on a combination of advanced numerical, statistical, and inverse models of ocean circulation (and ecosystems) with observations. I am seeking a job involving environmental, oceanographic, or atmospheric sciences; or a mathematics-related job involving data analysis.

EDUCATION

Georgia Institute of Technology, Atlanta, GA 8/2006 – 12/2009

- Advisor: Dr. Emanuele Di Lorenzo
- Masters of Science, Earth and Atmospheric Sciences
- Overall GPA 3.56/4.0

Georgia Institute of Technology, Atlanta, GA 8/2002 - 5/2006

- Bachelor of Science, Mathematics
- Overall GPA 3.35/4.0

COMPUTER SKILLS

- MATLAB, FORTRAN, XHTML,PHP, MySQL, JavaScript
- Windows 2000/XP/Vista/7,
- UNIX (CentOS, openSUSE, RedHat, Ubuntu)
- Apple/Macintosh OS
- Microsoft Office, iLife, iWork

EXPERIENCE

Georgia Institute of Technology Atlanta, Georgia
College of Earth and Atmospheric Sciences 1/2010 - present
Research Technician/Programmer

This job entails data analysis, server maintenance, and web development. I created the school page for the oceanography and climate sciences group of the Earth and Atmospheric Sciences department at Georgia Tech including building a database for model outputs. I am also responsible for designing and building a data portal for use by the department to share model outputs with professionals outside the school.

Georgia Institute of Technology Atlanta, Georgia
College of Earth and Atmospheric Sciences 8/2006 – 12/2009
Research Assistant

Investigated possible dynamical pathways through which variability in the extra-tropical Pacific Ocean influences decadal fluctuations of tropical Pacific sea surface temperatures (SST). Specifically, I examined the hypothesis that low-frequency changes in the Pacific meridional subtropical cells (STCs), which transport subsurface water masses equatorward from the extra-tropical into the tropical Pacific upwelling system, modulate decadal variations of the equatorial SST.

The relationship between the STCs and equatorial Pacific SST anomalies was explored statistically with Matlab using the monthly hindcast output from the Ocean General Circulation Model (OGCM) for the Earth Simulator (OFES).

Georgia Institute of Technology Atlanta, Georgia
NSF UBM Program 5/2006 - 8/2006
Examined the response of Deep Chlorophyll Maxima (DCM) to changes in ocean circulation and turbulence. This was done using an NPZD (nutrient phytoplankton zooplankton detritus) model in ROMS (Regional Ocean Modeling System).

Georgia Institute of Technology Atlanta, Georgia
NSF REU Math 5/2005 - 8/2005
Examined the effect of environmental noise on the dynamics of red tides using predator-prey models in Matlab.

HONORS AND ACTIVITIES

5/2009
I was a guest speaker at the Leukemia and Lymphoma Society sponsorship meeting as a young adult cancer survivor. This speech was given in front of approximately 150 company representatives to promote the Light the Night event in Atlanta, GA held every year.
8/2006 – 12/2009
Georgia Institute of Technology Presidential Fellowship
Georgia Institute of Technology Research Assistantship
5/2006 - 8/2006
NSF UBM Research Fellowship, Undergraduates in Biology and Mathematics
5/2005 - 8/2005
NSF REU Math, Research Experiences for Undergraduates
8/2002 - 5/2006
National Merit Scholarship

RELEVANT INFORMATION

In 2007 I dealt with a serious illness that required withdrawing from courses during the spring and fall semesters. This resulted in a grade of W in classes taken that year and delayed my graduation.

RELEVANT COURSEWORK

Math Methods of Applied Sciences I
Partial Differential Equations I
Advanced Environmental Data Analysis
The goal of this class is to provide a deeper understanding of the theories and applications underlying the statistical analysis of environmental data, both in the space, time and spectral domain, and to provide the students with a hands-on experience. Ideally in the end of this class you will have developed a series of computer programming tool boxes and theoretical skills that should immediately be available for analyzing and modeling data in your own research. In this class you will learn (a) how to combine models, which quantify statistical or dynamical relationships with observations (b) time series analysis, (c) forecasting and extrapolation, and (d) signal decomposition.
Ocean Modeling
The goal of the class is twofold. (A) Understand different types of ocean models of ranging complexity from simple 2D shallow water and quasi-geostrophic models, to layered and full 3D primitive equations ocean models. In particular during the class you will be able to derive the dynamical equations, understand the implications of physical assumptions made in the derivations and develop intuition for the applicability of each model class. (B) Provide a “hands-on” experience in implementing and using both large and regional scales circulation models. This part of the class relies on being able to use fluently at least a programming language of choice (e.g. Fortran, MATLAB).
Ocean Dynamics
An advanced class for graduate students in Oceanography and Climate Science that studies the basic equations governing rotating geophysical flows with application to the ocean circulation. This course includes a theoretical component on geophysical fluid dynamics and one involving a

combination of observations, theory and numerical modeling relevant to understand the large scale ocean circulation.

Turbulence in Geophysical Flows

An advanced class for graduate students that studies the basic physical properties of turbulent geophysical flows with applications to the atmosphere and ocean circulation.

Ocean Biogeochemical Cycles

This class is a multi-disciplinary exploration of the chemical, physical, geological, and biological processes that cycle the nutrient elements through the Earth system and thereby maintain a habitable planet.

Introductory Fluid Dynamics and Synoptic Meteorology

The course is designed to provide an introduction to the fundamental concepts underlying our current understanding of atmospheric fluid dynamics and its relation to mid latitude weather processes. The course includes both a theoretical component and a synoptic meteorology component focusing on meteorological data, observational analyses, large-scale weather systems, mid latitude cyclone development, and numerical weather prediction.