

# Marine Ecosystems and Climate:

## *Modeling and Analysis of Observed Variability*

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### Motivation and Overview

Global climate change is altering the structure and functioning of ecosystems, which in turn affects availability of ecological resources and benefits, interactions between ecosystems and the climate system, and could affect economic systems that depend on ecosystems. A grand challenge is to understand and project the effects of global climate variability and change on ecosystems, the goods and services they provide, the drivers and consequences of human responses to ecosystem variability and change, and ecosystem links to the climate system.

The colloquium will focus on interactions between climate and marine ecosystems. It will include graduate student participants in approximately equal numbers from both the marine ecosystem and climate communities. It will feature lectures from more than one dozen international experts on observed variability and change in both climate and marine ecosystems, including the influence of climate on benthic, coastal and open-ocean ecosystems. Lectures will also be given on modes of tropical and extratropical climate variability, statistical analysis techniques, earth system modeling, regional ocean models, fisheries, marine protected areas and other socio-economic issues. Tutorials and computer based exercises will also enable students to gain an in-depth understanding of the models and analysis tools available to tackle cross-disciplinary research problems.

### Expected Outcome

This colloquium will provide climate and marine ecosystem graduate students with a comprehensive introduction to issues surrounding the development of and hands-on experience with observational datasets and state-of-the-art marine ecosystem modeling approaches in the context of climate models, and the techniques of testing models versus existing datasets. An integrated approach to studying climate-ecosystem interactions is typically not offered in standard university courses; accordingly, the colloquium will provide unique and unprecedented opportunity to study and apply these research tools. As importantly, this colloquium will provide an opportunity for graduate students in the marine ecosystem, climate and climate impact sciences to collaborate.

### Logistics

The Advanced Study Program will fund travel and living expenses for about 25 graduate student participants during the summer colloquium. For more information and how to apply, go to: [www.asp.ucar.edu/colloquium/2009/cgd/index.php](http://www.asp.ucar.edu/colloquium/2009/cgd/index.php)

**Applications are due to the ASP by March 31, 2009**

Co-sponsors of the Colloquium include:

The World Climate Research Programme (WCRP)  
(<http://wcrp.wmo.int/wcrp-index.html>)

The Global Ocean Ecosystem Dynamics  
(GLOBEC) Project: (<http://www.globec.org>)

The Climate Variability and Predictability  
(CLIVAR) Project: (<http://www.clivar.org>)

Climate and Global Dynamics (CGD)  
Division (<http://www.cgd.ucar.edu/>)



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