

# Trends in Doctoral Research on Climate Change and the Need for Interdisciplinarity

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## Overview



Schmidl & Moyer, 2008. *Nature Reports Climate Change*

Interdisciplinary research is crucial to understanding complex and urgent environmental problems, particularly climate change. Universities are increasingly hosting trans-, multi-, and inter-disciplinary workshops and conferences and developing innovative interdisciplinary training programs (e.g., NSF's IGERT program) to foster such research. Yet, much doctoral training remains highly disciplinary with very little evidence of graduate training producing transformative research that bridges the natural/social-science divide. Indeed, strong cultural and institutional obstacles often deter or preclude doctoral students from conducting such research.

Here we summarize over two decades of climate-change related dissertation abstracts and show that doctoral research on climate change is rapidly increasing. The majority of work has been in the natural sciences, with a smaller proportion (about 20 - 25%) in the social sciences. An increasing amount of research is now occurring in engineering, education, history, and other fields.

DISCCRS (pronounced "discourse") -- the Dissertations Initiative for the Advancement of Climate Change Research -- is an NSF-funded career-development program for new PhDs. DISCCRS promotes interdisciplinary research on climate change that spans the natural and social sciences.

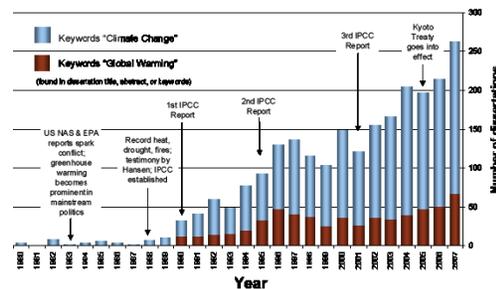
## Why Interdisciplinarity?

- Human-environment interactions that were historically restricted to local or regional scales are now occurring globally and with more severe environmental and human consequences than ever before.
- Environmental scientists have traditionally examined physical and biological processes in environments where humans were absent, and social scientists have conventionally focused on human interactions without much consideration of environmental contexts or importance.
- All aspects of climate change -- its causes, impacts, and solutions -- involve elements and interactions embedded in coupled human-natural systems.
- Understanding and responding to climate change requires communication and cooperation between scientists, policy-makers, industry, and the public.
- Disentangling the scientific complexities of human-environment interactions in an interdisciplinary context is critical for developing integrated strategies for managing our environmental support systems.

(Adapted from Liu et al. (2007) *Ambio* 36(8), p. 639-649)

### Climate Change Dissertations: 1980 - 2007

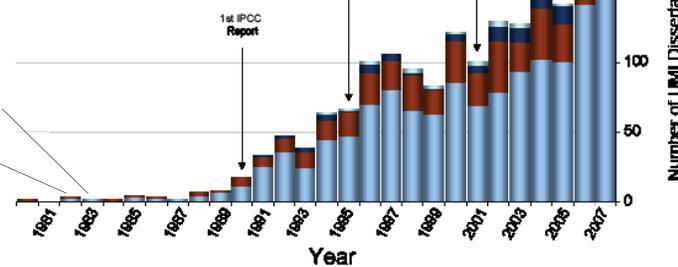
U.S., Canada, Britain, and other European dissertations and theses (UMI database)



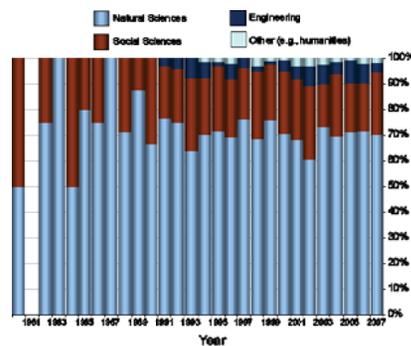
Source: UMI Database

First Dissertation on Climate Change: Impacts on People: 1983 - by Diana Liverman  
"The use of a simulation model in assessing the impacts of climate on the world food system"

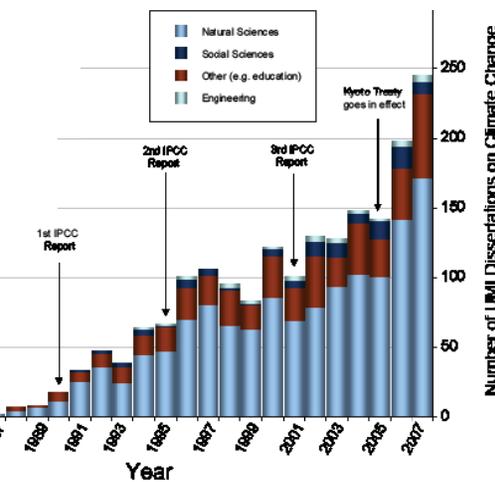
First Dissertation on Climate Change Models: 1982 - by Patrick H. Wyant  
"Some Simple Models for Climate Change"



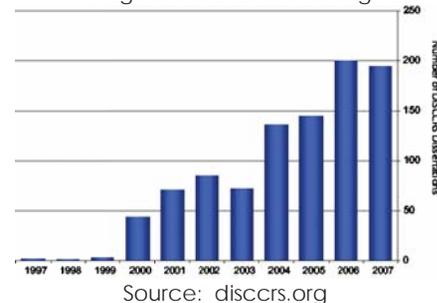
### Relative Proportions of Natural vs. Social Science Dissertations



### Number of Dissertations Completed on Climate Change by Disciplinary Group



### Number of Climate-Change Dissertations Registered at DISCCRS.org



Source: discrs.org

## DISCCRS Sponsors

- American Geophysical Union (AGU)
- American Meteorological Society (AMS)
- American Society of Limnology and Oceanography (ASLO)
- Association of American Geographers (AAG)
- Association of Environmental and Resource Economists (AERE)

- Ecological Society of America (ESA)
- American Political Science Association (STEP/APSA)
- The Oceanography Society (TOS)
- U.S. Society of Ecological Economics (USSEE)

Who are we missing? \_\_\_\_\_



## DISCCRS ("discourse")

The Dissertations Initiative for the Advancement of Climate Change Research, DISCCRS (pronounced discourse), connects early career natural and social scientists engaged in research related to all aspects of climate research, including causes, impacts and solutions.

Climate Ph.D. Dissertation Registry

Join more than 1000 early career climate scholars from 82 countries who have added their dissertation abstract to this unique international climate research database. Or, search registered dissertations to identify new scholars in the area of climate research. The database is fully searchable by any word in the dissertation citation and abstract.

Weekly Electronic Newsletter

Keep up with climate research and policy news, resources, funding opportunities, jobs and other time-sensitive announcements. Register your Ph.D. dissertation on line to receive the weekly e-newsletter. Students may request the newsletter by sending an e-mail to [info@discrs.org](mailto:info@discrs.org) with "request DISCCRS newsletter" on the subject line.

Professional Resources for Interdisciplinary

Visit <http://discrs.org> to find resources for interdisciplinary early career development, including those developed for the international DISCCRS leadership symposia (see below).

Leadership Symposia

Annual Symposia bring together interdisciplinary cohorts of early career climate scholars who are competitively selected to represent future leaders in the area of interdisciplinary climate research spanning the natural and social sciences. The goal is to broaden perspectives and establish a collegial peer network to address climate challenges at the interface of science and society. See <http://discrs.org> for information on past symposium scholars, resources and reports from past symposia, plus application instructions for the DISCCRS VI Symposium to be held in spring 2011.

Email [info@discrs.org](mailto:info@discrs.org) to receive our weekly e-newsletter!

For more information about DISCCRS Visit [discrs.org](http://discrs.org) or email: [jmarlon@uoregon.edu](mailto:jmarlon@uoregon.edu)

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