

Dissertations Initiative for the Advancement of Climate Change Research (DISCCRS)

DISCCRS III Symposium Report



Report prepared by: C. Susan Weiler, Ronald B. Mitchell and Jennifer Marlon

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Sponsoring Societies

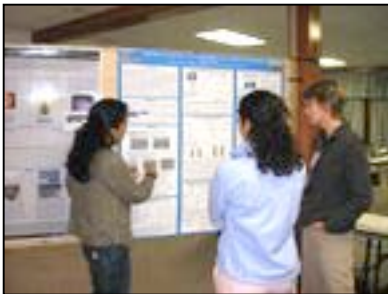
AAG Association of American Geographers; **AGU** American Geophysical Union;
AERE Association of Environmental and Resource Economics;
AMS American Meteorological Society; **ASLO** American Society of Limnology &
Oceanography; **ESA** Ecological Society of America; **ESS-ISA** Environmental
Studies Section of the International Studies Association; and
USSEE U.S. Society for Ecological Economics



Scenes from DISCCRS III Symposium



See **Appendix I** for
dissertation citations
and
Interest areas of the
36 Symposium
Scholars



Introduction

Interdisciplinary research is emerging as a critical tool for addressing some of the most intractable parts of today's most complex global environmental problems, such as those at the science-policy interface of global climate change and biodiversity loss. Climate-change concerns in particular have led to a proliferation of interdisciplinary programs, institutes and centers to tackle the systemic problems involving integrated social and physical dynamics. The holistic approach allowed by interdisciplinary efforts fills a critical research gap that more conventional disciplinary strategies are poorly designed to address. But recruiting top-tier researchers who can and want to succeed in an interdisciplinary environment is challenging when the dominant institutional structures and reward systems have not yet evolved to provide the rigorous training and development necessary for productive interdisciplinary research.

The Dissertation Initiative for the Advancement of Climate Change Research, or **DISCCRS** (pronounced discourse), is aimed specifically at addressing this need. The program includes intensive week-long **symposia**, a webpage with climate-change information, professional-development resources and a searchable online **dissertation abstract registry** to which all climate-change scientists are encouraged to contribute. A **weekly electronic newsletter** with time-sensitive information on climate news, resources and interdisciplinary job announcements is sent to everyone who registers their dissertation.

DISCCRS goals are to build a community of early career interdisciplinary climate-change scholars and to introduce these new scientists to highly respected interdisciplinary mentors and to a variety of examples of cutting-edge research that they produce. It also provides training essential to effective interdisciplinary work, including sessions addressing communication, interpersonal and team development skills through experiential learning and small group exercises. The goal of this collaborative effort, organized by Dr. C.S. Weiler, an oceanographer from Whitman College, and Dr. Ronald B. Mitchell, a political scientist from the University of Oregon, is to bring together a diverse group of scholars from the natural and social sciences. Other members of the current team are: Ruth Ladderud, project assistant at Whitman College and Jennifer Marlon, a Ph.D. student in geography at University of Oregon and Research Assistant for DISCCRS.

DISCCRS symposia provide a unique opportunity to recent Ph.D.s because the competitive selection process ensures a small group of highly qualified participants from a wide diversity of backgrounds and disciplines. The meetings foster networking and intellectual exchange. In addition to developing a strong peer network, a select number of climate-change experts invited to serve as mentors and role models are on hand to provide perspectives on scientific, societal and professional issues. Activities enable these new scientists to forge an interdisciplinary path while working in a field-specific, academic-tenure driven world. This paper reports on the DISCCRS III Symposium held in 2007.

DISCCRS III Symposium

“DISCCRS isn’t the only interdisciplinary climate meeting out there, but it is the most effective that I have attended.”

– Ben Zaitchik, DISCCRS III Symposium Scholar

The DISCCRS III Symposium was held September 10 - 17, 2007 in Volcano, Hawai’i at the Kilauea Military Camp. Anyone working in the area of climate change or its impacts and completing a Ph.D. between April 1, 2004 – March 31, 2007 was eligible to apply.

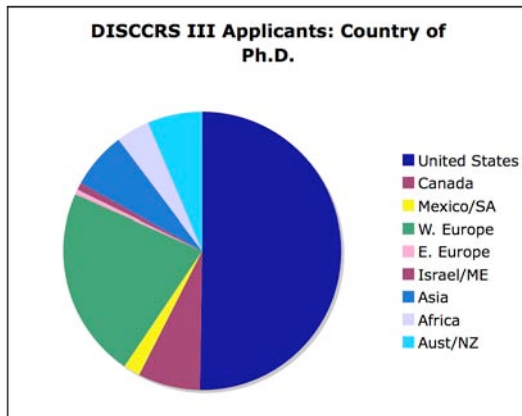
Application process:

The application process is fairly rigorous, requiring submission of: • Ph.D. dissertation abstract; • professional résumé; • two essays describing current research and future career goals; and • two letters of recommendation. Applications were reviewed by a 6-member committee of established climate-change scientists and former DISCCRS symposium participants. Candidates are competitively selected based on the quality of their research and potential to become well-respected experts in their field in the context of collaborative, interdisciplinary research on climate change and its impacts with a goal of linking their science research to societal needs.

A total of 235 applications were received by the April 30, 2007 deadline. This represents a tripling of applicants relative to DISCCRS II, when 78 applications were received. One third of the applicants were trained in the social sciences.

Applicant and Participant Characteristics:

The **235 applicants** completed their Ph.D. degrees in **34 countries**, with **120 (51%)** from the **United States**. Degrees from outside the U.S. included: **Australia (12); Austria (1); Belgium (2); Brazil (4); Canada (16); China (2); Colombia (1); Denmark (1); Finland (2); France (2); Germany (13); Greece (1); Hong Kong (1); India (9); Italy (2); Japan (3); Netherlands (3); New Zealand (3); Nigeria (2); Norway (2); Philippines (1); Republic of Benin (1); South Africa (3); Spain (1); Sudan (1); Sweden (4); Switzerland (1); Turkey (1); Uganda (1); United Kingdom (16); Ukraine (1).**



The overall acceptance rate for the symposium was 19% , and the acceptance rate for graduates completing a Ph.D. in the U.S. was 31%.

Of the 44 invited, 36 were able to attend. The thirty-six symposium scholars represented nine countries: United States (29); Australia (1); Colombia (1); Ghana (1); Japan (1); Mexico (1); New Zealand (1); Switzerland (1). The Americans included three with dual citizenships: Moroccan American, Swiss American and Puerto-Rican American.

It is worth noting that the selected candidates generally manifested both depth of expertise in a particular field and a breadth of interest evidenced by collaborative work with specialists from other disciplines. Using the Jack-of-all-trades analogy, these scholars were both masters of their chosen field and jacks of at least one or more others. Applicants were roughly divided into three categories for tracking (Table I). Biological sciences, including biogeochemistry, had the lowest success rate but the highest percent of attendees due to the large number of applicants. Publication records were important and most of those accepted had multiple peer-reviewed publications.

Category	Applied		Invited		Attending	
	Number	Percent	Number	Success Rate	Number	Percent
ALL	235		44	19%	36	
Biological	111	47%	21	8%	17	47%
Physical	83	35%	12	14%	10	28%
Social	41	17%	11	27%	9	25%

Table I. The 235 applicants were divided into three categories to identify major areas of training. The number attending was different than the number invited because some declined due to conflicts. The person was replaced with someone from the same field if an appropriate candidate was on the alternate list.

A quick scan of dissertation citations and areas of interest (Appendix I) indicates the breadth of expertise and interest represented by the symposium scholars. The appendix includes Ph.D. dissertation citations and a statement of research interests for each. Specializations included anthropology, biology, biogeochemistry, chemistry, economics, ecology, engineering, geography, geophysics, modeling, paleoscience, physics, sociology, political science and psychology. Engineering had not been represented in previous symposia, and the symposium scholars at DISCCRS III were pleased to have this representation. We hope more engineers will apply to future symposia.

Symposium agenda

“... DISCCRS far transcends the subject matter discussed; it is also about process, learning, and communication.”

Marian Westley, DISCCRS III symposium scholar

DISCCRS III opened with two intensive and impressive days of participant presentations. Each individual briefly introduced themselves and presented their research in plenary format. Their presentations highlighted the impressive quality and diversity of research underway on climate change. Evening poster sessions early in the week provided additional opportunities for the participants to describe their professional backgrounds and current research projects. The symposium continued with mentor keynote presentations and a mix of sessions focused on funding opportunities, science communication strategies, and group dynamics. A mid-week field trip provided informal opportunities to establish new friendships and collegial relationships. The capstone event was a series of small group activities where participants were placed into multidisciplinary teams and tasked with developing a collaborative research proposal for seed funding. The teams were presented a brief summary of their findings in plenary on the last day. The symposium concluded with a celebration featuring music and stories by native Hawai’ians.

Symposium Mentors

A notable group of mentors, Dr. **Kenneth H. Broad**, Dr. **Charles D. Kolstad**, Dr. **Susanne C. Moser**, Dr. **Terry L. Root** and Dr. **Stephen H. Schneider**, provided critical background information on cutting-edge climate science and keen insights into the IPCC and ongoing climate-related scientific, political, and economic activities. The mentors also provided advice on early career development including development of collaborative research projects and proposals, the tenure process, and balancing personal and professional life. They also advised scholars individually, participated in small-group and plenary discussion panels, and engaged in numerous informal discussions over meals and poster sessions. The highlights of their presentations are summarized below.

Charles D. Kolstad: *Bren School of Environmental Management and Department of Economics, University of California Santa Barbara*



Dr. Kolstad discussed the wide range of questions related to climate change whose answers require insights from both the social and natural sciences. In his keynote presentation, he delineated various methodological tools that economists and other social scientists have developed that allow for systematic clarification of the costs and benefits of, and choices between, potential policy responses to climate change. Kolstad discussed research that sheds light on the economic impacts of climate change on agriculture and other economic sectors, and presented both statistical and simulation modeling of how farmers are likely to respond to such impacts, as well as the values and challenges of integrated assessment modeling. Kolstad described his work on uncertainty and learning in climate change research, and pointed out the importance of finding a balance between doing applied, policy-relevant research versus basic research that pushes scientific frontiers but that is more difficult to connect with policy issues.

Terry L. Root: *Senior Fellow, Center for Environmental Science and Policy and Institute for International Studies, Stanford University, California*



Dr. Root presented state-of-the-art research in climate science showing how species respond to climate change. With a strong background in mathematics and statistics as well as ecology, she conducts field work and uses large data sets to identify range shifts, phenology changes and extinctions/extirpations. She uses these in combination with simulated climate data to identify possible regional responses to climate change and human alterations. Dr. Root also led discussions on effectively communicating with the media and with other non-

scientists on climate change issues. Dr Root was also an inspiring mentor on issues relating to dual-career couples and balancing personal and professional life.

Stephen H. Schneider: *Melvin and Joan Lane Professor for Interdisciplinary Environmental Studies, Professor, Department of Biological Sciences, Senior Fellow, Woods Institute for the Environment, Stanford University, California*



As a world-renowned climate scientist, Dr. Schneider brought expertise relevant to nearly all the symposium discussions, including those about the IPCC, communicating science, working at the science-policy interface, obtaining funding and jobs, etc. He also shared many interesting stories about the politics of science. In his keynote presentation, Schneider presented an overview of current climate science, including much data

on current and projected impacts such as changes in stream flow, snow pack, wildfires and smog. He also stressed the need to act in response to what we already know, and placed the current scientific uncertainties into the appropriate context of what is already settled.

In response to the recent contentious documentary, *The Great Global Warming Swindle* that first aired in the UK, Schneider presented a follow-up program from the Australian Broadcasting Corporation (ABC) that debated the film directly after it aired in Australia (website: <http://www.youtube.com/watch?v=GeQfD2DNnUQ>). The original documentary, produced by Martin Durkin, featured interviews and scientific data and graphs and argued that human-induced global warming was a major scam. The film has been roundly criticized for falsifying data, misrepresenting contributor's opinions, and for misleading viewers about climate change science. Presentation of this video provided an invaluable opportunity for symposium participants to see, in practice, "effective communication of science in the media."

Dr. Schneider also presented a public lecture at the University of Hawai'i at Hilo titled, "Global Warming: Can We Define, Let Alone Fix, 'Dangerous' Climate Change?". The lecture highlighted both the certainties and uncertainties surrounding climate-change science, the need to act based on what we already know, and many current efforts already underway, such as those by Governor Schwarzenegger in California, that provide hope for the future. A summary of his presentation is available at http://learning.kohalacenter.org/?newsletter_07_10_b_crank

Kenneth H. Broad: *University of Miami, Center for Ecosystem Science and Policy & Columbia University, Center for Research on Environmental Decisions*



Dr. Broad offered the perspective of an interdisciplinary early career social scientist. In his formal presentation, he outlined a broad range of interdisciplinary research projects he is currently engaged at the science-policy interface, including: 1) identifying winners and losers resulting from scientific advances; 2) understanding perceptions of risk and uncertainty; 3) exploring individual

and group behavior, and; 4) examining the role of decision support systems in participatory processes. Examples were provided for each theme, including a case study of how improvements in ENSO forecasts for Peruvian Fisheries Management unintentionally exacerbated competitive differences in fishing communities because of differential access to, dissemination, and understanding of forecast data.

In addition to sharing his perspectives on early career professional development, Dr. Broad treated the participants to a slide show of his cave diving explorations, for which he recently won a National Geographic Society Emerging Explorer Award. The presentation included rare footage of underwater cave diving adventures that Broad has undertaken to explore marine environments, retrieve archaeological artifacts, and to obtain scientific data for paleoclimatic reconstructions.

Susanne C. Moser: *Institute for the Study of Society and Environment, National Center for Atmospheric Research, Boulder, Colorado*



As a mid-career scientist with extensive professional experience beyond academia, Dr. Susi Moser brought a wealth of expertise in climate change communication to the symposium. She focused in particular on the importance of developing effective communication strategies for delivering scientific information to non-specialists, including peers in other disciplines, policy makers, the media, natural resource managers, and the public. She identified three key challenges for scientists, including increasing the visibility or salience of key issues, developing consensus and legitimacy, and establishing credibility and trust. Moser also laid out a step-by-step process for effective communication including 1) learning about your audience; 2) setting clear goals; 3) creating your message; and 4) using tools to make your message stick, such as finding the core message and keeping it simple and linking abstract ideas to concrete examples.

Panels & Discussion Groups

IPCC Panel: This panel session provided an opportunity to learn about the IPCC, including how it works, who is involved, how the panelists became involved with the IPCC and what they accomplished, among other things. Discussions covered a range of topics related to the "politics of the IPCC," the tension between scientific and policy concerns, and the benefits, insights and challenges from working in a setting that is simultaneously interdisciplinary and international. The panel prompted considerable interest in the IPCC in specific and the broader question of how scientists can contribute to the climate change policy process at the local, national, and international level.

NSF Overview and Proposal Writing Panel: One of the scholars, Dr. Louis Rivers, is currently working in the National Science Foundation (NSF) Directorate for Social, Behavioral and Economic Sciences. Herman Zimmerman, recently retired from the NSF Directorate for Geosciences, was invited to share his knowledge and perspectives gained throughout a career as

a research scientist, professor, and administrator. Rivers and Zimmerman provided a very useful overview of the NSF and the proposal review process. NSF's Guide for Proposal Writing was recommended as a starting place for those developing proposals to the NSF. Although the guide is specific to the NSF process, the elements of a good proposal are universal and so the guide is useful in many different contexts. There was also considerable discussion of the NSF's recently released Survey on the Impact of Proposal and Award Management Mechanisms, http://nsf.gov/publications/pub_summ.jsp?ods_key=pr07096.

Zimmerman also led a discussion on science funding policy. This covered the policy and budgetary processes that determine the level of federal funding for climate change and related sciences.

Kenny Broad followed up with a discussion of the proposal-writing process from a Principal Investigator's perspective, suggesting a range of funding opportunities beyond NSF and discussing the challenges faced in grant-writing and the persistence required.

Most of the scholars planned on academic research careers. They were generally concerned about the current success rate for proposals and distressed about the time they would likely be spending writing and re-writing proposals in order to continue their research and gain tenure. Despite the challenges, this group was invigorated by the discussion and knowledge that they are not alone in their concerns about funding.

Interdisciplinary Careers Panel: This panel provided an opportunity for the mentors to present a wide range of views about the benefits, costs, and challenges of building a successful interdisciplinary career in a disciplinary world. Questions from participants demonstrated strong interest in issues related to building an interdisciplinary career, reflecting a mix of commitment to such a career track, and anxieties about the challenges this track entails. The consensus is that interdisciplinarians must obtain and retain a strong disciplinary research expertise, and develop collegial connections in the fields where their research might be applied. The question of when early career researchers should diversify was discussed throughout the week, without any clear answer emerging. With most institutions still maintaining a strong disciplinary emphasis, many graduates will need to work with constraints on diversification. Others may find themselves in new academic and other structures where a strong interdisciplinary focus is considered more desirable. The conclusion is that graduates need to identify the expectations of their employer early on, and follow them as best they can to ensure their research fits the expectations for advancement. At the same time, this group is committed to institutional transformation.

Job Panel: An unscheduled, participant-led job panel emerged towards the middle of the week that provided an opportunity for those who already had professional positions to talk about their personal job hunting experiences and to provide guidance on how to prepare for an academic tenure-track position or for employment outside academia. The session provided an excellent opportunity for the participants to guide the direction of the discussion and to ensure that there was ample time to address the concerns most important to the group.

Team Skills: Chris Olex, President of The Point, Inc., served as meeting facilitator and also provided a "boot-camp" on group dynamics and training in facilitation and teamwork. These

skills were practiced throughout the week in the context of small-group discussions, panels, and an exercise in interdisciplinary collaborative proposal development. These sessions enhanced the productivity of the symposium while also exposing the participants to new skills that they can use and build on throughout their careers, whether mentoring and advising students, managing labs, or in devising and conducting interdisciplinary research projects.

Communicating Science: Susi Moser provided insights on communicating science across disciplines and beyond the ivory towers. She outlined some of the challenges of working with different audiences (media, policy makers, general public, etc.) and provided step-by-step strategies for doing so effectively. This included identifying the specific audience, considering what you want to achieve, and distilling your message to a relatively few salient points. Much of her own presentation was taken from her new book, Moser, S.C. and L. Dilling (2007). *Creating a Climate for Change: Communicating Climate Change and Facilitating Social Change*.

Discussion Groups: Three sets of discussion groups were held during the symposium. Topics were initially developed during a collective brainstorming session and were further refined by several mentors and participants. Participants then chose their preferred topics and were assigned to groups based on their preferences. Discussion topics were wide ranging and included both science-based concerns, such as carbon trading and offsets, academic interests such as teaching and mentoring, and non-academic and personal issues like balancing work and family. The facilitation and group training provided earlier was practiced in these sessions. Participants agreed this greatly increased group efficiency.

Team Proposals

“.the biggest benefit of DISCCRS was opening up the lines of communication between natural/physical and social scientists.”

Robyn Wilson, DISCCRS III symposium scholar

Six teams (with six participants each) developed and presented proposals for the final group exercise. Final projects focused on:

- 1) Land use decision making and local system changes: A case study in the Peruvian Amazon. This proposal examined the complex interlinkages between community-level decisions and ecosystem impacts that are critical for vulnerability assessments and analyses. It also involved integrated measurement and modeling of land-use decision-making, stream ecosystems, and biosphere/atmosphere exchange and site fertility.
- 2) Adapting desert regions for predicting trends: A case study of irrigated agriculture in the southwestern U.S. This team identified four possible scenarios, including continuation of the status quo, changing practices/crops, converting to urban land use, and restoring native ecosystems. They then proposed to examine the impacts of climate and demographic changes on agriculture and giving special consideration to air quality, water availability, economics and ecological dynamics.
- 3) Managing nitrogen in the Mississippi basin: Interactions with climate change, land use and livelihoods. This research highlighted the problem of the “dead zone” in the Gulf of

Mexico and how management strategies in the basin may have important feedbacks to the climate system. The team proposed to use ecological measurements, interviews and modeling to examine the impacts of alternative management strategies in the context of ecological impacts, GHG emissions, livelihoods, and climate change.

- 4) Climate change impacts on the Colorado River delta: Assessment and adaptation opportunities. This team focused water issues at the intersection of ecological, society and technology. They proposed to use integrated modeling, analysis of historical data, field studies, mental modeling and surveys, and other techniques to improve our understanding of water-related forecasts, ecosystem functioning, societal impacts and potential technological solutions.
- 5) Arctic permafrost thawing: Integrated assessment of atmospheric, ecological and socioeconomic impacts. This proposal highlighted the need for data about the likely changes and impacts associated with permafrost the arctic. The team concentrated on investigating problems where carbon cycle and ecological changes overlap with socioeconomic systems, such as local resource use, effects on the oil economy, social networks and resilience, and employment and migration issues.
- 6) Climate, migration and conflict in West Africa. This proposal was motivated by IPCC projections for desertification, and thus aimed to 1) refine and calibrate climate models to assess regional impacts of future desertification, and 2) explore how human populations would respond and adapt to changes predicted by the climate models. The research would employ paleoclimate reconstructions, climate model validation, community-level data gathering and modeling of the human response and adaptation scenarios to increase the resilience of West African populations to climate change.

Participant Evaluation and Recommendations for Future Symposia

The agenda included time for daily assessments. Participants were encouraged to make suggestions for improvements. These were then discussed and the agenda modified by consensus. Written evaluations from participants on the last day of the symposium were overwhelmingly positive – almost all gave 4s and 5s on a 5-point scale with 1= Not at all pertinent or effective and 5 = Extremely pertinent or effective. The average for overall program value was 4.7 with twenty-eight 5's, eight 4's and one 3. Evaluations of the research presentations, networking opportunities and mentors received the highest marks (4.8, 4.6 and 4.5 respectively), whereas the poster session received the lowest marks (3.8).

Participant recommendations for future symposia will help with the planning of DISCCRS IV. Participants agreed the poster sessions should be scheduled before dinner rather than after, and lengthened from 1.5 hours to 2 hours. Interactions with the mentors during the poster sessions had been informal and the scholars suggested that in future, each mentor should visit and critique the individual posters. This would also provide more targeted, specific feedback on their research and time for one-on-one interactions with the mentors. The scholars also recommended more small-group discussion time, more targeted, specific feedback on posters, and increased opportunities for one-on-one interactions with the mentors. A suggestion was made to provide

the opportunity to make future travel to the symposium carbon neutral by using carbon offsets purchased, on a voluntary basis, by participants.

Future DISCCRS Symposia

DISCCRS IV will be held near Phoenix, Arizona at the Saguaro Lake Ranch on November 2-9, 2008. The central location will decrease the carbon footprint for the U.S. participants. The deadline for applications is April 30, 2008. Applicants are eligible if they completed their Ph.D. between April 1, 2006 and March 31, 2008 in any discipline. Selection will favor applicants who plan to engage in interdisciplinary research careers in any subject within or relevant to climate change and its impacts. A committee will select 34 participants based on the submitted applications. Future DISCCRS symposia and the maintenance of the electronic dissertation registry and career development resource archive are contingent on new funding, as the current grant will expire on December 31, 2008.

Acknowledgements: DISCCRS is supported by the U.S. National Science Foundation (GEO/EAR Education and Human Resources Program, GEO/ATM Climate and Large Scale Dynamics Program and SBE/BCS) grant # EAR-0435728 to Whitman College and # EAR-0435719 to University of Oregon.



Scholars left the symposium energized, with a greater understanding of the breadth of research on climate change and its impacts, as well as a vibrant and diverse collegial peer network.

DISCCRS III Symposium Scholars and Ph.D. Dissertation Citation

- Averyt, Kristen B.** 2004. Strontium and Calcium in Marine Barite: Implications for Barite Formation and Seawater Chemistry. Stanford University (USA), 180 pp
- Baskett, Marissa L.** 2006. Marine Reserve Design and Life History Variation. Princeton University (USA), 208 pp
- Boykoff, Maxwell T.** 2006. United States Media Representational Practices and Anthropogenic Climate Change: Investigations at the Interface of Science and Policy. University of California at Santa Cruz (USA), 279 pp
- Bradley, Bethany A.** 2006. A Regional Analysis of Drivers and Impacts of Land Cover Change and Long-term Land Cover Trends in the Great Basin, U.S.. Brown University (USA), 219 pp
- Cable, Jessica M.** 2006. Precipitation Effects on Soil Carbon Cycling in the Sonoran Desert. University of Arizona (USA), 200 pp
- Codjoe, Samuel** 2004. Population and Land Use/Cover Dynamics in the Volta River Basin of Ghana, 1960-2010. University of Bonn (Germany), 184 pp
- Cohan, Daniel S.** 2004. Photochemical Formation and Cost-efficient Abatement of Ozone: High-order Sensitivity Analysis. Georgia Institute of Technology (USA), 234 pp.
- Crane, Todd A.** 2006. Changing Times and Changing Ways: Local Knowledge, Political Ecology and Development in the Niger River Inland Delta of Central Mali. Univ of Georgia (USA), 239 pp
- Franklin, Evan T.** 2006. Sliver Solar Cells and Concentrator Sliver cells. Australian National University (Australia), 352 pp
- Ignace, Danielle D.** 2006. Functional Responses of Sonoran Desert Plant Species to Precipitation. University of Arizona (USA), 216 pp
- Johnson, Mark S.** 2005. Linkages Between Hydrology and Biogeochemistry on Amazonian Pastures and Forested Headwater Catchments. Cornell University (USA), 156 pp.
- Keller, Jason K.** 2005. Controls of Microbial Carbon Cycling in Northern Peatlands. University of Notre Dame (USA), 250 pp
- Kohler, Pia M.** 2006. Towards a Global Consensus on Matters of Science: How Process and Membership Can Generate Valid and Sustainable Science Advice in Multilateral Environmental Treaty Negotiations. Massachusetts Institute of Technology (USA), 177 pp
- Krakauer, Nir** 2006. Characterizing Carbon-Dioxide Fluxes From Oceans and Terrestrial Ecosystems. California Institute of Technology (USA), 173 pp.
- LaDeau, Shannon L.** 2005. The Reproductive Ecology of *Pinus taeda* Growing in Elevated CO₂. Duke University (USA), 152 pp
- Magi, Brian I.** 2006. Optical Properties and Radiative Forcing of Southern African Biomass Burning Aerosol. University of Washington (USA), 180 pp
- Nelson, David M.** 2005. Influence of Aridity and Fire on Holocene Vegetational Patterns in the Tallgrass Prairie Peninsula. University of Illinois (USA), 94 pp.
- Nilsen, Elena B.** 2004. Studies of Carbon Cycling, Nutrient Dynamics and Climate Change in Pelagic and Coastal Ecosystems Using Sediment Geochemical Techniques. University of California at Santa Cruz (USA), 155 pp
- Pagano, Thomas C.** 2004. The Role of Climate Variability in Operational Water Supply Forecasting for the Western United States. University of Arizona (USA), 283 pp
- Pohlman, John W.** 2006. Sediment Biogeochemistry of Northern Cascadia Margin Shallow Gas Hydrate Systems. College of William and Mary (USA), 239 pp
- Rivers, Louie** 2006. Risk Perception and Decision-making in Minority and Marginalized Communities. Ohio State University (USA), 183 pp
- Saldaña-Zorrilla, Sergio O.** 2006. Economic Vulnerability in Mexico: Natural Disasters, Foreign Trade and Agriculture. Vienna Univ of Economics and Business Administration (Austria), 190 pp
- Salzmann, Nadine D.** 2006. The Use of Results from Regional Climate Models for Local-Scale Permafrost Modelling in Complex High-Mountain Topography - Possibilities, Limitations and Challenges for the Future. University of Zurich (Switzerland), 169 pp
- Shanahan, Timothy M.** 2006. West African Monsoon Variability from a High-Resolution Paleolimnological Record (Lake Bosumtwi, Ghana). University of Arizona (USA), 382 pp
- Suttle, Kenwyn B.** 2005. Spider Interactions with Arthropod Prey and Their Consequences in Temperate and Tropical Communities. University of California at Berkeley (USA), 129 pp
- Tarui, Nori** 2004. Essays on Common-Property Resource Management and Environmental Regulation. University of Minnesota-Twin Cities (USA), 135 pp
- Teh, Yit Arn** 2005. Methane Cycling in Humid Tropical Forests: Stable Isotope Geochemistry and Effects of Oxygen Dynamics. University of California at Berkeley (USA), 169 pp
- Townsend-Small, Amy** 2006. Carbon and Nitrogen Cycling in the Peruvian Andean Amazon. University of Texas at Austin (USA), 200 pp
- Turnbull, Jocelyn C.** 2006. Development of a High Precision ¹⁴CO₂ Measurement Capability and Application to Carbon Cycle Dynamics. University of Colorado at Boulder (USA), 139 pp
- Urrego, Dunia H.** 2006. Long-term Vegetation and Climate Change in Western Amazonia. Florida Institute of Technology (USA), 278 pp
- Webster, Diana G.** 2005. The Fortunes of Fishes and Fishers: The Political Economy of Innovation in Atlantic Resource Management. University of Southern California (USA), 415 pp
- Westley, Marian B.** 2006. Isotopomer Studies of Nitrous Oxide in Low Oxygen Marine Environments. University of Hawai'i (USA), 174 pp
- Wilson, Elizabeth J.** 2004. Managing the Risks of Geologic Carbon Sequestration: A Regulatory and Legal Analysis. Carnegie Mellon University (USA), 162 pp
- Wilson, Robyn S.** 2006. What Motivates Choice? Behavioral Decision Theory for Environmental Policy and Management. Ohio State University at Columbus (USA), 127 pp
- Zaitchik, Benjamin F.** 2006. Local Drivers of Aridity in the Middle East and Beyond. Yale University (USA), 254 pp.
- Zeriffi, Hisham** 2004. Electric Power Systems Under Stress: An Evaluation of Centralized Versus Distributed System Architectures. Carnegie Mellon University (USA), 280 pp



Averyt, Kristen B. 2004. Strontium and Calcium in Marine Barite: Implications for Barite Formation and Seawater Chemistry. Stanford University (USA), 180 pp

Currently: Intergovernmental Panel on Climate Change

Now that the world has largely accepted that climate is changing, next we need to figure out how to deal with it. My own interests are evolving similarly. Although my lab-based research involves aqueous chemistry and paleoclimatology, I have become engaged in climate related public policy and communication of scientific information to policymakers, the public and the media.



Baskett, Marissa L. 2006. Marine Reserve Design and Life History Variation. Princeton University (USA), 208 pp

Currently: University of California at Santa Barbara

My research interests connect theoretical evolutionary ecology and conservation biology: with models, I investigate anthropogenically related rapid evolutionary and community changes. Currently I am exploring the dynamics of coral reef bleaching and the potential for response to climate change through community shifts and genetic adaptation in corals and their symbiotic algae.



Boykoff, Maxwell T. 2006. United States Media Representational Practices and Anthropogenic Climate Change: Investigations at the Interface of Science and Policy. University of California at Santa Cruz (USA), 279 pp

Currently: University of Oxford

My work addresses how various non-state actors influence environmental science, policy and practice. I've examined media coverage of climate change, the role of celebrity endeavors in climate-related issues, how certain discourses influence policy considerations, and links to ethics, environmental justice movements, civil society and public understanding.



Bradley, Bethany A. 2006. A Regional Analysis of Drivers and Impacts of Land Cover Change and Long-term Land Cover Trends in the Great Basin, U.S.. Brown University (USA), 219 pp

Currently: Princeton University

As a land cover scientist specializing in remote sensing, I am interested in how terrestrial ecosystems respond to both natural changes (e.g., weather fluctuations) and to anthropogenically driven changes, particularly land use and global climate change.



Cable, Jessica M. 2006. Precipitation Effects on Soil Carbon Cycling in the Sonoran Desert. University of Arizona (USA), 200 pp

Currently: University of Wyoming

My research focuses on how climate change impacts on ecosystem water availability will affect carbon and water cycling in arctic and alpine ecosystems and affect potential feedbacks to climate. I use stable isotopes and plant physiological measurements to understand plant water-use across gradients of water availability.



Codjoe, Samuel. 2004. Population and Land Use/Cover Dynamics in the Volta River Basin of Ghana, 1960-2010. University of Bonn (Germany), 184 pp

Currently: University of Ghana

I work with small-scale farmers in Ghana, on understanding their opportunities and constraints in Climate Change mitigation and adaptation. My ultimate career goal is to use an interdisciplinary and collaborative approach, to develop an effective framework for managing African resources, in a way that promotes sustainable livelihoods on the continent.



Cohan, Daniel S. 2004. Photochemical Formation and Cost-efficient Abatement of Ozone: High-order Sensitivity Analysis. Georgia Institute of Technology (USA), 234 pp.

Currently: Rice University

I specialize in atmospheric modeling and its application to air quality management and energy policy. I have implemented a high-order sensitivity analysis method into a photochemical model and developed techniques for its application to control strategy optimization and uncertainty assessments.



Crane, Todd A. 2006. Changing Times and Changing Ways: Local Knowledge, Political Ecology and Development in the Niger River Inland Delta of Central Mali. University of Georgia (USA), 239 pp

Currently: University of Georgia

My research focuses on cultural adaptations to climate change and variability. I am particularly interested in building connections between local knowledge systems and scientific research in the sphere of natural resource management, especially agriculture. In November I move to Wageningen University, Netherlands to take an Assistant Professor position in the Technology and Agrarian Development Chair Group.



Franklin, Evan T. 2006. Sliver Solar Cells and Concentrator Sliver cells. Australian National University (Australia), 352 pp

Currently: Australian National University

My main areas of research interest / expertise include the design, modelling, fabrication and characterisation of solar cells, with particular emphasis on high efficiency silicon cells and novel solar cells. My other areas of interest include solar concentrator systems, solar thermal systems, renewable energy technologies and renewable energy public policy.



Ignace, Danielle D. 2006. Functional Responses of Sonoran Desert Plant Species to Precipitation. University of Arizona (USA), 216 pp

Currently: University of Arizona

My research focuses on understanding the impacts of invasive plant species and climate change on an arid ecosystem of the Southwestern U.S. I apply a plant physiological ecology, community ecology, and ecosystem ecology framework to understanding species interactions and shifts in annual plant community composition.



Johnson, Mark S. 2005. Linkages Between Hydrology and Biogeochemistry on Amazonian Pastures and Forested Headwater Catchments. Cornell University (USA), 156 pp.

Currently: University of British Columbia

I work in headwater and meso-scale watersheds investigating terrestrial-aquatic interactions in tropical, temperate and boreal settings on processes that may be impacted by climate change. My research centers on the hydrologic controls of biogeochemical processes related to carbon dynamics, and human impacts on the ecohydrologic functioning of watersheds.



Keller, Jason K. 2005. Controls of Microbial Carbon Cycling in Northern Peatlands. University of Notre Dame (USA), 250 pp

Currently: Smithsonian Institution

I am interested in understanding how ecosystems respond to global change. My current research focuses on wetland ecosystems, ranging from northern peatlands to tidal wetlands associated with the Chesapeake Bay. In particular, I explore the controls of microbial production of CO₂ and CH₄ (two important greenhouse gases) in wetland soils.



Kohler, Pia M. 2006. Towards a Global Consensus on Matters of Science: How Process and Membership Can Generate Valid and Sustainable Science Advice in Multilateral Environmental Treaty Negotiations. Massachusetts Institute of Technology (USA), 177 pp

Currently: University of Alaska Fairbanks

The incorporation of science advice into global environmental policy making, especially as relating to climate change, ozone layer depletion, biodiversity conservation and chemicals regulation. The role of traditional and local knowledge in the provision of science advice and in environmental policy making at the local and global level.



Krakauer, Nir 2006. Characterizing Carbon-Dioxide Fluxes From Oceans and Terrestrial Ecosystems. California Institute of Technology (USA), 173 pp.

Currently: University of California, Berkeley

My research interests include: Contemporary biogeochemistry and carbon cycling; monitoring the uptake of carbon by oceans and by land vegetation; carbon-climate-freshwater interaction; multiscale data assimilation for describing carbon-cycle processes.



LaDeau, Shannon L. 2005. The Reproductive Ecology of *Pinus taeda* Growing in Elevated CO₂. Duke University (USA), 152 pp

Currently: National Zoological Park/ Ohio State University

My research focuses on evaluating how ecological communities respond to global change challenges, including climate, habitat loss, and invasive species. Current projects include investigation of spatio-temporal drivers of West Nile amplification in avian host communities and patterns of resource allocation in forest trees grown in future atmospheric CO₂.



Magi, Brian I. 2006. Optical Properties and Radiative Forcing of Southern African Biomass Burning Aerosol. University of Washington (USA), 180 pp

Currently: Princeton University

I am studying the impact that fires ignited by humans have on climate. The fact that carbon emissions from fires in the Southern Hemisphere dwarf those from fossil fuel combustion in the United States dictates a need to better understand current and past fire emissions.



Nelson, David M. 2005. Influence of Aridity and Fire on Holocene Vegetational Patterns in the Tallgrass Prairie Peninsula. University of Illinois (USA), 94 pp.

Currently: University of Illinois/Harvard University

I study the influence of environmental change on ecosystem structure and function. I am currently examining the factor(s) driving variations in the abundance of C3 and C4 grasses in paleorecords, and am also investigating the influence of climatic change on microbe-mediated processes in soils.



Nilsen, Elena B. 2004. Studies of Carbon Cycling, Nutrient Dynamics and Climate Change in Pelagic and Coastal Ecosystems Using Sediment Geochemical Techniques.

University of California at Santa Cruz (USA), 155 pp

Currently: US Geological Survey

My research goals are to understand impacts of climate change and other human-induced factors on the health and function of coastal ecosystems. Current projects include investigating the influence of climate phenomena on primary productivity in the California Current and impacts of emerging contaminants on microbial and fish populations in estuaries.



Pagano, Thomas C. 2004. The Role of Climate Variability in Operational Water Supply Forecasting for the Western United States.

University of Arizona (USA), 283 pp

Currently: NRCS-USDA

My graduate research was on the real-world use of seasonal climate information to improve snow-melt forecasting and water management. I also have a background in statistical analysis of time series data, effective communication of uncertain information, and the operational management of technological innovation.



Pohlman, John W. 2006. Sediment Biogeochemistry of Northern Cascadia Margin Shallow Gas Hydrate Systems.

College of William and Mary (USA), 239 pp

Currently: USGS, Gas Hydrate Research Group

I am interested in the biogeochemical cycling of methane associated with marine gas hydrate systems. I utilize stable and radiocarbon isotopes from dissolved and solid phase pools as well as microbial biomarkers to constrain pathways that produce and consume methane. My objective is to understand the role of gas hydrate as a component of the global carbon cycle.



Rivers, Louie. 2006. Risk Perception and Decision-making in Minority and Marginalized Communities.

Ohio State University (USA), 183 pp

Currently: National Science Foundation

I am interested in the examination of risk perceptions and decision-making processes in minority and marginalized communities, particularly in regards to the natural environment.



Saldaña-Zorrilla, Sergio O. 2006. Economic Vulnerability in Mexico: Natural Disasters, Foreign Trade and Agriculture.

Vienna University of Economics and Business Administration (Austria), 190 pp

Currently: Universidad Nacional Autónoma de México (UNAM)

My research focuses on economic analysis of natural disasters within the framework of climate change. Current projects include evaluating adaptation measures for reducing vulnerability to climate extremes in Latin-America, such as mitigation works, insurance, and contingent fund.



Salzmann, Nadine D. 2006. The Use of Results from Regional Climate Models for Local-Scale Permafrost Modelling in Complex High-Mountain Topography - Possibilities, Limitations and Challenges for the Future. University of Zurich (Switzerland), 169 pp

Currently: National Center for Atmospheric Research (NCAR)

My interests are Mountain cryosphere and complex topography; Regional Climate Model; Impact of climate change on water resources from mountain cryosphere; Contribution of mountain cryosphere to hydrologic runoff; Natural hazards; Adaptation and mitigation; Modeling & measuring; Coupling mountain cryosphere models with climate models.



Shanahan, Timothy M. 2006. West African Monsoon Variability from a High-Resolution Paleolimnological Record (Lake Bosumtwi, Ghana). University of Arizona (USA), 382 pp

Currently: Woods Hole Oceanographic Institution

My research interests involve developing, testing and applying new geochemical, biogeochemical and isotopic approaches to the geological record for reconstructing past environmental changes. Currently, I am focused on the use of organic molecules preserved in sediments as source-specific biological markers to identify past biological and climate changes and interactions.



Suttle, Kenwyn B. 2005. Spider Interactions with Arthropod Prey and Their Consequences in Temperate and Tropical Communities. University of California at Berkeley (USA), 129 pp

Currently: University of California, Berkeley

I am a community ecologist interested in ecosystem responses to changing climate, loss of predator species, and habitat degradation. My research gives particular focus to how direct impacts on individual species propagate via changing species interactions into indirect effects throughout above- and below-ground communities.



Tarui, Nori 2004. Essays on Common-Property Resource Management and Environmental Regulation. University of Minnesota-Twin Cities (USA), 135 pp

Currently: University of Hawaii-Manoa

My current research interests include how to improve on Kyoto Protocol to support cooperation among countries for climate change mitigation, and how alternative pollution-control policies influence regulated companies' incentive for clean technology innovation. My research tools are microeconomics, game theory, and numerical simulations.



Teh, Yit Arn 2005. Methane Cycling in Humid Tropical Forests: Stable Isotope Geochemistry and Effects of Oxygen Dynamics. University of California at Berkeley (USA), 169 pp

Currently: University of California at Berkeley

I'm investigating the role of soil microorganisms in regulating biogenic trace gas exchange between the terrestrial biosphere and atmosphere. Application of natural abundance and enriched stable isotope tracers to gain insights into biogeochemical cycling. Exploring the impacts of hydrology and land management practices on soil carbon cycling and greenhouse gas fluxes.



Townsend-Small, Amy 2006. Carbon and Nitrogen Cycling in the Peruvian Andean Amazon.

University of Texas at Austin (USA), 200 pp

Currently: University of California, Irvine

My main research interest is in using stable and radioactive isotopes to track changes in global biogeochemical cycles of carbon and nitrogen. I have applied these concepts to a wide variety of systems impacted by land use change, eutrophication, increases in greenhouse gas concentrations, and climate change.



Turnbull, Jocelyn C. 2006. Development of a High Precision $^{14}\text{CO}_2$ Measurement Capability and Application to Carbon Cycle Dynamics.

University of Colorado at Boulder (USA), 139 pp

Currently: Laboratoire des Sciences du CLimat et de l'Environnement (LSCE)

My research focus is on the radiocarbon content of atmospheric carbon dioxide (CO_2), which is primarily a proxy for fossil fuel CO_2 emissions. Applications include quantifying fossil fuel CO_2 emissions, and validation of atmospheric transport models.



Urrego, Dunia H. 2006. Long-term Vegetation and Climate Change in Western Amazonia.

Florida Institute of Technology (USA), 278 pp

Currently: Florida Institute of Technology

My research focuses on climate and environmental changes at a global scale, and particularly in tropical forests of South America. My areas of expertise are terrestrial Paleocology and tropical Palynology. My paleoecological research has concentrated in the Late Pleistocene and Holocene periods while I am a specialist on pollen floras of montane and lowland tropical forests.



Webster, Diana G. 2005. The Fortunes of Fishes and Fishers: The Political Economy of Innovation in Atlantic Resource Management.

University of Southern California (USA), 415 pp

Currently: University of Southern California

My focus is on modeling complex feedbacks between social and natural systems to determine the feasibility of institutional solutions to environmental problems. I'm particularly interested in exploring the macro-level implications of observed decision-processes such as satisficing and loss aversion.



Westley, Marian B. 2006. Isotopomer Studies of Nitrous Oxide in Low Oxygen Marine Environments.

University of Hawaii (USA), 174 pp

Currently: National Oceanic and Atmospheric Administration (NOAA)

My dissertation was a ship- and laboratory-based study of the biogeochemistry of nitrous oxide in the ocean. My current research interests are trace gas cycles in the ocean component of global climate models and the policy implications of using the ocean to sequester anthropogenic carbon dioxide.



Wilson, Elizabeth J. 2004. Managing the Risks of Geologic Carbon Sequestration: A Regulatory and Legal Analysis.

Carnegie Mellon University (USA), 162 pp

Currently: University of Minnesota

I examine how institutional, regulatory, and legal barriers affect progress towards a carbon managed energy system. I seek to integrate scientific and technical knowledge within larger policy framework. Carbon capture and sequestration, energy efficiency, and understanding how organizational policy impacts energy use are my current research topics.



Wilson, Robyn S. 2006. What Motivates Choice? Behavioral Decision Theory for Environmental Policy and Management. Ohio State University at Columbus (USA), 127 pp

Currently: Ohio State University

My research interests lie in the fields of environmental risk communication and decision making. Specifically, I am interested in what motivates people's choices when faced with multi-objective, risk based decisions and how we can better structure that decision process to encourage more thoughtful policy and management decisions.



Zaitchik, Benjamin F. 2006. Local Drivers of Aridity in the Middle East and Beyond. Yale University (USA), 254 pp.

Currently: NASA Goddard Space Flight Center / University of Maryland

My research is directed at understanding, managing, and coping with climate variability. Understanding requires examination of the natural processes that drive climate. Managing involves the study of anthropogenically-induced variability. Coping includes improved forecast systems and methods of risk assessment. My primary research tools are observational analysis and numerical modeling.



Zerriffi, Hisham 2004. Electric Power Systems Under Stress: An Evaluation of Centralized Versus Distributed System Architectures. Carnegie Mellon University (USA), 280 pp

Currently: University of British Columbia

My research is at the intersection of technology, institutions and policy and focuses on energy, environment and development. Recent research has been on business models for distributed rural electrification, assessing the effectiveness of international lending for rural renewables, and the linkages between energy, socio-ecological systems and human welfare.
