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

DISCCRS V Symposium Report
March 13-20, 2010

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Sponsoring Societies:
AAG Association of American Geographers, AGU American Geophysical Union, AERE Association of Environmental and Resource Economists, 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, STEPS-APSA Science, Technology and Environmental Politics (STEP) section of the American Political Science Association, TOS The Oceanography Society and USSEE U.S. Society for Ecological Economics

See Appendix I for Ph.D. dissertation citations and Interest areas of the 34 Symposium Scholars
Introduction

This was a fantastic conference. At most week-long conferences, I am exhausted and not wanting to interact with the other participants. At the end of this conference, I will be sad to not be able to interact with the other participants for longer.

Interdisciplinary research has become a critical tool for addressing the complex and challenging global environmental problems we face, particularly those at the science-societal interface of global climate change, human population increases, land use, and biodiversity loss. Concerns regarding climate change in particular have resulted in the establishment of many interdisciplinary programs, institutes, and centers to help society better understand and address the problems of coupled human-natural systems. The holistic approach of interdisciplinary efforts fills a critical research gap that conventional disciplinary approaches are poorly designed to address. But recruiting top-tier researchers who can and want to succeed in an interdisciplinary context is challenging when dominant institutional structures and reward systems have not yet evolved to provide the training and development that would foster productive interdisciplinary research.

The Dissertations Initiative for the Advancement of Climate Change Research, or DISCCRS (pronounced “discourse”), seeks to help early-career Ph.D.-level researchers by catalyzing the formation of collegial interdisciplinary interactions. The program includes intensive week-long symposia; a public website that contains climate-change information, professional-development resources and a searchable online dissertation abstract registry to which all climate-change scientists are encouraged to contribute; and a weekly electronic newsletter containing time-sensitive information on climate news, resources, and interdisciplinary job announcements.

With respect to research outcomes, as project PIs we do not expect collaborations to develop directly as a result of any particular DISCCRS Symposium, given that candidates are selected for diversity rather than an interest in a specific research area. That said, we design the DISCCRS Symposia to provide training in interdisciplinary research skills, foster new interdisciplinary directions, enable the exchange of ideas, and foster interdisciplinary collegial networks so that, in the years ahead, the group will continue to interact, exchange ideas, recommend colleagues and students, and interact in other ways that will lead to more interdisciplinary research and societal interactions.

DISCCRS Symposia provide a unique opportunity to recent Ph.D.s because Symposium Scholars are competitively selected to constitute a small group of highly-qualified participants representing a diversity of disciplines, backgrounds, and perspectives. The Symposia foster intellectual exchange among these scholars to promote a peer network of early-career interdisciplinary climate-change scholars interested in working across traditional disciplinary boundaries and in a socially-relevant context and in communicating effectively beyond the ivory tower. A small number of well-respected, interdisciplinary climate-change experts are invited as mentors to provide perspectives on scientific, professional, and societal issues. Sessions during the Symposia also include communication training, interpersonal and team-development skills, keynote presentations, experiential learning, small-group exercises, and informal interactions.
All of the Symposium activities are designed to 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 V Symposium which was held at the Saguaro Lake Ranch near Phoenix, AZ from March 13-20, 2010.

**DISCCRS V Symposium Application Process**

Applications were invited from researchers working in the area of climate change or its impacts and completing a Ph.D. between April 1, 2007 and July 31, 2009.

Applicants submitted the following:

- Ph.D. dissertation abstract;
- professional resume;
- two essays describing their Ph.D. research and future research and career goals; and
- two letters of recommendation.

The application review process consisted of 3 stages: a first mail review involving 32 reviewers and each applicant receiving 4 reviews each, a second mail review of the top 50% of applicants involving 9 reviewers and each applicant receiving 3 reviews each, and a third in-person review meeting involving 6 reviewers with top applicants receiving at least 2 further reviews. Reviewers included both established climate-change scientists and former DISCCRS Symposium Scholars. Symposium Scholars were competitively selected based on the quality of their research, their potential to become well-respected experts in their field, and their commitment to collaborative and interdisciplinary climate-change research as well as to linking scientific research to societal needs. Publication records were important and most of those accepted had multiple peer-reviewed publications.

The 175 applicants to the DISCCRS V Symposium completed their Ph.D. degrees in 19 countries, including 127 (73%) in the United States. Other countries where applicants completed their Ph.D.s were: Argentina (1), Australia (4), Austria (1), Belgium (2), Brazil (2), Canada (11), China (3), Cote d'Ivoire (1), France (1), Germany (3), India (3), Italy (1), Japan (1), Kazakhstan (1), Monaco (1), Spain (3), Thailand (1), the United Kingdom (8), and the United States (127). Thirty-five Scholars were invited for the 34 slots at the symposium as one could not attend.

The overall acceptance rate for the symposium was 20% and the acceptance rate for graduates completing a Ph.D. in the U.S. was 22%. The 34 Symposium Scholars were citizens of eight countries: United States (24), Brazil (1), Canada (2), China (2), Germany (1), India (1), Nepal (1), United Kingdom (1), and Canada/United States dual citizen (1).

Table I summarizes the primary fields of interest of applicants and Symposium Scholars using NSF program categories.

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<thead>
<tr>
<th>Category</th>
<th>Applied</th>
<th>Attended</th>
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<tbody>
<tr>
<td>Total</td>
<td>175</td>
<td>34</td>
</tr>
<tr>
<td>Biological Sciences</td>
<td>69</td>
<td>14</td>
</tr>
<tr>
<td>Geosciences, Engineering &amp; Mathematics</td>
<td>63</td>
<td>8</td>
</tr>
<tr>
<td>Social Sciences, Humanities</td>
<td>43</td>
<td>12</td>
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Table I. Characteristics of DISCCRS V applicants and Symposium Scholars.
Symposium Participants

At the start of the week, each scholar, mentor, trainer and agency representative took two minutes to describe their personal background. All were allowed no more than one Powerpoint slide for this introduction. Scholars and mentors were also given 7 minutes to describe their Ph.D. research or, in the case of mentors, their professional track and accomplishments.

See Appendix I for photographs and background on all symposium participants

Scholars

Interdisciplinary peer-to-peer interactions & relationship building were, hands down, the most amazing parts of an amazing week.

The full breadth of expertise and interest of the 34 Symposium Scholars is captured in Appendix I, which lists dissertation citations and areas of interest. Specializations included anthropology, biogeochemistry, biology, climatology, computer modeling, ecology, economics, engineering, geography, hydrology, oceanography, international relations, physics, political science, psychology, and sociology. Symposium Scholars demonstrated both a depth of expertise in a particular field and a breadth of interest evidenced by collaborative work with scholars in other disciplines.

Mentors

I loved this symposium. I liked having the mentors around all week to get to know them & have them around as questions arose.

Six respected scholars accepted invitations to participate in the Symposium as Mentors. Mentors were selected based on their reputations for conducting excellent interdisciplinary climate change research while also being committed to - and skilled at - mentoring the next generation of research scientists. Mentors provided perspectives on cutting-edge climate-change research in both the natural and social science realms, while also shedding light on the IPCC process and the day-to-day politics and policies involved in conducting climate-change research. Mentors advised Scholars on early-career development including building and running collaborative research teams, getting tenure, and balancing one’s personal and professional life. Mentors and Scholars had frequent opportunities for interaction, including individual meetings, small-group discussions, plenary panels, and informal conversations over meals and at poster sessions. Mentors included:

Julia E. Cole, Professor, Dept. of Geosciences, University of Arizona

Susan A. Crate, Assistant Professor, Dept. of Environmental Science and Policy, George Mason University

Ronald B. Mitchell, Professor, Dept. of Political Science and Environmental Studies, University of Oregon (and Symposium Co-Organizer)

Jonathan T. Overpeck, Professor, Dept. of Geosciences, Dept. of Atmospheric Sciences and Co-Director, Institute of the Environment, University of Arizona

David A. Randall, Professor, Dept. of Atmospheric Science and Director, Center for Multiscale Modeling of Atmospheric Processes, Colorado State University

Billie L. Turner II, Professor, Environment and Society, School of Geographical Sciences and Urban Planning and School of Sustainability, Arizona State University

C. Susan Weiler, Senior Research Scientist, Biology Dept. and Office for Earth System Studies, Whitman College (and Symposium co-Organizer)

Michael A. White, Associate Professor, Dept. of Watershed Sciences, Utah State University and Climate Sciences Editor, Nature

Agency Representatives

Robert E. O’Connor, Program Director, Social, Behavioral and Economic Sciences Directorate, National Science Foundation

Robert L. Sanford, Jr., Program Director, Biosciences Directorate, National Science Foundation
Symposium Components
The week-long Symposium contains a range of components that are identified in the Symposium Agenda depicted in Appendix II and are described briefly below.

Scholar Oral and Poster Presentations
Each Scholar presented their research in oral and poster format. Presenters were directed to target a non-specialist audience and limit their talk to 7 minutes. Each presenter was provided with feedback on their oral and poster presentations by one other Scholar and one Mentor. This allowed each Scholar to experience both giving and receiving feedback and to focus on strategies for communicating effectively to a non-specialist audience. All presentations were videotaped as well, so that Scholars could have a record for review and to share with others. At least one Scholar has included his talk on his public webpage: http://www.imachordata.com/?p=321.

Mentor Keynote Presentations
Each of the following Mentors presented a keynote presentation in plenary, with the talk limited to 15 minutes, leaving 45 minutes for questions and answers. These presentations exposed the Symposium Scholars to high-level thinking about climate change and its impacts, a breadth of disciplinary perspectives, and a range of effective presentation and communication styles.

- Julia Cole: The ENSO system in a changing climate: can the past inform the future?
- Susan Crate: Investigating observations, perceptions and responses to the local effects of unprecedented climate change
- Ronald Mitchell: Why climate change is harder than you think
- Jonathan Overpeck: The challenge of abrupt earth system change
- David Randall: Climate change on the back of an envelope
- Billie Turner: Land architecture and tradeoffs: foundations for sustainability
- Michael White: Present and future climate science at Nature

Agency Overviews and Tips on Proposal Development
One thing I will do differently as a result [of DISCCRS]: apply more confidently for NSF funding.
Agency representatives from both funding agencies - the U.S. National Science Foundation and National Aeronautics and Space Administration - were on site for most of the week, to provide general information and to answer specific questions posed by Scholars.

**Funding Opportunities**

Robert E. O'Connor provided an overview of the National Science Foundation and described “How to get NSF to support your research.” His overview described NSF’s organizational structure, current funding trends, and interdisciplinary opportunities. His “how to” described the NSF review process and criteria, and the elements of successful proposals. O’Connor highlighted the value for those doing interdisciplinary work of submitting proposals with a co-review request; the Dynamics of Coupled Human and Natural Systems program; the Environment, Society, and Economics initiative; and the continuing NSF commitment to climate research. He also clarified the sorts of projects appropriate for NSF funding and urged Scholars to gain experience by reviewing proposals and serving on review panels.

Robert “Buck” Sanford described the Biosciences Directorate and “Opportunities for early career scientists.” He highlighted the importance of identifying both opportunities within NSF and in other federal agencies. He provided an overview of NSF’s Biological Sciences Directorate’s efforts to support climate change research as well as the current status of initiatives related to climate research.

C. Susan Weiler provided an overview of the Geosciences Directorate and “Suggestions for early career PIs.” Weiler described the mission of NSF’s Directorate of Geosciences including the funding priorities of its different divisions. She focused on international opportunities, post-doctoral fellowships, and CAREER awards. She reviewed the attributes of successful proposals and provided key “words of wisdom” on how to write a successful proposal and get it funded.

Ming-Ying Wei provided an overview of “Earth science at NASA.” Wei reviewed NASA’s six thematic focus areas and the range of research opportunities available. She highlighted NASA’s evaluation criteria, noting the commonalities and differences with NSF. She also delineated the differences between successful and unsuccessful proposals and identified NASA programs of particular interest to those conducting interdisciplinary research on climate change.

**Training Sessions**

Important elements of the Symposium are training sessions that enable Scholars to develop their skills in building and maintaining interdisciplinary collaborations.

**Team Building and Facilitation Skills**

_The emphasis on communication and interpersonal skills provided hugely important training in essential skills that we do not typically get in professional settings or in graduate school._

Christina Olex led two sessions on team building and one on facilitation.

The first team-building component involved the value of understanding “personality types” in the context of building an “expert team” as opposed to a “team of experts.” Before the symposium, each Scholar was encouraged to identify their personality type using an index based on the work of Carl Jung and the Myers-Briggs typology. Olex summarized the development of the different personality types and their influence on group dynamics. After describing characteristics of each of the 16 Myers-Briggs types, Olex highlighted the value of attending to
personality types in collaborative interdisciplinary relationships as well as in departmental interactions, lab management, and small meetings. This exercise generated a common experience that prompted considerable informal discussion and helped catalyze development of the DISCCRS peer network.

The second team-building component focused on emotional intelligence. Olex reviewed research demonstrating that emotional intelligence contributes as much to what makes a “great leader” as does IQ or technical skills. She delineated various examples of how emotions get between people’s intentions and their impacts. She laid out various ways in which our emotions frustrate our efforts to work effectively with colleagues and to manage members of a research team effectively. She also suggested ways to develop skills to improve outcomes.

During her session on facilitation, Olex identified challenges in working with groups and identified procedures and roles that help create more effective meetings and collaborative discussions. These skills were practiced in small-group sessions during the symposium to help Scholars develop new skills that they can use throughout their careers, when mentoring and advising students, and when developing and conducting interdisciplinary research projects.

**Communication**

Having a professional “communicator” onsite will have long-lasting benefits in improving my ability to describe my research and why it is important.

Effective communication was a unifying theme of the week and was central to most symposium activities. Oral presentations were structured to focus Scholars on presenting their research effectively to a non-specialist audience and to study how others effectively make such presentations. Both Scholar and Mentor presentations were excellent and exposed Scholars to an array of strategies for communicating effectively. In addition, Susan Hassol gave a plenary talk, ran a group exercise, and videotaped individual mock media interviews with all interested Scholars.

During her plenary on communicating climate change, Hassol reviewed both trends in public understanding of the science of climate change and the challenges that scientists face in communicating effectively. She reviewed specific words that tend to mean different things to a lay audience and to scientists and the particular problems involved in communicating uncertainty. Her talk provided specifics on both what does and does not work when communicating research to a non-specialist audience.

Hassol followed her plenary with a practice session on communicating effectively. This session on “crafting your message” involved pairs of Scholars developing their message, presenting it to their partner, and critiquing each others’ message. Each person assumed the role of communicator and critiquer. Returning to plenary, a few Scholars volunteered to be interviewed by Hassol on their message. This enabled scholars to identify strengths and weaknesses of different communication strategies.

In response to strong interest by many Scholars, Hassol spent much of the next two days videotaping mock interviews. This allowed Scholars to both experience the interview process and have a record they could take home to review.

**Panel Discussions**

Several Panel Discussions were held during the week. These covered professional issues such as interdisciplinary research and personal issues.
such as balancing personal and professional lives, getting a job and attaining tenure.

**Interdisciplinary Research**

Following the agency presentations, a panel session was held to discuss in more detail strategies for developing a successful interdisciplinary research proposal. Mentors each shared insights gained during their careers and addressed specific questions from the Scholars. Mentors noted that successful proposals often depend on identifying colleagues known to be good working partners. The DISCCRS peer network provides scholars with exactly such collegial ties to those in many different fields. After identifying colleagues, the “who, what, where, and when” should be worked out and responsibilities should be written into proposals.

**Insights on Interdisciplinarity**

Most Scholars had engaged in interdisciplinary research as part of their thesis or post-doctoral work, and had both enthusiasm and concerns as a result.

A panel discussion with Mentors provided insight and prompted discussion about the benefits of interdisciplinarity research, the challenges to doing such research, and the strategies for overcoming those challenges. The Mentors briefly reviewed their own experience in interdisciplinary efforts and addressed, inter alia, how to build effective collaborative research teams, how to foster productive relationships, and how to balance interdisciplinary research with the disciplinary research needed to earn tenure. The Scholars’ prior experience generated a very interactive and rich discussion.

**Proposal Marketing**

A new component introduced in DISCCRS V involved providing Scholars an opportunity to present and receive feedback on their own planned interdisciplinary proposals. Scholars broke into four groups in which three or four Scholars each spent 5 minutes presenting their draft proposals. They received feedback from that group on ways to improve the substantive components of the proposal and its presentation. This served both to help those individuals developing the proposal and to allow interested Scholars to begin discussions about how to form research teams to explore these or other ideas.

**Interdisciplinary Research Groups Exercise**

*I especially liked the interdisciplinary group exercise. It was a “fun into funding” experience.*

*I will certainly pursue a research proposal with my teammates from the interdisciplinary experience.*

At DISCCRS V, we continued to refine our efforts to create an “interdisciplinary collaborative research” exercise that created as real a context as possible within the constraints imposed by having an intentionally diverse
group of scholars who had only met each other at the beginning of the week. We used the Proposal Marketing session, explanation of the two most interdisciplinary goals of the United States’ Climate Change Science Program, and several other processes to get Scholars discussing potential joint research topics early in the week. Each research team was required to involve at least four members and include a diverse group of scholars including both natural and social scientists, males and females. The scholars were constrained to a total of 6 hours on the last two days of the week to work as a team to develop their research proposal. We did not expect Scholars to develop a full-blown interdisciplinary research proposal in those 6 hours but hoped that it would help them think about what such a project entails in terms of research, differences in “culture” between disciplines, challenges in communicating across disciplines and group dynamics, and how it differs from much of what they have been trained to do as specialists. Scholars also had an opportunity to practice the facilitation techniques learned earlier in the week.

In response, Scholars established five teams that were quite diverse. Each developed its own research topic. The final titles for their team research proposals were:

- Visualizing the effects of climate change on the energy sector
- The role of glaciers on human-ecological systems with climate change
- Food production in the 21st century: assessing adaptation potential to multiple stressors across agricultural systems
- Effective interdisciplinary training for climate change research
- Panoptic surveillance: carbon monitoring impact on global political and economic systems

Each team presented their research proposal in plenary. This exercise helped Scholars practice their communication and facilitation skills as well as develop a much better sense of the struggles and pleasures of generating interdisciplinary research out of a multidisciplinary group. At present, it appears that at least two teams are considering developing full collaborative research proposals.

Visioning

I thought the “global visioning” was a transformative experience.

Building on a component introduced at DISCCRS IV, we included a visioning exercise in DISCCRS V. This exercise was based on examples used for personal development and also those used increasingly in institutional settings such as policy-making. Our two-part exercise asked Scholars to develop a “career vision” and a “sustainable world vision.” Most Scholars had not engaged in such exercises before. Based on feedback from the DISCCRS IV Symposium, we focused more time on career visioning. However, this group seemed to find the sustainable-world exercise as or more valuable.

Professional Development

I feel confident that my next job interview will be better as a result of this symposium. The early career sessions were invaluable.

Part of successful professional development involves being able to discuss with experienced and sympathetic colleagues an array of topics, some of which may not fit easily into academic conversations within departments or at conferences. We try to take advantage of
DISCCRS Symposia as unique forums in which we not only allow but encourage such discussions. Early in each symposium we have a collective brainstorming session to generate a long list of topics that Scholars would like to discuss. We consolidate, organize, and cull those topics into a more manageable list of about six to eight topics. Since time constraints necessitated concurrent sessions, Scholars had to choose topics of individual interest.

Given its broad interest, one evening session was set aside for plenary discussion of career issues. Scholars who had recently received or accepted job offers reviewed their experiences with respect to the interview process and the post-offer negotiation process. Scholars in post-doc positions were able to raise questions and concerns from their own experience and receive a range of perspectives and opinions on how best to address those concerns. Of particular interest to the Symposium Scholars were questions regarding how to identify positions and institutions that were sympathetic to interdisciplinary research and that would maximize their opportunities to continue to pursue their interest in interdisciplinary and policy-relevant research on climate change.

Two additional evening sessions were set aside for simultaneous discussions of 3 or 4 different topics among small groups of 5 to 12 Scholars each. At DISCCRS V, discussion topics included work/family balance, “Climategate,” mitigation and adaptation, new communication media (blogs, twitter, Facebook), international issues, and policy-relevant research. These discussion sessions also enabled Scholars to practice the skills learned in the facilitation and group training sessions conducted earlier in the week.

Informal Time

The remote, retreat-style location provided ample opportunities for informal interactions between sessions, during meals, free time, and evenings.

Scholar Evaluations and Suggestions for Future Symposia

The symposium is extremely well organized and valuable to early career interdisciplinary academics. While taking a week away from work presented some serious hurdles, it was well worth the effort to jump through those hurdles. Every minute of our time was well used and I will leave with valuable skills, knowledge and connections that more than tip the time management scales.

The agenda included time for regular “course adjustments” during the week, with Scholars encouraged to do a “plus/delta” each day to express positive reactions and also suggest improvements. These were discussed and the agenda modified as needed. At the end of the Symposium, written evaluations asked Scholars to rate various aspects of the Symposium on a 5-point scale from 5 (excellent) to 1 (poor). The results were overwhelmingly positive. The average for “Value of the overall Symposium experience” was 4.9, with thirty Scholars rating the week as 5 and four Scholars rating it as 4. Evaluations of the individual components ranged from 4.9 to 3.5. The DISCCRS Co-Directors carefully consider all Scholar recommendations in revising subsequent DISCCRS Symposia, adding, deleting, or changing components based on Scholar feedback.
Scholars particularly valued the unique opportunity to combine academic learning with professional development and peer networking. Notably, suggestions for future improvements this year did not include issues that had been raised in prior years, suggesting that past changes to the program have been effective in continuing to improve this program.

**Future DISCCRS Symposia**

The DISCCRS V Symposium, described above, was funded through grants that will be used to run three additional symposia. The next Symposium, DISCCRS VI, will be held at the Saguaro Lake Ranch near Phoenix, AZ from October 22-29, 2011. The deadline for applications is currently planned for March 1, 2011. Applicants from any discipline will be eligible if they completed a Ph.D. between April 1, 2008 and February 28, 2011. 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 Scholars based on the submitted applications. Graduates may register Ph.D. dissertation abstracts at [http://disccrs.org/](http://disccrs.org/). Those who register will receive the weekly DISCCRS e-Newsletter and receive symposium updates.

**Acknowledgements**

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Quotations in this report are from Symposium Scholars as written on evaluations completed on the last day of the DISCCRS V symposium.
Anthony, Abigail W. 2009. Climate change and peak electricity demand: Evaluating policies for reducing peak demand under different climate change scenarios. University of Rhode Island (USA)
Currently: Environment Northeast (ENE)

I work with stakeholders in Rhode Island to systematically identify and procure customer-side opportunities beyond energy efficiency that are cost-effective and lead to lower supply and delivery costs to ratepayers. Deferring generation and T&D system investments should provide savings over time for customers, while securing local, distributed energy resources should reduce price volatility and GHG emissions.

Currently: Columbia University
http://www.columbia.edu/~sza2106

My research focuses on the interactions between natural and social systems. My thesis work investigated interventions to decrease energy consumption, preferences to change behavior, and perceptions of energy consumption. Currently, my work aims to investigate what motivates individuals to defect in social dilemma situations, where private rationality leads to collective irrationality.

Barnes, Rebecca T. 2008. Determining the relative importance of fluxes and processes to nitrogen and carbon export from temperate watersheds. Yale University (USA)
Currently: US Geological Survey & University of Colorado

My research utilizes both observational and experimental approaches in order to elucidate underlying mechanisms linking carbon and nitrogen in stream environments. By focusing on these mechanisms my research aims to explain how pressures of global change (e.g. atmospheric deposition, land use change) alter the cycling of nutrients in watersheds.

Blois, Jessica L. 2009. Ecological responses to paleoclimatic change: Insights from mammalian populations, species, and communities. Stanford University (USA)
Currently: University of Wisconsin at Madison

I am interested in how genes, populations, species, and communities have responded and will continue to respond to climatic change. I address this topic by integrating paleoecology, population and community ecology, morphometrics, and ancient DNA across both space and time.

Currently: National Center for Atmospheric Research

I am interested in the nexus between humans/society and the environment. My focus has been on household and societal response to the risk of natural hazards. I am interested in research that explores the bridge between short-term adjustments to extreme events and longer-term adaptation planning in a changing climate.

Brooks, Jeremy S. 2008. Conservation and development: Following the middle path in the Kingdom of Bhutan. University of California at Davis (USA)
Currently: University of Illinois at Urbana-Champaign

I explore when and why individuals and communities take action to minimize environmental impacts. My goal is to understand how social, economic, political, and environmental factors interact to influence human behaviors related to climate change in order to inform and shape environmental policy.
Appendix I. 2010 DISCCRS V Symposium Scholars

Byrnes, Jarrett E. 2008. Patterns and consequences of changing biodiversity in coastal marine food webs. University of California at Davis (USA)
Currently: University of California at Santa Barbara
http://www.lifesci.ucsb.edu/eemb/labs/cardinale/people/byrnes/index.html

I am interested in the impact of climate change on the biological complexity of natural ecosystems, and the resulting consequences of changes in complexity for ecosystem function. To this end, I seek to merge small-scale experiments with analyses of large-scale long-term data in marine ecosystems.

Cahill, Kimberly N. 2009. Global change in local places: Climate change and the future of high-quality winegrowing in Sonoma and Napa, California. Stanford University (USA)
Currently: University of California at Davis

My research motivation is to understand what human changes to the Earth’s climate and land surface will mean for the future of the ecosystems on which we depend, and how we can better balance human needs with sustaining the planet’s life support systems. My research focuses on how climate variability and change affect agriculture in California, the most valuable and diverse agricultural state in the nation, particularly the wine industry.

Carrico, Amanda R. 2009. Motivating pro-environmental behavior: The use of feedback and peer education to promote energy conservation in an organizational setting. Vanderbilt University (USA)
Currently: Vanderbilt University

My research examines the impact of individual and household behavior on greenhouse gas emissions. This includes the quantification of specific behaviors, identifying opportunities for emissions reductions through changes in product purchase and use, and an examination of the psychological correlates of environmental behavior change.

Chhetri, Netra B. 2007. Understanding the process of agricultural adaptation to climate change: Analysis of climate-induced innovation in rice based cropping system of Nepal. Pennsylvania State University (USA)
Currently: Arizona State University

I am interested in advancing scholarships on human dimensions of climate change through understanding of how adaptive capacity of society to adapt to climate change is shaped by local context of region in question. My research is guided by my desire to bring together research methods and theories from resource economics, political ecology, and natural hazards to advance interdisciplinary research on climate change.

Elliott, Joshua W. 2008. Nonperturbative regulators for supersymmetric theories in 3 and 4 dimensions. McGill University (Canada)
Currently: University of Chicago and Argonne National Laboratory
http://cim-earth.org/

My research applies advanced numerical methods, modern economic theory, modern statistics, and more to Integrated Assessment Modeling by constructing tools that enable access by researchers to cutting edge high-res climate forecasts and economic models, building a community online to develop an open family of models on the CIM-EARTH framework, and applying distributed computing for simulation, calibration and data processing.

Emanuel, Ryan E. 2007. Vegetation water stress and its impact on land-atmosphere interaction. University of Virginia (USA)
Currently: Appalachian State University
http://www.appstate.edu/~emanuelre

My research lies at the interface of land-surface hydrology and ecosystem ecology. I study interactions among hydrological processes, vegetation processes, and biogeochemical cycles with particular emphasis on watershed-scale ecohydrology, secondary succession, and the effects of climate variability on these interrelated processes. My work includes fieldwork, modeling, and remote sensing analysis.

**Currently:** University of California at Berkeley
http://ccp.berkeley.edu/feldman-d

I currently design earth-observing satellite instruments that will be calibrated to detect climate change forcing and feedbacks. I have experience with radiative transfer modeling, and the intercomparison of climate models and measurements. I am also interested in verifying CO2 emissions from space for cap-and-trade markets and treaty enforcement.


**Currently:** College of Charleston
http://astepback.com/academic

My research examines the legal and human security dimensions of climate change, particularly in vulnerable communities. I am interested in how biophysical and social effects from climate change impact human security, and ultimately, what this means for climate policy. While much of my work is at the local level, I am currently working on a paper that examines the legal dimensions of adaptation responsibility and a second paper on the current synergies of climate policy between the US and China.

Galdos, Marcelo V. 2007. Soil carbon dynamics under sugarcane. University of São Paulo (Brazil)

**Currently:** University of São Paulo

My research focus is on greenhouse gas emissions and soil carbon stock changes in bio-based products using life cycle assessment tools, process-based modeling and field measurements. I am currently working on carbon footprint studies of sugarcane-derived ethanol, soybean-derived biodiesel and beef in Brazil.

Girvetz, Evan H. 2007. Hierarchical habitat patch delineation: Integrating landscape pattern, habitat suitability, and population dynamics. University of California at Davis (USA)

**Currently:** The Nature Conservancy; University of Washington
http://faculty.washington.edu/girvetz

My research focuses on developing innovative ways to bridge the gap between climate science and real-world decision making. Working with collaborators, I am developing a powerful, yet easy-to-use web-based tool, called Climate Wizard (http://ClimateWizard.org), that allows non-climate specialists to explore climate change maps and analyses.

Gong, Min. 2009. Group cooperation under uncertainty. University of Pennsylvania; University of Wyoming (USA)

**Currently:** Columbia University
http://www.columbia.edu/~mg3030/

My main research interest is environmental policy and decision making, especially as it relates to uncertainty. For example, I study how to induce cooperative behavior in social dilemmas to reduce risks when the outcomes are probabilistic, and how to tip people toward the Pareto optimal equilibrium in risk management coordination.


**Currently:** University of British Columbia

I am interested in energy use and its consequences for the environment and human health. Much of my research focuses on characterizing air pollutant emissions and their atmospheric evolution. I’m currently working on policy analysis and measurements at the nexus of development, energy use, climate change and air pollution.
I am interested in the dynamics of change in linked human-ecological systems; particularly how these dynamics relate to policy-relevant topics. Currently, my work addresses the challenge of adapting conservation and resource management to the impacts of climate and concurrent changes as understood through a framework of concepts from non-equilibrium ecology, anthropology, and decision-making under uncertainty.

Colorado State University (USA)  
**Currently:** University of Wyoming

My research interests are focused on climate and global changes that impact carbon and water cycling within grassland ecosystems and feedbacks to the atmosphere. I use ecological gradients, experimental manipulations, and ecosystem modeling to understand links between water availability and plant and soil processes across time and space.

University of California at Santa Barbara (USA)  
**Currently:** Oregon State University  
http://people.oregonstate.edu/~henkels

My current research characterizes the response of bentic communities to the installation of wave energy capture devices in Oregon. Changes to fish, invertebrate, and seaweed populations likely will occur as devices extract energy, changing wave and current patterns, and as new species are attracted to and colonize the devices themselves.

University of California at Berkeley (USA)  
**Currently:** American University  
http://www.american.edu/sis/faculty/jinnah.cfm

My research examines how international secretariats are emerging as important actors in identifying/facilitating strategic inter-regime linkages in global environmental politics, and in turn how these linkages impact regime effectiveness. Empirically, my focus is on international regimes that address climate change (UNFCCC), biodiversity (CITES, CBD, CMS) and trade-environment politics (WTO).

**LeDee, Olivia E.** 2008. Canaries on the coastline: Estimating survival and evaluating the relationship between non-breeding shorebirds, coastal development and beach management policy.  
University of Minnesota at Twin Cities (USA)  
**Currently:** University of Wisconsin at Madison

My primary research interests are: modeling the response of wildlife populations to climate change and associated disruptions, the interaction between land conversion and global climate change to influence biological systems, and decision-making in natural resource management in reference to climate change.

**Liu, Lingli.** 2007. Effects of elevated atmospheric carbon dioxide, tropospheric ozone and plant community composition on litter production, chemistry and decomposition dynamics in a northern hardwood ecosystem.  
North Carolina State University (USA)  
**Currently:** U.S. Environmental Protection Agency

My general interest lies in the study of biogeochemical cycles and their response to global environmental changes. The two specific topics are: 1) the effects of atmospheric changes on belowground carbon and nitrogen cycles; 2) the impacts of air pollution on ecological processes and their implication for global climate change.
Appendix I. 2010 DISCCRS V Symposium Scholars

Duke University (USA)
Currently: University of California at Irvine

My research explores how carbon and water dynamics of trees and forest ecosystems may change in response to broadly defined global change, such as changes in water and nutrient availability, increases in carbon dioxide and changes in land use and management.

Miller-Rushing, Abraham J. 2007. Impacts of climate change on the phenology of temperate forest plants and birds in Massachusetts and Japan.
Boston University (USA)
Currently: USA National Phenology Network and The Wildlife Society

I am interested in characterizing and managing the impacts of climate change on populations and communities. I work most on phenology—seasonal activities like flowering and migrations—and am helping coordinate the development of a new national monitoring and science program focused on understanding phenological responses to environmental variation.

University of California at Davis (USA)
Currently: University of California at Davis

My research examines the effects of climate change on river ecosystems, and promising adaptation strategies to manage water for human and environmental uses. I am currently modeling warming effects on river temperatures, and associated changes to the distribution of temperature-sensitive fish species, such as salmon and trout.

Patenaude, Genevieve. 2006. Quantifying forest carbon stocks and changes in support of the Kyoto Protocol.
University of Oxford (UK)
Currently: University of Edinburgh

The business sector is a significant emitter of greenhouse gases. Still, minimal emphasis is given to this group’s perception of climate change. I am therefore interested in (a) the way that climate change science is communicated in business schools and (b) the levels of confidence, interests in, and perception of ecosystem services by investors.

Ponette-González, Alexandra G. 2009. Land cover effects on water fluxes and atmospheric deposition across a Mexican tropical montane landscape.
Yale University (USA)
Currently: University of Texas at Austin

My research involves understanding how past and present land-use activities alter the structure and function of tropical ecosystems, and how land use interacts with climate and policy to shape landscapes and regions. I am specifically interested in air pollution, and water and nutrient cycling in natural and managed ecosystems.

Ruane, Alex C. 2007. Diurnal to annual variations in the atmospheric water cycle.
University of California at San Diego (USA)
Currently: NASA Goddard Institute for Space Studies

My research bridges the gap between climate information and the assessment and management of climate impacts in complex international systems, especially relating to the agricultural sector. I am working to develop more accurate climate change scenarios tailored for particular applications, and to generate mechanisms to test adaptation strategies.
Appendix I. 2010 DISCCRS V Symposium Scholars

Currently: University of New South Wales
http://www.maths.unsw.edu.au/~ccumm

My research focuses on climate variability and change across the Indian Ocean and Australasian region and links to large-scale oceanic and atmospheric modes of variability. I'm keenly interested how climate impacts agriculture and health in Indian Ocean rim countries. My work combines observations, reanalyses, climate models and paleo proxy reconstructions.

Currently: Radford University

My major research interests include Geomorphology (Glacial, Fluvial, Eolian), Paleoclimatology, and Present Climate Change (using glacial indicators) focused in North America with research techniques involving the use of remote sensing and GIS data, including Digital Elevation Models and Optical Satellite Imagery.

Wilson, Charlie. 2008. Understanding and influencing energy efficient renovation decisions. University of British Columbia (Canada)
Currently: London School of Economics
http://www2.lse.ac.uk/geographyAndEnvironment/whosWho/profiles/cwilson@lse.ac.uk.aspx

My current research interests are: (A) The social and behavioral determinants of energy use and energy-related decisions; (B) Historical and future patterns of change in the energy system; (C) Policies to stimulate low carbon technological innovation; (D) Behaviorally-realistic energy system modeling.

Wilson, Stephanie E. 2008. Mesopelagic zooplankton feeding ecology and effects on particle repackaging and carbon transport in the subtropical and subarctic North Pacific Ocean. College of William and Mary (USA)
Currently: Monterey Bay Aquarium Research Institute
http://www.mbari.org/staff/sewilson/

I work on the ecology of deep-sea zooplankton and their effects on particle repackaging and contribution to the biological pump. My current research interests include investigating relationships between zooplankton and sinking particles at time-series observatories and to better understand how zooplankton and particle flux may be affected by climate change.
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