

Working to improve how science and technology policies address societal needs, through research, education and service

CSTPR

Center for Science and Technology Policy Research
Cooperative Institute for Research in Environmental Sciences
University of Colorado Boulder




ANNUAL REPORT

January 1 - December 31, 2013

CENTER FOR
SCIENCE & TECHNOLOGY
POLICY RESEARCH



 University of Colorado
Boulder

CENTER & FOR SCIENCE & TECHNOLOGY POLICY RESEARCH

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Annual Report
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Boulder



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INTRODUCTION

The Center for Science and Technology Policy Research (CSTPR) was established within CIRES in 2001 to conduct research, education, and outreach at the interface of science, technology, and the needs of decision makers in public and private settings. The Center focuses considerable attention on the intersection of the environment and society, where it applies the social and policy sciences to problems of environmental change, management, and sustainability. The Center's research is integrated with the ongoing activities of CIRES, NOAA, CU-Boulder, and the broader science and technology community.

LETTER FROM THE DIRECTOR

During the summer of 2014, as this annual report was being finalized, I had a chance to organize a dinner with some of the alums of the CIRES Center for Science and Technology Policy Research. The former students, now friends and colleagues, come from a remarkably diverse array of professions. These alums today work for the United Nations, a major research university, an international energy consulting firm, and a leading science association, among other places. It is an impressive bunch.

More than anything else, these former students exemplify



the sharp focus on science, technology and decision making that we hold as our mission at CSTPR. Doing research that makes a difference requires engagement, always as an orientation and often as a calling. Over the past 12 years, CSTPR has focused on research, education and outreach where science, technology and decisions collide, with notable achievements.

So it was with great enthusiasm that I agreed to serve another term as Center director, starting in late 2013, succeeding Professor William Travis. At our summer dinner one of my former students asked about the Center's secret for developing such successful alums. My answer was to pick people destined to succeed and get out of their way. It's a good philosophy for directing this Center as well.

In 2013, the Center's faculty and staff had some notable

achievements. You can read all about them in this annual report. I do want to highlight two of our most innovative efforts, and ones that we hope to build upon in coming years:

- The Red Cross/Red Crescent Climate Centre Internship Program, led by Max Boykoff and Meaghan Daly, seeks to improve climate change communication and adaptation decision-making in response to climate variability and change within the humanitarian sector. The program placed its first interns in Kenya, Uganda and Zambia during the summer of 2013. We hope to further institutionalize this program in the coming years.
- The Graduate Certificate in Science and Technology Policy, now in its ninth year, is a rigorous educational program to prepare students pursuing graduate degrees for careers at the interface of science, technology, and decision making. The program currently includes 22 students from a variety of CU departments and institutes. Twenty-three students have received certificates from the program and have found careers in government, academia and non-profits. We are in the earlier stages of discussions about turning this certificate into a degree-granting program.



As the Center moves well into its second decade we look forward to building upon the notable successes of the past, but also breaking new ground. Watch this space - it will be an exciting time to come.

Roger Pielke, Jr.

Director

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THE CENTER AT A GLANCE

FOR THE PERIOD JANUARY 1 - DECEMBER 31, 2013

29,690

Unique website visitors

4,326

Recipients of Center's Science Policy E Briefing

870

Subscribers to Ogmios, the Center newsletter

66

Media references to the Center and/or its personnel

46

Presentations by Center staff and students

14

Peer-reviewed publications (journal articles)

41

Other publications (non-peer reviewed)

53

Non-Center coauthors and collaborators

12

On-campus talks by non-Center personnel sponsored by the Center

13

University of Colorado courses taught by Center faculty

23

Undergraduate and graduate students who worked with the Center (4 awarded degree)

17

Center graduate students who have graduated since 2001 (9 Ph.D.s, 6 master's, 1 master's/MBA, 1 Law)



HIGHLIGHTS

CENTER HIGHLIGHTS

- Roger Pielke, Jr., returned to the position of Center Director after Bill Travis’s term ended;
- Deserai Crow received a grant to study policy responses to flooding after Colorado’s historic September 2013 flood;
- Katherine “Katie” Dickinson joined the Center as a Research Associate/Research Scientist. Katie is an environmental economist who studies how humans behave in the face of environmental risks;
- Lisa Dilling and graduate student Meaghan Daly received a grant titled “Identifying Constraints to and Opportunities for Co-production of Climate Information for Improved Food Security” to reduce impacts of climate variability and change on food security by systematically identifying opportunities for and constraints to the use of climate forecasts for improved adaptation planning;
- Max Boykoff was selected as a Leopold Leadership Fellow for 2013;
- Max’s Inside the Greenhouse project hosted critically-acclaimed photographer (and star of the recent film ‘Chasing Ice’) James Balog before an audience of 1,500 on the University of Colorado Boulder campus. Inside the Greenhouse also hosted Climate Wise Women, a global platform for the promotion of women’s leadership on climate change;
- Max and Susanne Moser edited a new book, Successful Adaptation to Climate Change;
- Roger launched a new project, Science, Technology, Policy and Politics of Sport (STePPS), focused on the governance of sport, with a special emphasis on the roles of science and technology in how sport is governed;
- Roger testified before Congress twice in 2013, once before the U.S. House Science Committee on Environment Hearing about “A Factual Look at the Relationship Between Climate and Weather” and a second time before the Senate Committee on Environment and Public Works about “Climate Change: It’s Happening Now”;
- Graduate student Xi Wang and a group of international collaborators released a report providing an overview of curtailment trends of wind and solar energy in nine countries;



Working with communities in Uganda

- Xi also received the Albert E. Smith Emerging Scholar Award from The Center to Advance Research and Teaching in the Social Sciences (CARTSS) at the University of Colorado;
- Jessica Weinkle was awarded a Ph.D. in Environmental Studies and Shawn Olson and Lucy McAllister received Masters in Environmental Studies;
- As part of its proceedings on July 18 the Senate Committee on Environment and Public Works reviewed research from a 2012 paper by CSTPR graduate student Jessica Weinkle (with Ryan Maue and Roger Pielke, Jr.) titled Historical Global Tropical Cyclone Landfalls;
- The newly launched Red Cross/Red Crescent Climate Centre Internship Program placed three interns in Kenya, Uganda and Zambia over the summer.



A conversation with James Balog, photographer and star of 'Chasing Ice', with Assistant Professor Beth Osnes on April 1, 2013 at Macky Auditorium.



CENTER FACULTY

MAX BOYKOFF



Max Boykoff is an assistant professor in Environmental Studies and a fellow of the Cooperative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado Boulder. He also is a senior visiting research associate in the Environmental Change Institute (ECI) at Oxford University. Previously, Max was a James Martin 21st Century Research Fellow at the ECI as well as a department lecturer in the School of Geography at the Oxford University Centre for the Environment. Max has ongoing interests in environmental governance, science and policy interactions, and political economy and the environment. He has experience working in North America, Central America, South Asia and Europe. He holds a Ph.D. in Environmental Studies (with a parenthetical notation in

Sociology) from the University of California-Santa Cruz and Bachelor of Sciences from Ohio State University.

Home page: http://sciencepolicy.colorado.edu/about_us/meet_us/max_boykoff

Twitter: @boykoff

DESERAI ANDERSON CROW



Deserai Anderson Crow is on the Environmental Studies faculty at the University of Colorado Boulder. She is Associate Director of the Center for Environmental Journalism and affiliated with the Center for Science and Technology Policy Research. She joined the faculty of the School of Journalism and Mass Communication in 2008 and moved to the Environmental Studies Program in 2012. She earned her Ph.D. from Duke

University's Nicholas School of the Environment and Earth Sciences and a Master of Public Administration from the University of Colorado at Denver's School of Public Affairs. After earning her B.S. in Journalism from the University of Colorado Boulder, she worked as a broadcast reporter, anchor, and producer in Nebraska, West Virginia, California, Colorado Springs, and Denver.

Home page: http://sciencepolicy.colorado.edu/about_us/meet_us/deserai_crow

LISA DILLING



Lisa Dilling is an assistant professor in Environmental Studies, a fellow of the Cooperative Institute for Research in Environmental Sciences (CIRES) and a member of the Center for Science and Technology Policy Research at the University of Colorado Boulder. She studies decision making, the use of information and science policies related to climate change, adaptation, and carbon management. Her current projects examine drought in urban water systems, water governance and climate change, municipal adaptation to hazards, and public lands management in the context of climate

change. Her career has spanned both research and practice arenas of the science-policy interface, including program leadership for NOAA and the U.S. Global Change Research Program. She has authored numerous articles and is co-editor of the book *Creating a Climate for Change: Communicating climate change and facilitating social change* from Cambridge University Press. She received her Ph.D. in Biological Sciences from the University of California, Santa Barbara and a B.A. magna cum laude in biology from Harvard University.

Home page: http://sciencepolicy.colorado.edu/about_us/meet_us/lisa_dilling

BENJAMIN HALE



Benjamin Hale is an associate professor in Environmental Studies and Philosophy at the University of Colorado Boulder. He works primarily in the area of environmental ethics and environmental policy, though his theoretical interests span much larger concerns in applied ethics, normative ethics, and even meta-ethics. As for applied questions, much of his work centers on ethical and environmental concerns presented by emerging



Max Boykoff and CU Assistant Professors Beth Osnes and Rebecca Safron meet with speakers from Climate Wise Women, a global platform for the promotion of women's leadership on climate change.

technologies. Before joining the Environmental Studies Program, Benjamin was the Director of the Center for Values and Social Policy in the Philosophy Department at the University of Colorado Boulder, and earlier was the Interim Director of the Environmental Conservation Education Program at New York University. Benjamin has a Ph.D. in Philosophy from the State University of New York at Stony Brook and an M.P.A. in Natural Resource Policy from the University of Arizona.

Home page: http://sciencepolicy.colorado.edu/about_us/meet_us/ben_hale

ROGER PIELKE, JR.



Roger A. Pielke, Jr. has been on the faculty of the University of Colorado Boulder since 2001 and is a professor in the Environmental Studies Program and a fellow of the Cooperative Institute for Research in Environmental Sciences (CIRES). At CIRES, Roger served as the director of the Center for Science and Technology Policy Research from 2001-2007 and again from 2013-present. Roger's research focuses on the intersection of science and technology and decision making. In 2006 Roger received the Eduard Brückner Prize in Munich, Germany for outstanding achievement in interdisciplinary climate research. Before joining the University of Colorado, from 1993-2001 Roger was a scientist at the National Center for Atmospheric Research. Roger is a senior fellow of the Breakthrough Institute. He is also author, co-author or co-editor of seven books, including *The Honest Broker: Making Sense of Science in Policy and Politics* (2007, Cambridge University Press) and *The Climate Fix: What Scientists and Politicians Won't Tell you About Global Warming* (2010, Basic Books).

Home page: http://sciencepolicy.colorado.edu/about_us/meet_us/roger_pielke

Twitter: @RogerPielkeJr

Blog: <http://rogerpielkejr.blogspot.com>

WILLIAM TRAVIS



Bill Travis is an associate professor of Geography at the University of Colorado Boulder where his teaching and research focus on human behavior in the environment, including studies of the human dimensions of climate change, land use and the interaction of people and ecosystems. His current projects focus on the theme of potential social response to extreme climate change, including warning systems, the most transformative and difficult adaptive choices, and risk analysis approaches to adaptation.



Roger Pielke Jr., testifying at the "Climate Change: It's Happening Now," hearing of the Senate Committee on Environment and Public Works, July 18, 2013.



Climate-wise Women classroom presentation



RESEARCH

The Center conducts research at the interface of science and decision making on a broad range of topics. Center research is organized into the following themes: Climate Change; Decision Making, Uncertainty and the Use of Information; Energy Policy; Extreme Events and Disasters; and Science and Society. The Center's 2013 research projects are described below.

MAX BOYKOFF

Max's research and creative work has two focal areas. One focus is on the 'cultural politics of climate change' which refers to how the attitudes, intentions, beliefs and behaviors of individuals and groups shape (and are shaped by) the perceived spectrum of possible action in the context of climate change. A second focus is on the transformations of carbon-based economies and societies, with a particular emphasis on the interface of science and practical action, including policies. Through many connected projects and collaborations, his research commitments have sought to examine how climate science and policy find meaning in people's everyday lives, as well as how this, in turn, feeds back into science-policy decision-making.

The first strand of work that focuses on the cultural politics of climate change has two components: (a) media coverage of climate change, and (b) the relationship of

cultural values and norms with policy and politics.

MEDIA COVERAGE OF CLIMATE CHANGE

Over the past decade, Max has published many peer-reviewed papers and book chapters addressing this subject. Also, with colleague Maria Mansfield (University of Oxford) and then in 2013 with colleagues Ami Nacu-Schmidt, Xi Wang, Lucy McAllister, Kevin Andrews, Joanna Boehnert, Lauren Gifford and Meaghan Daly, Max developed methods to monitor media coverage of climate change at the international and various national scales (updated monthly http://sciencepolicy.colorado.edu/media_coverage/)

THE RELATIONSHIP OF CULTURAL VALUES AND NORMS WITH POLICY AND POLITICS

This component of work has sought to critically analyze the role of various actors and organizations shaping political and cultural dimensions of climate science and policy discussions in the public arena. An example of this is a project examining outlier perspectives in climate discussions often called climate 'contrarians', from which Max published two peer-reviewed papers in 2013 (in *American Behavioral Scientist*, and *Celebrity Studies*, the second co-authored with Shawn Olson).

TRANSFORMING CARBON-BASED INDUSTRY AND SOCIETY

The second strand of research has focused on aspects of the transformations of carbon-based industry and society. This engagement has taken many forms. Among them was a co-edited volume with colleague Dr. Susi Moser (Stanford University) entitled *'Successful adaptation to climate change: Linking science and policy in a rapidly changing world'* (Routledge, 2013). This edited volume makes significant progress toward unpacking the question of successful adaptation, offering both scientifically informed and practice-relevant answers from various sectors and regions of the world. The book demonstrates how the question of success in important ways is normative and context specific, and appraises what role science does and can play in adaptation decision making, and how trade-offs and other concerns and priorities shape adaptation planning and implementation on the ground. Colleagues Lisa Dilling and Ben Hale each contribute to this volume as well along with co-authors.

INTERNATIONAL COLLECTIVE ON ENVIRONMENT, CULTURE, AND POLITICS (ICE CaPs)

Founded in 2012 at the University of Colorado Boulder, the International Collective on Environment, Culture and Politics is a research group that examines some of today's most pressing environmental issues. ICE CaPs members and affiliates cross disciplines to apply a wide range of theories and perspectives to study issues at the human-environment interface. We work across scales from the individual to the global.

ICE CaPs explores the complex and dynamic cultural

and political dimensions of environmental problems at the intersection of science and society. Individual members confront a broad range of issues such as adaptation to environmental hazards, energy conflicts, polarization of climate politics, disposal of hazardous materials, alternative environmental policies, and public engagement with and understanding of complex environmental problems. Through both empirical and theoretical work, we seek to improve understanding and broaden the discussion about the nature of evolving environmental challenges.

INSIDE THE GREENHOUSE

Max Boykoff, Rebecca Safran (Assistant Professor, Ecology and Evolutionary Biology) and Beth Osnes (Assistant Professor, Department of Theater and Dance) at the University of Colorado Boulder are working to deepen our understanding of how issues associated with climate change are/can be communicated, by creating artifacts through interactive theatre, film, fine art, performance art, television programming, and appraising as well as extracting effective methods for multimodal climate communication.

The objectives for this project are to:

1. Generate multimodal compositions on the subject of climate change
2. Engage with various dimensions and issues associated with sustainability
3. Produce and distribute the 'Inside the Greenhouse' program





DESERAI ANDERSON CROW

Deserai researches environmental policy, particularly how local- and state-level policy decisions are made. She also studies the role that information in the form of media, expertise, and citizen-produced knowledge plays in local decisions. Her work often focuses on environmental and natural resource issues in the western United States. Her current research includes studies on policy learning after extreme floods, the influence and limits of information in promoting wildfire mitigation by homeowners, information in environmental regulation, and the influence of various narrative strategies in environmental policymaking.

EVALUATING INFORMATIONAL INPUTS IN RULEMAKING PROCESSES: A MULTI-STATE REGULATORY ANALYSIS

This study analyzes the informational inputs and strategic actions of coalitions of actors within the regulatory context and the resulting regulatory outcomes. Scholars understand the resources of coalitions of actors to be important to influencing policy outcomes. The study investigates one such category of resources: information. Information that

can influence policymaking in the regulatory context can include science and other expert-produced information, advocacy-oriented information, industry-focused information, or media-produced information. Citizens can also, at times, produce effective information that can be influential to informing and influencing regulatory decisions. Not only is the information itself a resource, used to inform and persuade, but also the strategy with which the information is used can be important to understand when studying coalitions of actors.

NARRATIVES, MEDIA, AND ISSUE FRAMING IN ENVIRONMENTAL POLICYMAKING

This project is investigating stakeholder strategies and effectiveness as key components in a complete analysis of policy change and policy coalition dynamics. Using a comparative study of stakeholder coalitions in environmental policymaking, researchers are analyzing stakeholder narrative strategy, effectiveness, and framing of winners and losers by policy actors. Additionally, we are evaluating the difference between narratives used in direct stakeholder outreach and those used in and through media sources, in an attempt to understand

the variation in narratives used in different communication channels. This project will contribute to the methodological conversations related to narratives in policymaking as well as expanding our understanding of the role of these narratives. Researchers are using Colorado water and energy case studies to compare the use of narratives by advocates across time and subject areas.

POLICY LEARNING AND POLITICAL CONTEXT: ANALYSING RESPONSES TO COLORADO'S EXTREME FLOOD EVENTS OF 2013

With Elizabeth Albright, a colleague at Duke University, this project is working to understand the policy responses in the aftermath of the September 2013 floods along Colorado's Front Range. Understanding the factors that encourage policy learning and adaptation in local policy contexts may prove critical, since this can mean the difference between ongoing flood vulnerability as a consequence of extreme weather events rather than long-term resilience. Determining the factors that increase the likelihood of successful policy adaptation in response to these extreme events will produce policy-relevant knowledge that may encourage long-term local-level adaptability and resilience to extreme climatic events.

RISK PERCEPTIONS AND SUPPORT FOR MANAGEMENT REGIMES IN WILDLAND-URBAN INTERFACE ZONES: A COMPARATIVE ANALYSIS OF WILDFIRE POLICY AND CITIZEN RESPONSE IN THE INTERMOUNTAIN WEST

Western states are experiencing significant population growth and development combined with prolonged drought conditions and predictions of climate change that indicate increasing drought in the West. An area that is geographically and climatically prone to catastrophic wildfires and which also overlaps with high rates of population growth is termed the Red Zone. More fires are expected in the Red Zone in future years, necessitating appropriate and well-informed policy in order to reduce risk to life and property as well as sustain ecological benefits.

Understanding residents' perceptions of risk and responsibility in regards to fire mitigation and management in the Red Zone is important to shaping policy and land management decisions. Though this is an increasingly urgent topic, little research has been conducted to investigate the nexus between fire and residents' values, beliefs, and the role of information in promoting support for fire management as well as influencing individual beliefs about the locus of

responsibility for fire abatement (local, state, federal government, or individual homeowners). With a team of graduate students, this study attempts to gain insight into the role that individual beliefs and external information sources (science, policy/management prescriptions, media coverage, advocacy communication) play in shaping residents' behavior, risk perception, and policy support regarding fire management in the wildland-urban interface.

KATIE DICKINSON

Katie joined the Center in October. Her research examines how humans behave in the face of environmental risks.

PLAYING WITH FIRE: SOCIAL INTERACTIONS AND HOMEOWNERS' WILDFIRE MITIGATION BEHAVIORS

Collaborators: Hannah Brenkert-Smith (CU-IBS), Nicholas Flores (CU-Economics & IBS), Patricia Champ (USFS)

Homeowners' decisions in fire-prone areas play a crucial role in shaping wildfire occurrence and, especially, impacts. These decisions are interdependent: what one household does can affect the choices of neighbors and other social contacts. Conceptually, there are at least five pathways through which social interactions among homeowners in fire-prone areas can influence mitigation choices: information and learning; social amplification of risk perceptions; risk interdependency (or risk externalities); social norms; and social capital. Using survey data from Boulder and Larimer counties, we have shown that social interactions have multiple and varying relationships with risk perceptions, beliefs about mitigation options and wildfire risk mitigation behaviors (particularly actions to reduce vegetative fuels on one's property). However, inferring causality from these observational relationships can be difficult. This motivates an in-progress study employing choice experiments in a web-based survey of homeowners living in fire-prone areas of Colorado's Western Slope to measure the effects of risk interdependency, social norms, and costs on risk reduction decisions. By combining experimental and observational approaches, this body of research seeks to deepen our understanding of the role(s) of social interactions in shaping risk-related decisions, and the ways in which policies and programs can harness the power of these social effects to encourage homeowners to take action. This project is funded by a grant from the NSF's Decision Risk and Management Sciences program.

COOKING UP CLEAN AIR: DEMAND FOR IMPROVED COOKSTOVES AND IMPLICATIONS FOR AIR QUALITY AND HEALTH IN GHANA

Collaborators: Christine Wiedinmyer (NCAR), Andy Monaghan (NCAR), Mike Hannigan (CU-Eng), Ricardo Piedrahita (CU-Eng), Evan Coffey (CU-Eng), Didier Muvandimwe (CU-Eng), Isaac Rivera (CU-Geog), Vanya Dukic (CU-Applied Math), Yolanda Hagar (CU-Eng), Ernest Kanyomse (Navrongo Health Research Centre)

Nearly 3 billion people cook over open flames on a daily basis. This behavior impacts local and regional air quality, global climate, and human health. Two hundred households in the Kassena-Nankana district of Northern Ghana were randomly selected to participate in a randomized field trial of two types of improved biomass-burning cookstoves. Social surveys have been deployed to measure cooking behaviors and willingness to pay for these technologies. Personal exposure to pollutants, in-home air quality measurements, and health outcomes will be monitored over two years to assess the stoves' impacts. Results will be used to generate coupled natural-human system models of the impacts of scaled-up stove use on social, health, and air quality outcomes. These projects are funded by the NSF (Coupled Natural and Human Systems) and the US EPA.

LISA DILLING

Lisa's research focuses on what factors are associated with policy choices to mitigate weather- and climate-related risks, to identify the policy barriers that might exist to acting proactively to adapt to climate change. Her research asks questions such as: What is the role of scientific information? How do communities perceive risk? How are choices and tradeoffs evaluated? Her research program focuses on the science-policy nexus, including the processes used to generate policy-relevant science and the use of information in policy-making processes that can help society mitigate or adapt to climate change. She studies this area along three major fronts: 1) How do science policies shape the usability of research for decision making?; 2) How do current decision processes incorporate climate-related risk or opportunity?; and 3) What factors shape the adaptive capacity of organizations?

CARBON MANAGEMENT ON PUBLIC LANDS IN THE INTERMOUNTAIN WEST: MULTI-SCALE ANALYSIS OF CARBON STOCK RESPONSES TO HUMAN AND NATURAL DISTURBANCES

Lisa is collaborating on a USDA-funded project with colleagues to understand the decision process on public lands in southwest Colorado and how carbon information might be incorporated into decision making. Part of the effort will include designing and developing a decision support tool that will be tested and refined with colleagues at the San Juan Public Lands Center. Recent work uses GIS to understand the opportunities for managing carbon where management designations and carbon stocks portfolios are in alignment.

CLIMATE CHANGE ADAPTATION IN U.S. PUBLIC LANDS: PROGRESS, BARRIERS AND THE ROLE OF INFORMATION

With NSF and Western Water Assessment (WWA) funding, Lisa and graduate student Kelli Archie (along with Jana Milford and Fred Pempel) examined the status of decision making on climate change and adaptation by U.S. federal land managers in several western states. The project focused on opportunities and barriers to action, as well as the role of information in supporting decision making on adaptation. Over 600 public lands officials in three western states were surveyed and results were published and included in Kelli's dissertation.

THE COLORADO BASIN RIVER FORECAST CENTER AND THE DECISION-MAKING PROCESS (with Bobbie Klein)

This WWA-funded project is aimed at developing a comprehensive understanding of the use of information by stakeholders of the NOAA/NWS Colorado Basin River Forecast Center (CBRFC). Through surveys and interviews the researchers will assess the climate information needs of CBRFC stakeholders and how they do or do not use quantitative streamflow forecasts. This will provide 1) a better understanding of how water managers and others who use CBRFC forecasts deal with variability and 2) a context through which to view and understand the potential utility of the results of the "Snowmelt Perturbations in the Upper Colorado River Basin" project.

EVALUATING STAKEHOLDER NEEDS IN SUPPORT OF A NEW NATIONAL ASSESSMENT FUNCTION

This WWA-funded project has developed a database of stakeholder needs across the upper and lower Colorado Basin. Together with the Great Lakes and Carolinas RISAs, we have developed a database from past and current stakeholder reports, meetings, and studies, coding the information for variables of interest (such as understanding how climate information needs change across time and sectors, levels of interaction with scientists, participation in networks, characterization of needs across scale and sectors, accuracy/level of

uncertainty, spatial distribution, complementarities and synergies, patterns of knowledge uptake, etc.), and developed a comprehensive framework that can be accessed and tested by other RISAs and assessment groups.

GOVERNING GEOENGINEERING RESEARCH: WHY, WHEN AND HOW?

This collaboration with graduate student Rachel Hauser looks at analogs from other areas of research to understand the key features that a governance framework on geoengineering research must address and the lessons provided by other controversial fields of research. This work was published in *Climatic Change*.

INTERACTIONS OF DROUGHT AND CLIMATE ADAPTATION (IDCA) FOR URBAN WATER

This NOAA Sectoral Applications Research Program (SARP) project is examining how drought policies

interact with both short-term drought and long-term climate change, asking whether adjustment today or in the past leads to more resilient systems across climate time scales. It is taking a unique interdisciplinary approach to tackling these questions by including investigators from the natural hazards community, the climate adaptation community, experts in the use of climate information, and the water resource and policy community, as well as working in tandem with an Advisory Working Group of stakeholders from the water management and urban adaptation community to ensure that the work is relevant in this rapidly evolving context. The project conducted a literature review of the vulnerability and drought management literatures, interviewed 21 water managers from around the country about drought history and response, and conducted three in depth case studies of urban water systems to evaluate changing vulnerabilities with specific drought policies.



Road damage from September 2013 flooding

KNOWLEDGE, POWER AND THE COPRODUCTION OF CLIMATE INFORMATION FOR ADAPTATION TO CLIMATE CHANGE IN TANZANIA.

Lisa Dilling, Meaghan Daly, Mara Goldman and Eric Lovell are conducting a project that aims to improve understanding of processes to effectively link climate information and adaptation at national and local scales in Tanzania. The approach is to explicitly recognize and examine the ways in which the varying epistemological traditions and relations of power among vulnerable communities, disaster management professionals, and climate experts influence the perceived value of climate information for improved early warning and climate adaptation. The primary research question is “what processes or institutions can support improved application of technical climate information to facilitate successful adaptation to climate related disasters?” This research draws upon theoretical contributions from the fields of science policy, disaster research, science and technology studies (STS), and political ecology to support a mixed-methods research approach to explore practices and modes of engagement that may best facilitate the production of usable science that can be successfully integrated within adaptation decision-making and policy development processes. This project is supported by the CU Seed Grant Fund and the USAID.

THE ROLE OF U.S. STATES IN BUILDING ADAPTIVE CAPACITY FOR WATER RESOURCE MANAGEMENT

Lisa and post-doc Christine Kirchhoff examined the role of U.S. states in governing water planning and allocation, with an emphasis on the use of information and the interaction of decision making across scales. Five U.S. states were studied in a total of 45 interviews of planners, water managers, data providers and the like. Results indicate that the role of information varies with the type of allocation governance structure, and that values and constituent demands can act as either motivators or barriers to change, depending on circumstances. These results have been presented at several international meetings and are being written up in two publications.

UNDERSTANDING THE DRIVERS OF ADAPTATION AT THE MUNICIPAL LEVEL IN CO, WY & UT

Lisa is co-leading this WWA-funded project to investigate why some local decision makers choose to adapt to climate-related stress and risk while others do not. The project is systematically investigating the conditions under which local decision-makers in cities and large towns in Colorado, Utah, and Wyoming decide to adapt (or not) to increased climate-related risk and hazards. The two-fold objective of the project is (1) to collect,

organize, and analyze original data on the causes and consequences of local adaptation decision making, and (2) to produce new knowledge that is relevant to the work of WWA and its key constituents.

BEN HALE

Ben’s work is directed toward advancing a more deliberative and interdisciplinary approach to environmental issues. His research has focused primarily on ethical questions associated with environmental remediation, public health, moral status, and the tools of public policy.

THE COMMITTEE ON ENVIRONMENTAL THOUGHT (ComET)

The Committee on Environmental Thought (ComET) is an environmental theory research group located at the University of Colorado Boulder. The Committee was initially convened by Professor Benjamin Hale in early 2010 as a means of collaborating on projects related to environmental theory. Members of the group seek to investigate and explore environmental problems and the normative presuppositions that inform, frame, and guide solutions to these problems.

Using the tools and resources of philosophical inquiry, we engage in environmental problem solving, theory, and education by presenting our ideas through academic and multimedia outlets, with the hope of engaging philosophy in environmental discourse. We hope to foster deeper thought and reflection on the values espoused by our actions with regard to the natural world.

Current and past committee members include Benjamin Hale, Adam Pérou Hermans, Alexander Lee, Lucy McAllister, Amanda Magee, Jordan Kincaid, and others.

DELIBERATION AND COMMUNICATION--BUILDING PRACTICAL SKILLS IN THE NEXT GENERATION OF ENVIRONMENTAL SCIENTISTS

In 2012 Ben was part of a successful joint NSF proposal between Northern Arizona University, the University of Montana, and the University of Colorado. The CU portion is supporting Ben and his team of students in the creation of ten short ethics videos on the normative dimensions of climate change. They will place particular emphasis on the mountain west and steer the topic matter to suit the classroom.

ROGER PIELKE, JR.

Roger's research focuses on the governance of science and technology. He has taken a particular focus on the role of expert advisors to decision makers. He has also written widely on the issues surrounding climate change science and politics. He has a longstanding interest in the use and misuse of predictions and the economics of disasters. In recent years he has developed a new research theme focused on the governance of sports.

HOW PHILANTHROPY CAN IMPROVE ITS EFFECTIVENESS IN POLICY AND POLITICS

This project is focused on clarifying a broader scope of practical options for how philanthropy can contribute to policy and politics, building upon the model of engagement first introduced in Roger's book, *The Honest Broker*. As such it is a unique and novel approach to the challenges faced by contemporary philanthropy in 21st century American politics. This project has two major components: 1) sustained in-person interaction over the course of a year with the Nathan Cummings Foundation, including its board and staff to develop a novel and practical approach to philanthropy as a contribution to its on-going strategic planning exercise; 2) 3 white papers prepared on the following topics: expert arbitration, honest brokering, and options for philanthropy.

SCIENCE, TECHNOLOGY, POLICY AND POLITICS OF SPORT (STePPS)

STePPS is a new project of the CIRES Center for Science and Technology Policy Research. It is focused on the governance of sport, with a special emphasis on the roles of science and technology in how sport is governed. STePPS will focus on original research, university education and outreach to the broader community.

BILL TRAVIS

Bill is studying and building risk and decision models to explore hypotheses about adaptation to weather and climate extremes, and to climate change.

ADAPTATION DECISION-MAKING

Bill and graduate student Mary Huisenga developed a series of decision simulation models to study the factors that affect how individuals judge the effectiveness of alternative responses to weather and climate variability and change. The Farm Adapt Model simulates yield, costs, and outputs of a 2,000 acre dryland wheat farm on the U.S. Great Plains, with the goal of modeling the impacts of climate variation, especially extreme events

and rapid climate change, and farmer adaptation. The Ranch Decision Model simulates a rancher facing drought, and having to decide whether to reduce the herd in anticipation of more drought and higher feed costs. This is a gaming exercise where the rancher must also judge the actions of other ranchers, who may liquidate their herds and flood the market. These conditions marked the cattle industry during 2012.

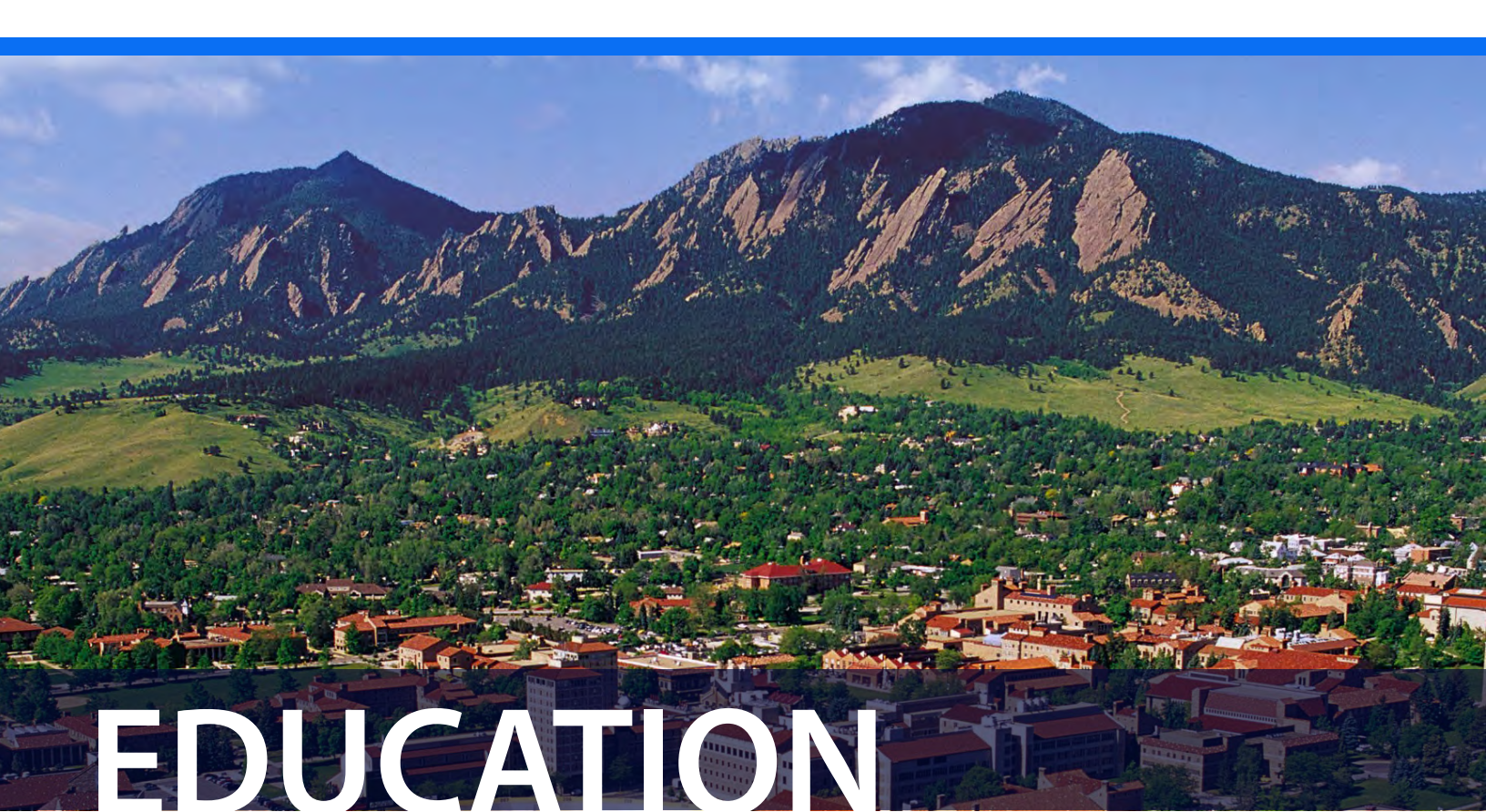
DROUGHT VULNERABILITY INDICATORS

This Western Water Assessment-funded project established a set of indicators for assessing the impacts of drought across different sectors (urban, agricultural, water, recreation), with the goal of developing both research-quality time series that can be normalized and analyzed for trends, and applied indicators that can help managers assess impacts and changing vulnerabilities. A white paper has been prepared and a publicly accessible "dashboard" of drought indicators was created.

OTHER PROJECTS

COLORADO CLIMATE CHANGE VULNERABILITY STUDY

This project is providing an overview of key climate change vulnerabilities facing Colorado's economy and resources.



An important part of the Center's mission involves educating the next generation of science and technology policy scholars to work at the interface of science and decision making. In furtherance of this mission the Center, in collaboration with the Environmental Studies Program, sponsors a certificate in Science and Technology Policy for graduate students. Center faculty also teach classes and advise individual graduate students. Finally, the Center launched a new internship for graduate students in the summer of 2013.

GRADUATE CERTIFICATE IN SCIENCE AND TECHNOLOGY POLICY

The Graduate Certificate in Science and Technology Policy program, directed by Roger Pielke and now in its ninth year, is a rigorous educational program to prepare students pursuing graduate degrees for careers at the interface of science, technology, and decision making. Upon completion students will have attained a measure of understanding of the broad societal context of science and technology as well as an introduction to methodologies of policy analysis that are used in decision settings related to science and technology. The program currently includes 22 students from a variety of CU departments and institutes. Twenty-three students have received certificates from the program and have found careers in government, academia and non-profits.

COURSES TAUGHT BY CENTER FACULTY IN 2013

Center faculty taught the following courses in 2013:

- ENVS 1000: Introduction to Environmental Studies (Max Boykoff)
- ENVS 3521: Climate Politics and Science-Policy (Max Boykoff)
- ENVS 3525: Natural Resource Management in Colorado and the West (Deserai Crow)
- ENVS 3621: Energy Policy and Society (Lisa Dilling)
- ENVS 4100: Inside the Greenhouse (Max Boykoff with Beth Osnes)
- ENVS 5000: Policy, Science & Environment (Deserai Crow)
- ENVS 5001/PHIL 5240: Graduate Seminar in Environmental Philosophy (Ben Hale)
- ENVS 5100: Science and Technology Policy (Lisa Dilling)
- ENVS 5100: Theory and Methods in Environmental Studies (Ben Hale)

- ENVS 5100-004: Interdisciplinary Graduate Pedagogy course (Lisa Dilling)
- ENVS 5720: The Problem Orientation (Max Boykoff)
- GEOG 3402: Natural Hazards (Bill Travis)
- PHIL 3140: Environmental Ethics (Ben Hale)

2013 CENTER GRADUATES

JESSICA WEINKLE



Jessica Weinkle, advised by Roger Pielke, Jr., received a Ph.D. in Environmental Studies. Her dissertation examines the scientific, political, and social processes of characterizing Florida hurricane risk and windstorm insurance ratemaking.

SHAWN OLSON



Shawn Olson, advised by Max Boykoff, earned a Masters in Environmental Studies. She studied opposition to wind energy in the American West.

LUCY MCALLISTER

Lucy McAllister, also advised by Max Boykoff, earned a Masters in Environmental Studies. She studied the role of multinational electronics corporations in environmental and human harm.



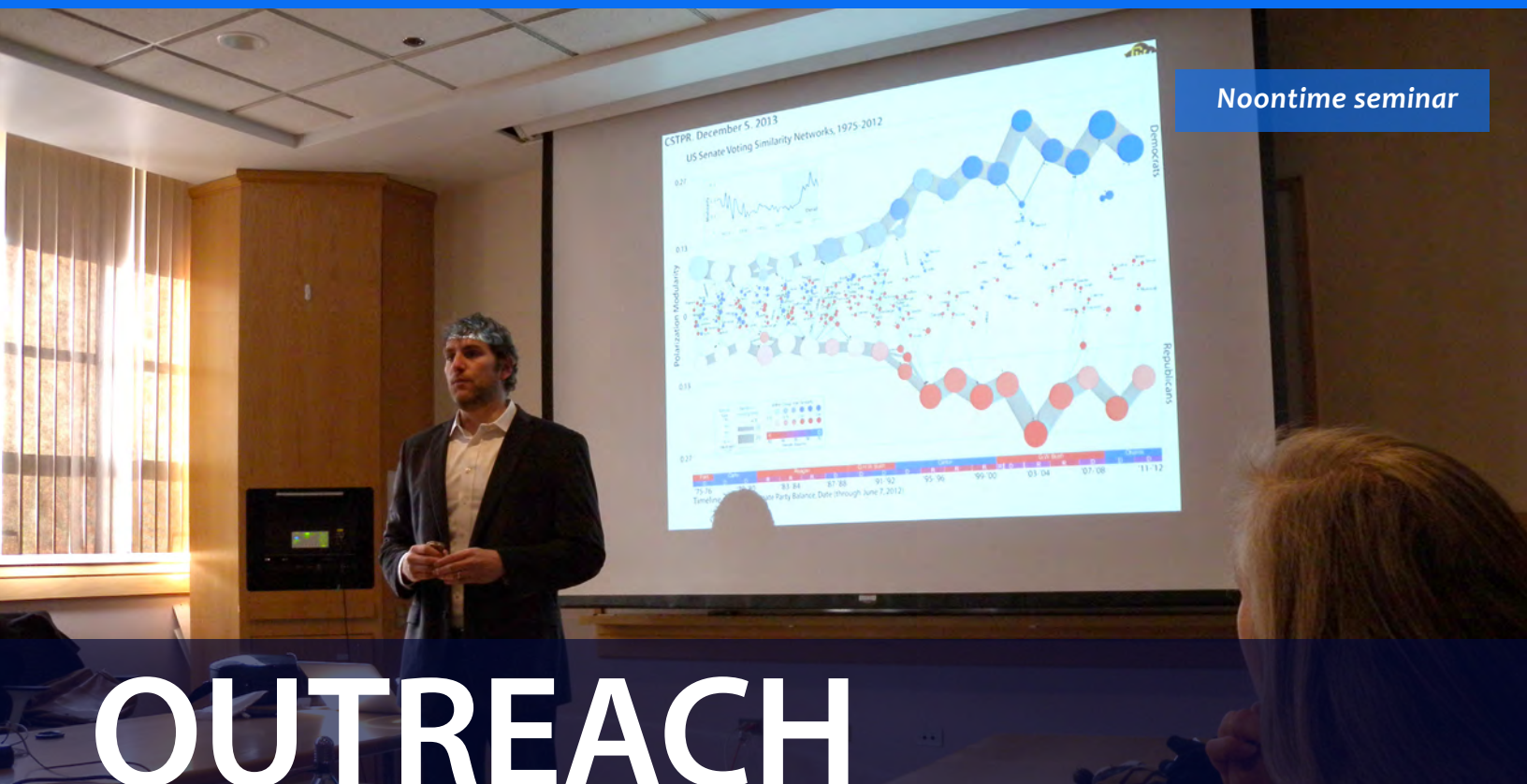
RED CROSS/RED CRESCENT CLIMATE CENTRE INTERNSHIP PROGRAM

The Red Cross/Red Crescent Climate Centre Internship Program seeks to improve climate change communication and adaptation decision-making in response to climate variability and change within the humanitarian sector. It connects humanitarian practitioners from the Red Cross/Red Crescent Climate Centre (RC/RC CC) with science policy graduate student researchers at the University of Colorado to accomplish three specific goals:

1. to improve the capacity of humanitarian practitioners at the interface of climate science, policy and practice
2. to forge a unique partnership and facilitate collaborations between CU and RC/RC CC
3. to help meet needs and gaps as well as work as a research clearinghouse in the stated themes climate change communication and adaptation decision-making in response to climate variability and change, as identified through RC/RC CC priorities and projects

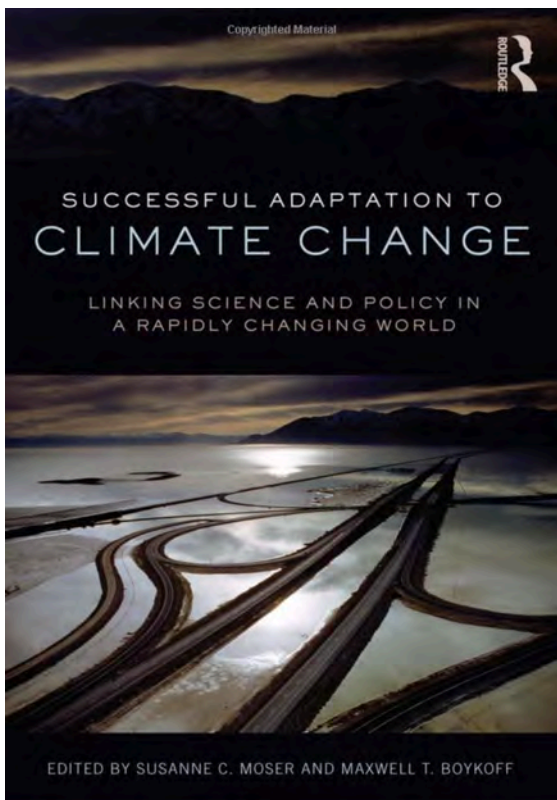
The program placed its first interns in Kenya, Uganda and Zambia during the summer of 2013.





OUTREACH

Center outreach engages the science and technology policy community and others in discussion of and reflection on critical issues at the intersection of science, technology and decision making. Center outreach efforts over the past year have included the following:



NEW BOOKS

Successful Adaptation to Climate Change: Linking Science and Policy in a Rapidly Changing World. Susanne Moser and Maxwell Boykoff, editors. Routledge, May 2013

This edited volume includes 18 chapters from leading experts to present careful analyses of different cases and situations, questioning throughout commonly avowed truisms and unspoken assumptions that have pervaded climate adaptation science and practice to date.

FACULTY AND STUDENT PRESENTATIONS

Center faculty and students gave 46 presentations over the past year on a wide variety of topics including “Adaptive actions: Why communities take them and implications for vulnerability”, “Adaptation, Reparation, and the New Substitution Problem”, “Understanding a Period of Policy Change: The Case of Hydraulic Fracturing Disclosure Policy in Colorado”, and “What counts as good evidence for policy?”

A complete list can be found in the Appendix.

CENTER PERSONNEL

ADMINISTRATIVE & RESEARCH STAFF

RAD BYERLY



Rad Byerly received his Ph.D. in experimental atomic and molecular physics at Rice University in 1967. After a postdoctoral fellowship at JILA, Rad moved to science management and policy at the National Institute of Standards and Technology. He joined the staff of the U.S. House of Representatives Committee on Science and Technology in 1975 with responsibility for environmental research programs. He became staff director of the House Space Subcommittee in 1985. In 1987 Rad became director the University of Colorado's Center for Space and Geosciences Policy. Rad was appointed Committee chief of staff in 1991. He retired in 1993, and now writes on science policy and serves on various committees. At the Center he works with students to offer his perspective as a practitioner and with faculty on various projects.

NANCY FILICE



Nancy provided administrative support at the Center throughout most of 2013. She holds a Bachelors in Environmental Design from the University of Colorado-Boulder.

KATIE DICKINSON

Katherine “Katie” Dickinson joined the Center as a Research Associate/Research Scientist in October. Katie is an environmental economist who studies how humans behave in the face of environmental risks. Her research topics have included sanitation behaviors in India, malaria-related decision making in Tanzania, willingness to pay for mosquito control in Wisconsin and Florida, and homeowners’ wildfire mitigation choices in Colorado. Across these diverse topics, Katie has examined how



people perceive different environmental risks and what costs and benefits people consider in deciding how to respond to those risks. She is particularly interested in how neighbors and social contacts influence a person's own choices. Katie is excited about the prospect of working more closely with natural and physical scientists on projects that build an integrated understanding of the ways that human actions and environmental processes interact. A newly funded project on clean cookstoves and their air quality and health impacts in Ghana is a prime example of this kind of interdisciplinary research. Katie received Bachelor and Master of Science degrees from Stanford University, and a Ph.D. from Duke University's Nicholas School of the Environment. She was a Robert Wood Johnson Health and Society Scholar at the University of Wisconsin before joining NCAR in 2010 as a Postdoctoral Fellow with support from the Advanced Study Program and the Integrated Sciences Program.

ROBERTA (BOBBIE) KLEIN



Bobbie Klein is the Center's Managing Director. She obtained her law degree from the University of Wisconsin and worked as an attorney for fifteen years in state and federal government. She obtained an M.A. in Public Policy with a focus on environmental policy at the University of Colorado. Bobbie's research interests include municipal response to drought, climate change adaptation, and socioeconomic drought indicators.

AMI NACU-SCHMIDT



The Center's outreach efforts are coordinated by Ami Nacu-Schmidt. Ami provides graphics and website design for all of the Center's websites. She also serves as the associate editor for the Center's newsletter, *Ogmios*, and as the program coordinator for the Graduate Certificate in Science and Technology Policy. She designs posters and flyers for events, provides logistical support for workshops and compiles workshop reports.

STUDENTS

KEVIN ANDREWS



Kevin Andrews is an M.S. student in the Environmental Studies program at the University of Colorado Boulder. He earned a B.S. in the Biological Sciences from Salisbury University in 2008 and transitioned into a career as a science educator and outdoor enthusiast. He is interested in the role of science and its ability to formulate effective environmental policy. More specifically, his research interests include climate change adaptation and communication, environmental law and policy, and natural resource management.

MARILYN AVERILL



Marilyn Averill is a doctoral student in Environmental Studies with interests in international environmental governance, environmental justice, the politics of science, and science and technology policy, particularly in the context of global climate change. Her research focuses on the role that litigation plays in shaping climate-related policy.

Marilyn was formerly an attorney with the Department of the Interior, where she provided legal advice to the U.S. Fish and Wildlife Service and the National Park Service. She graduated from Wellesley College and holds Master's degrees in Public Administration from the Kennedy School of Government and in Educational Research and Evaluation Methodology from the University of Colorado, and a J.D. from the University of Colorado School of Law.

JOHN BERGGREN



John is a Ph.D. student in Environmental Studies at the University of Colorado, with a secondary focus on water policy. His academic research will be on western water policy and governance, with a focus on the Colorado River. John worked with Lisa Dilling on the Framework for Assessing Stakeholder Needs for Climate Information project. John holds a B.A. in Public Health Studies from the Johns Hopkins University, and an M.H.S. in Environmental Health from the Johns Hopkins Bloomberg School of Public Health.

KATIE CLIFFORD



Katie Clifford is a master's student in the Department of Geography working on use of climate information by land managers. Her field focus is in the Gunnison Basin where The Nature Conservancy has a long-term climate vulnerability and adaptation program underway. Katie is examining how climate scenarios and conservation problems interact.

KELSEY CODY



Kelsey Cody completed his M.S. in Environmental Studies on the Water and Society track/secondary core under Doug Kenney. The title of his thesis is "Climate Change, Growth, and Regional Integration: Lessons for Colorado's Front Range Municipal and Industrial Water Providers." He is in the Ph.D. program in ENVS (dissertation is related to adaptation) and teaching with the Program for Writing and Rhetoric.

MEAGHAN DALY

Meaghan Daly is a Ph.D. student in the Environmental Studies Program and a research assistant for the Interactions of Drought and Climate Adaptation (IDCA) for Urban Water project. Prior to attending the University of Colorado, Meaghan was a consultant for the Red Cross/Red Crescent Climate Centre and the International Research Institute for Climate and Society, working in Senegal, Kenya, Tanzania, South Africa, and Malaysia, to identify and support strategies to enhance climate risk



management in the humanitarian sector. Her academic research will focus on climate change adaptation and risk management in East Africa. Meaghan holds a B.A. in Environmental Science from Colorado College and an M.A. in Climate and Society from Columbia University.

ARIELLE TOZIER DE LA POTERIE



Arielle has a B.A. in anthropology from Vassar College and an M.Sc. in Sustainable Development from Utrecht University in the Netherlands. Before deciding to pursue her master's, she taught English in France and worked for several years in environmental education, restoration, and policy in the Portland area. She has many interests but hopes to focus her research on environmental issues related to international development.

LYDIA DIXON



Lydia Dixon is a doctoral candidate in the ENVS Policy

track. Her research broadly investigates the drivers of practical conflicts between people and large carnivores and the political conflicts between people over large carnivore management. She is interested in finding ways to improve policy at the local and regional scales for the benefit of large carnivore populations as well as rural communities. Her work is currently focused on understanding how different stakeholder groups contributed to the policy-making process for wolf management in the state of Wyoming, as well as the implications of this management policy on the ground. She uses several methods of inquiry in her work, including interviews, surveys, and participatory mapping. Lydia is also a research associate with the Northern Rockies Conservation Cooperative (NRCC) in Jackson, WY. She received an A.B. from Dartmouth College and an M.E.M. from the Yale School of Forestry and Environmental Studies.

RACHEL HAUSER



Rachel is in the Ph.D. program in Environmental Studies, focusing on climate science policy. She and Lisa Dilling are working on a project involving geoengineering and governance related to geoengineering research. She also works as a science writer at the National Center for Atmospheric Research (NCAR).

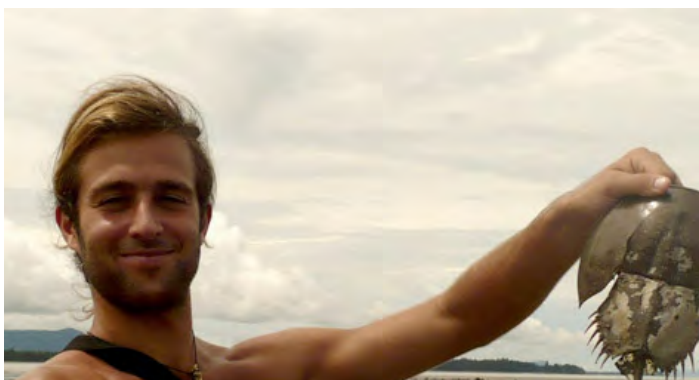
MICHAEL HENRY



Mike Henry examines the response of the U.S. Congress to climate change in order to gain a deeper

understanding of how and why Members of Congress act (or fail to act) on one of the defining global issues of the 21st Century. A Ph.D. student pursuing the Policy Track in ENVS since 2009, Mike also works full-time as a Legislative Specialist in the UCAR/NCAR Office of Government Affairs. Before becoming an ENVSer, Mike was a Legislative Correspondent for U.S. Senator Ben Cardin in Washington, D.C. He graduated from Williams College in 2004 with a B.A. in Political Science.

ADAM HERMANS



Adam focuses on Environmental Philosophy. He is particularly interested in what makes a wild animal wild. He holds a B.A. in Studio Arts from Colgate University and a Master of Science Communication from the University of Otago in Dunedin, New Zealand. Adam (aka At) moonlights as a filmmaker. At Films have featured in eleven festivals across eight countries. His work includes pieces on primates across Asia and Africa, wedge-tailed eagles in Australia, edible sea vegetables in the far South Pacific, kola nut trees in Cameroon, and American martens in the North Woods. Odd experiences during filming inspired his philosophical interests.

ZACHARY JOHNSON



Zach graduated with a degree in Physics from the University of Colorado Boulder. While at CU, he provided invaluable support to the Center including IT troubleshooting, database analysis and web programming.

JORDAN KINCAID

Jordan is a student and teacher of environmental philosophy, policy, and science. He is a Ph.D. student in Environmental Studies at the University of Colorado at Boulder, holds an M.S. in Environmental Policy from Bard CEP, and a B.A. in Philosophy and Government from the University of Texas at Austin. He is also a Visiting Fellow at the University of North Texas' Center for the Study of Interdisciplinarity involved with the Future of Energy Project. His professional experience is in higher education, ethical analysis, energy and environmental policy analysis, municipal and state legislative procedure, statistical analysis, political advocacy, and medical research. His current research includes analyzing the role of mythology in environmental philosophy; the ideology and politics of risk; philosophy of energy; the ethics of natural gas development; and the politics of fracking.

ELIZABETH KOEBELE



Elizabeth Koebele is a doctoral student in the Environmental Studies program (policy core). She received her bachelor's degrees in English literature and secondary education from Arizona State University. Her undergraduate research through Barrett, The Honors College at ASU discussed Romantic writer Percy Shelley's use of science in his poetry and how this could affect human perceptions of nature and sustainability discourse. Elizabeth is now interested in investigating the complex communications among scientists, media, and policy makers, particularly concerning water issues in the Southwest. She has also spent two years teaching English full time and is currently serving as a teaching assistant for ENVS1000.

ABBY KURANZ

Abby is an M.S. student in Environmental Studies with a B.S. from the University of Wisconsin.



ALEXANDER LEE

Alex is a Ph.D. student in the Environmental Studies Program and member of the Committee on Environmental Thought (ComET). He focuses on applied ethics and the environment, using ethical theory and applied philosophy to better understand human impacts on the natural world. Alex received his A.B. from Dartmouth College as double major in environmental earth science and philosophy. He recently completed his M.S. working on the ethics of environmental restoration, work he now continues with ComET. His dissertation will focus on moral responsibility and the ontology of environmental change.

LUCY MCALLISTER



Lucy McAllister graduated summa cum laude from Connecticut College in 2009 with a B.A. in Environmental Studies and German Studies. Before coming to study at the University of Colorado Boulder in the fall of 2011, Lucy spent time in Hamburg, Germany on a Fulbright scholarship and worked at the German Consulate in Chicago, Illinois. This past summer Lucy worked at the University of Hamburg's climate change campus, where she conducted research for her master's thesis on e-waste governance. She was awarded a masters in 2013 and is now pursuing a doctoral degree. Broadly, Lucy is interested in the nexus of environmental justice, development and political ecology at the international level. For her Ph.D. research, she is exploring

transboundary movements and governance of e-waste, particularly between India and the U.S.

MARISA MCNATT



Marisa is a Ph.D. student in the Environmental Studies Program with a policy focus and a member of the research group the International Collective on Environment, Culture & Politics (ICE CaPs). Marisa is generally interested in the factors that influence and shape the public and policy-makers' opinions on climate and energy policy in the U.S., ranging from geographical, to socioeconomic, to cultural values. Marisa was chosen as a 2013 Climate Media Fellow for the Heinrich Boll Foundation with the goal of familiarizing U.S. energy experts with the European and German experiences transitioning toward a low carbon economy. Marisa received her B.A. in English Literature from Davidson College in 2007 and earned her Master in Journalism and Broadcast and a Graduate Certificate on Environment, Policy and Society from the University of Colorado Boulder in 2011.

SHAWN OLSON



Shawn Olson received a B.A. in Environmental Studies and Social Movements from The Evergreen State College. Since then, she's roved the West, spending several seasons as an environmental educator in Alaska's Wrangell Mountains and as a wilderness therapy field leader in the deserts of south-central Utah.

At CU, she studied the politics, history, and ideological polarizations that lead to conflicts over public lands in the American West. Shawn is the co-author of two books: *Defending Wild Washington: A Citizen's Action Guide* (Mountaineers Books, 2004) and *Community and Copper in a Wild Land* (Wrangell Mountains Center & National Park Service, 2005). Shawn received her ENVS MS in 2013 and is now a Ph.D. student in the environment and community section of Utah State University, investigating community perceptions of and social conflicts over the siting of industrial-scale renewable energy facilities in the rural American West.

REBECCA SCHILD

Rebecca Schild is a Ph.D. student in the Environmental Studies Program at the University of Colorado Boulder, researching the link between citizen science and civic ecology on individual environmental values and literacy and community capacity to address environmental change. She received her B.A. at Colorado College in International Sustainable Development and a Masters of Environmental Management at the Nicholas School of the Environment, Duke University.

KANMANI VENKATESWARAN



Kanmani Venkateswaran graduated from Kenyon College in May 2011 with a bachelor's degree in Biology and a concentration in Environmental Studies. She completed an internship at the Ashoka Trust for Research in Ecology and the Environment in Bangalore, India in 2012. She has been working with Dr. Siddhartha Krishnan and Dr. Gladwin Joseph on human adaptation to climate change in agricultural communities in Natham taluk, Tamil Nadu. Earlier in the internship, Kanmani was also a part of Indian policy-making, collating the report on sustainability, biodiversity and rural livelihoods for the Planning Commission's Five Year Plan. Kanmani also spent time in 2012 in Ooty, Tamil Nadu mapping self-identified settlements and areas of cultural/religious importance in Toda communities.

XI WANG



Xi Wang is a Master of Science student in the Environmental Studies Program at University of Colorado Boulder. Xi is focusing on examining resource use in the context of energy. She is particularly interested in understanding the interactions among actors across societal sectors--scientists, policy makers, industry, and the public--which challenge large-scale transitions to renewable energy use.

Prior to ENVS, Xi worked as a strategy and technology consultant at Booz Allen Hamilton in Washington, D.C. While there, she also engaged in social, food, and environmental justice activism. Xi has also worked at the Monterey Bay Aquarium as an environmental stewardship guide, and spent summers in southern Spain and Ecuador on organic and subsistence farms. Xi earned a B.A. in English from Cornell University.

JESSICA WEINKLE



Jessica Weinkle received a Ph.D. in the Environmental Studies Program in 2013. While working on her M.A. in Climate and Society at Columbia University she became interested in natural hazards and risk perception and communication. She came to Colorado to continue to pursue those interests. Jessica did her undergraduate work in zoology at the University of Texas at Austin. Jessica was awarded the highly competitive CIRES Graduate Research Fellowship for fall 2012.

VISITORS

MICHELE BETSILL



Michele's research investigates the multiple ways in which climate change is governed from the global to the local level across the public and private spheres. She is particularly interested in questions about politics and authority in global climate governance. Michele's current projects focus on the governance and legitimacy of carbon markets, transnational climate governance, and the sub-national politics of low-carbon transitions. She is also the founder and co-leader of the Environmental Governance Working Group at Colorado State University (CSU), where she is involved in a project on environmental governance and change related to water and forests in the Inter-mountain West. Michele was a CIRES Visiting Fellow at the Center during fall semester 2013.

JOANNA BOEHNERT



Joanna Boehnert completed an ARHC funded Ph.D. at the University of Brighton in 2012 on the visual communication of ecological literacy. She is founding director of EcoLabs, an environmental communication design studio formerly based in London. She has recently started work on a book titled *Design, Ecology, Politics* under contract with Bloomsbury Academic. She is currently a CIRES Visiting Research Fellow at the CSTPR working on visualizing climate change discourses and the green economy. In the summer of 2014 she will present a series of posters and a paper at the Changing Climate Communication conference

in Amsterdam and two papers at the Design Research Society's conference in Umea, Sweden. Her theoretical work describes how images function to communicate environmental information; explores other issues of environmental communication; and examines the ways in which the design industry engages with issues of sustainability. Her practical work uses design methods to make new communication resources on the environment, especially on issues of political contestation.

BJORN-OLA LINNÉR



Björn-Ola Linnér is a professor in Water and Environmental Studies and at the Centre for Climate Science and Policy Research at Linköping University, Sweden, where he was the previous director (2006-2010). Bjorn-Ola was a CIRES Visiting Fellow at the Center during fall semester 2013. His research focuses on international policy-making on climate change, food security and sustainable development. His recent publications analyze integration of policies on climate change, sustainable development and low-carbon energy technologies as well as climate visualization, transnational governance and utopian/dystopian thought in climate science and policy. Published books include among others *The Return of Malthus: Environmentalism and Postwar Population-Resource Crises*. He has been actively involved in the international climate negotiations for several years. He was a member of the Swedish delegation at the Adaptation and Approval of the Fourth Assessment Synthesis Report of the Intergovernmental Panel on Climate Change, Valencia, Spain 2007. He has previously been a visiting researcher at the Institute for Science, Innovation and Society (InSIS) at Oxford University, University of California at Santa Cruz and Hall Centre for the Humanities, University of Kansas. He is also one of the co-leaders of the Centre for Excellence Nordic Strategic Adaptation Research (NORD-STAR).

ALUMNI

Kelli Archie (Ph.D., ENVS, 2012), received her Ph.D. in Environmental Studies in 2012 and is now an assistant professor in Environmental & Public Affairs at the University of Nevada, Las Vegas.

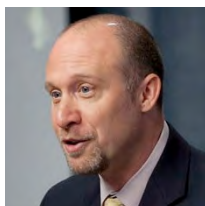
Adam Briggie (Ph.D., ENVS, 2006), is an assistant professor in the Department of Philosophy and Religion Studies and a faculty fellow in the Center for the Study of Interdisciplinarity at the University of North Texas. He is author of *A Rich Bioethics: Public Policy, Biotechnology, and the Kass Council* (University of Notre Dame Press, 2010) and co-author with Carl Mitcham of *Science and Ethics: An Introduction* (Cambridge University Press, 2012). His latest work is on the ethics and politics of shale gas drilling,



Dave Cherney is a Consultant in PA Consulting Group's Energy Capital Markets Practice, with expertise in public policy analysis, electricity market dynamics, and program evaluation. He holds a Ph.D. from the University of Colorado-Boulder, a Master's degree from Yale University, and a B.A. from Claremont McKenna College.



Erik Fisher (Ph.D., ENVS, 2006), is an Assistant Professor with a joint appointment in the School of Politics and Global Studies and the Consortium for Science, Policy and Outcomes at Arizona State University. He also serves as the Associate Director of Integration at CNS-ASU.



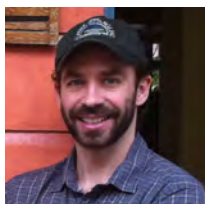
Kristin Gangwer (M.A., Geography, 2011), works with Our Harvest Cooperative.



Joel Gratz (M.S., Meteorology and Policy, M.B.A., 2006), really likes snow, so he started OpenSnow.com to help everyone who adores fresh powder. The business got its start as an email list in 2007 and has grown each year, now serving skiers and snowboarders across the U.S. with snow forecasts, reports, and travel recommendations.



Jimmy Hague (M.A., ENVS 2007), received his master's in Environmental Studies with a focus on science and environment policy in 2007. Jimmy joined the Theodore Roosevelt Conservation Partnership (TRCP) in May 2013 as the initiative manager for water resources conservation and is now the Director of the Center for Water Resources for TRCP. In this capacity, he directs the TRCP's efforts to better manage the nation's water supplies for the benefit of sportsmen. Prior to working for the TRCP, Jimmy worked for U.S. Senator Mark Udall of Colorado as his advisor for various conservation and natural resources issues, including water resources management



and environmental regulation. He also worked for the U.S. House of Representatives Committee on Science.

Nat Logar (Ph.D., ENVS, 2007), is a law student at the University of Colorado Boulder. Previously he was a research fellow at Harvard's Kennedy School of Government, contributing to a larger project on energy technology and innovation. There he examined energy innovation institutions, such as national laboratories like the National Renewable Energy Laboratory and industry consortia such as the Electric Power Research Institute.



Eva Lovbrand (postdoc 2006), is an Associate Professor in the Centre for Climate Science and Policy Research, Linköping University, Norrköping, Sweden. Her research focuses on the interface of science, politics and democracy.



Jessica Lowery (M.S., ENVS, 2004; J.D., Law, 2012). From 2004 - 2009, Jessica worked for the NOAA/CU Western Water Assessment analyzing the annual and long-term policies, and the potential use of climate information forecasts of municipal water providers in the Intermountain West. She received her J.D. in 2012 and is now employed as an attorney. Jessica received her M.S. in Environmental Studies in 2004 where she focused her research on environmental and water policy issues in the West.



Genevieve Maricle (Ph.D., ENVS, 2008), recently took a position as Policy Adviser to US Ambassador (ECOSOC) US Mission to the UN. Genevieve previously served as USAID's Environment and Climate Change Policy Advisor where she was responsible for coordinating climate change policy and strategic planning efforts across the agency, and for representing USAID in its work with the other U.S. government agencies responsible for the President's international Global Climate Change Initiative.



Elizabeth McNie (Ph.D., ENVS, 2008), is the evaluation coordinator for the Western Water Assessment and conducts research on the effectiveness of regional climate services, among other topics. Previously Elizabeth was an Assistant Professor of Political Science and Earth & Atmospheric Sciences at Purdue University. Her primary area of research is climate services and how to improve the utility of climate science information for decision makers.



She is also interested more broadly in linking knowledge with action, environmental and science policy, science and technology studies, and sustainability issues.

Shali Mohleji (Ph.D., ENVS, 2011) is a Senior Policy Fellow in the American Meteorological Society's Policy Program in Washington, DC. She specializes in natural disaster policy and science policy. She received a Ph.D. degree in ENVS from the University of Colorado at Boulder.



Ursula Rick (postdoc 2009), completed a Congressional Geoscience Fellowship with Senator Mark Udall of Colorado and is currently working as a regulatory affairs analyst with the Western Energy Alliance.



Melanie Roberts (CIRES Visiting Fellow 2009), is currently the Founder and Director at Emerging Leaders in Science & Society and an Independent Consultant at Melanie Roberts Consulting, LLC. Melanie founded the first chapter of the Forum on Science Ethics and Policy (FOSEP) in 2004, as a Ph.D. student in neurobiology and behavior at the University of Washington in Seattle. After completing her Ph.D., she went to Washington D.C. as an AAAS Science and Technology Policy Fellow. In 2006-07, she worked for Senator Jeff Bingaman on innovation and competitiveness, health policy, and improving science advice for Congress. She then moved to the National Science Foundation, where she addressed peer review for interdisciplinary and transformative research, broader impacts of research, and ethics education. Roberts moved to the University of Colorado Boulder in 2009, where she was a visiting fellow at CSTPR and Assistant Director

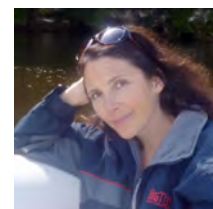


at the Biofrontiers Institute. She co-founded the second chapter of FOSEP at the University of Colorado Boulder and continues to mentor the group while building a national infrastructure.

Shep Ryen (M.S., ENVS, 2005), worked for several years for the House Committee on Science and Technology before transitioning to his present position at the Government Accountability Office (GAO).

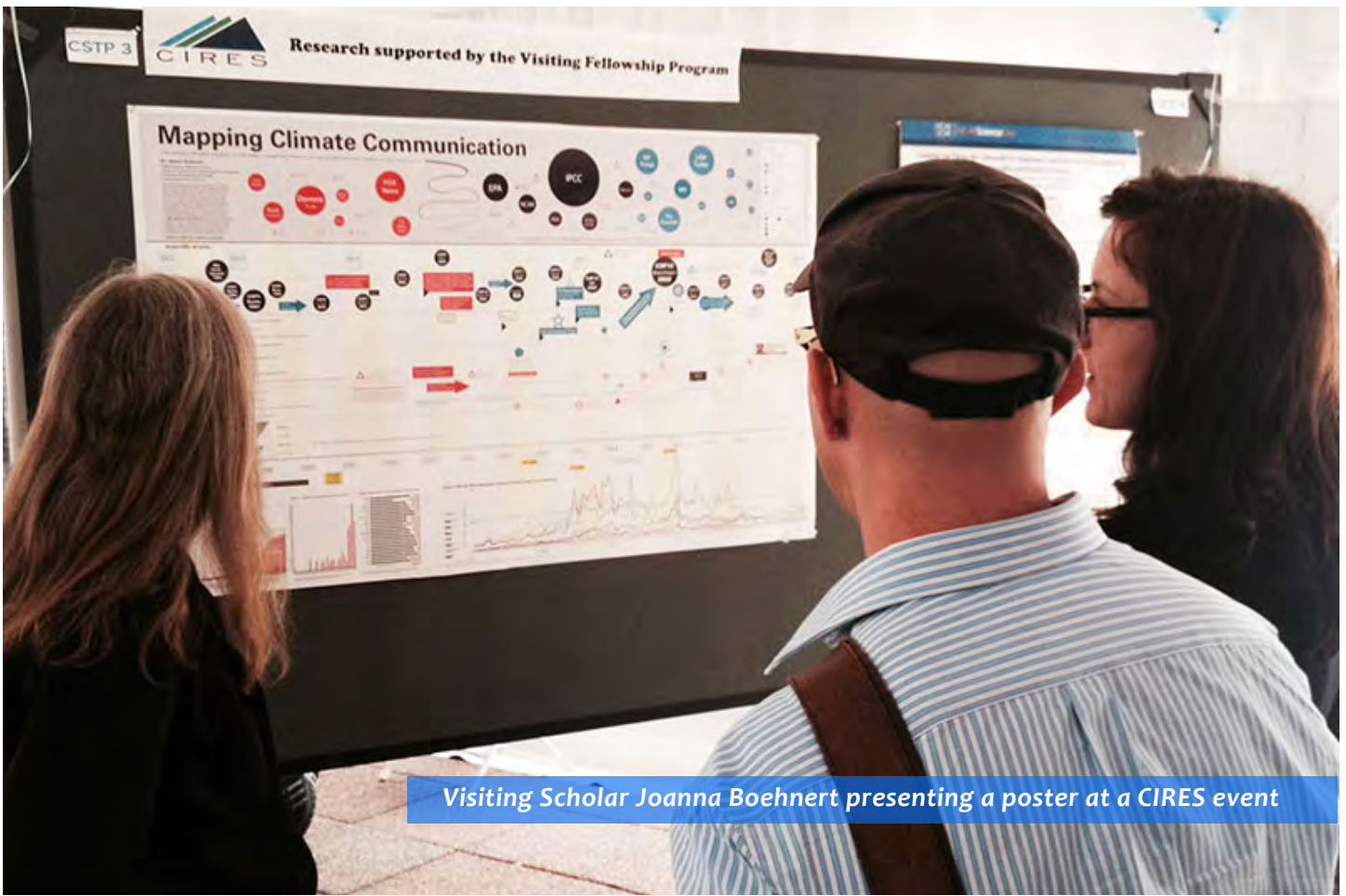


Suzanne Tegen (Ph.D., ENVS, 2006), is a Senior Energy Analyst at NREL's Strategic Energy Analysis Center. Her main focus is on wind energy economics, including employment impacts and the quantification of wind deployment barriers. She also researches state, federal and local renewable energy policy, and reports on the costs of renewable power to the Department of Energy.



Kevin Vranes (CIRES Visiting Fellow 2006-08), is currently Vice President, Carbon Markets at Tact, L3C. Kevin has more than a decade of experience working on greenhouse gas (GHG) and climate-change issues. He has worked with numerous corporations and utilities on GHG management (inventories, auditing, and reporting), carbon risk, supply chain emissions and life-cycle assessments, and project analysis. Kevin was a senior legislative staffer in the Washington, D.C., office of Senator Ron Wyden, where he worked on energy and environmental legislation, including the Energy Policy Act of 2005. He holds a Ph.D. in geophysics (physical oceanography, climatology, and atmospheric sciences) from Columbia University, and he was a Public Policy Fellow of Columbia's School of International and Public Affairs.





Visiting Scholar Joanna Boehnert presenting a poster at a CIRES event

AFFILIATES

- Krister Andersson
- Susan K. Avery
- Thomas Chase
- David N. Cherney
- Martyn P. Clark
- Richard Conant
- Jason Delborne
- Erik Fisher
- Robert Frodeman
- Rudy Juliano
- Robert W. Kates
- Douglas Kenney
- Lisa Keranen
- Paul Komor
- Carl Koval
- Sarah Krakoff
- Frank Laird
- Juan Lucena
- Roop Mahajan
- Diane McKnight
- Elizabeth McNie
- Jana Milford
- Carl Mitcham
- Gunilla Öberg
- Paul Ohm
- Jerry Peterson
- Balaji Rajagopalan
- Joseph Ryan
- Daniel Sarewitz
- Mark Squillace
- Kathleen Tierney
- Brad Udall
- Jason Vogel
- Philip Weiser
- Qian Ye
- Tom Yulsman
- Michael Zimmerman

COLLABORATORS, COAUTHORS, SPEAKERS

- Elizabeth Albright (Collaborator)
- Rosemarie Alley (Speaker)
- William Alley (Speaker)
- James Balog (Speaker)
- Nichole Barger (Collaborator)
- Olga Baysha (Coauthor)
- Morgan Bazilian (Speaker)
- Michele Betsill (Speaker/Coauthor)
- Richard Birdsey (Coauthor)
- Adam Brock (Speaker)
- Heidi Brown (Coauthor)
- David Busch (Coauthor)
- Dan Cayan (Coauthor)
- Aaron Clauset (Speaker)
- Ryan Crompton (Coauthor)
- Sophie Day (Coauthor)

- Michael Dettinger (Coauthor)
- Elizabeth Failey (Coauthor)
- Barbara Farhar (Speaker)
- Phillip Fernbach (Speaker)
- Erica Fleishman (Coauthor)
- Gregg Garfin (Coauthor)
- Alexander Gershunov (Coauthor)
- Eric Gordon (Coauthor/Collaborator)
- Christina Greene (Coauthor)
- Tanya Heikkila (Speaker/Collaborator/Coauthor)
- Eric Holthaus (Coauthor)
- Angela Jardine (Coauthor)
- Joseph Kasprzyk (Speaker)
- Doug Kenney (Collaborator)
- Bjorn-Ola Linner (Coauthor/Speaker)
- Diana Liverman (Coauthor)
- Glen MacDonald (Coauthor)
- Maria Mansfield (Collaborator)
- John McAneny (Coauthor)
- Delphine McAneny (Coauthor)
- Jana Milford (Collaborator)
- Kathleen Miller (Collaborator)
- Noah Molotch (Speaker)
- Susanne Moser (Coauthor)
- Rade Musulin (Coauthor)
- Jason Neff (Collaborator)
- Deb Neimeier (Coauthor)
- Simon Niemeyer (Coauthor)
- Saffron O'Neill (Coauthor)
- Beth Osnes (Collaborator)
- Jonathan Overpeck (Coauthor)
- Yude Pan (Coauthor)
- Stephanie Pincetl (Coauthor)
- Amy Quandt (Speaker)
- Ashwin Ravikumar (Speaker)
- Andrea Ray (Collaborator)
- Kelly Redmond (Coauthor)
- Mikael Roman (Speaker)
- Rebecca Romsdahl (Coauthor)
- Dan Sarewitz (Coauthor)
- Kevin Simmons (Coauthor)
- W. James Steenburgh (Coauthor)
- Daniel Sutter (Coauthor)
- David Theobald (Coauthor)
- Vincent Tidwell (Coauthor)
- Bradley Udall (Coauthor)
- George Walker (Coauthor)
- Paul Weiland (Coauthor)
- Olga Wilhelmi (Collaborator)
- Tom Yulsman (Coauthor)



Michele Betsill at a noontime seminar presentation on November 14, 2013

APPENDIX.

APPENDIX

PUBLICATIONS

(Center personnel bolded)

Journal Articles

- Archie, K. (2013), Mountain communities and climate change adaptation: Barriers to planning and hurdles to implementation in the Southern Rocky Mountain Region of North America. *Mitigation and Adaptation Strategies for Global Change*, February.
- Bazilian, M. and **R. Pielke, Jr.** (2013), Making Energy Access Meaningful. *Issues in Science and Technology* Summer 74-79, July.
- **Boykoff, M.** (2013) 'Public Enemy no.1? Understanding media representations of outlier views on climate change', *American Behavioral Scientist* 57(6), 796-817.
- **Boykoff, M.**, and **Olson, S.** (2013) 'Wise Contrarians' in Contemporary Climate Science-Policy-Public Interactions' for *Celebrity Studies* journal (special issue Editors Michael K. Goodman and Jo Littler) 4(3), 276-291.
- **Boykoff, M.**, and Yulsman, T. (2013) 'Political economy, media and climate change – the sinews of modern life' *Wiley Interdisciplinary Reviews: Climate Change* 4(5), 359-371.
- **Crow, DA** and O Baysha (2013), Conservation as a Catalyst for Conflict: Considering Stakeholder Understanding in Policy Making. 30 (3) 302-320, Art. No. 10.1111, May.
- **Dilling, L** and E Failey (2013), Managing carbon in a multiple use world: The implications of land-use decision context for carbon management. *Glob. Environ. Change-Human Policy Dimens.* 23 (1) 291-300, February.
- **Dilling, L** and R Hauser (2013), Governing geoengineering research: why, when and how? *Clim. Change* 121 565 (3) SI-553, December.
- O'Neill, S., **M. Boykoff**, S.A. Day, and S. Niemeyer (2013) 'On the use of imagery for climate change engagement' *Global Environmental Change* 23(2), 413-421.
- **Pielke, Jr., R. A.** (2013), How can FIFA be held accountable? *Sport Management Review* 16 255-267, January.
- **Pielke, Jr., R. A.** and M. Bazilian (2013), Defining Energy Access for the World's Poor. *Issues in Science and Technology* 90-91, Fall.
- Simmons, KM, D Sutter and **R Pielke** (2013), Normalized tornado damage in the United States: 1950-2011. *Environ. Hazards* 12 (2) 132-147, 1-June.
- **Travis, W. R.** (2013), Design of a severe climate change early warning system. *Weather and Climate*

Extremes, October 30.

- **Travis, WR** and MT Huisenga (2013), The effect of rate of change, variability, and extreme events on the pace of adaptation to a changing climate. *Clim. Change* 121 222 (2) -209, November.

Other publications

Books

- Moser, S. and **Boykoff, M.** (eds.) (2013) 'Successful adaptation to climate change: Linking science and policy in a rapidly changing world' Routledge, London.

Book chapters

- **Boykoff, M.**, A. Ghosh, and **K. Venkateswaran** (2013) 'Media coverage of discourse on adaptation: competing visions of "success" in the Indian context' (Moser, S. and **Boykoff, M.** (eds.)) *Successful adaptation to climate change: Linking science and policy in a rapidly changing world* Routledge, London, 237-252.
- **Dilling, L.** and R. Romsdahl (2013), Promoting Adaptation Success in Natural Resource Management Through Decision Support: Lessons from the Great Plains and Rocky Mountain Regions. *Successful Adaptation to Climate Change*, Ed. S. Moser and M. Boykoff 170-185, Routledge, May.
- **Dilling, L.**, R. Birdsey, and Y. Pan (2013), Opportunities and Challenges for Carbon Management on U.S. Public Lands. *Land Use and the Carbon Cycle: Science and Applications in Human and Environment Interactions*, Ed. Robinson, Brown, French and Reed 455-476, Cambridge University Press.
- **Hale, B.** (2013), Can We Remediate Wrongs? Consequentialism and Environmental Ethics, Ed. A. Hiller, R. Ilea, and L. Kahn, Routledge, December 14.
- **Hale, B.** (2013), Polluting and Unpolluting. *Environmental Ethics*, 2nd Edition, Ed. M. Boylan, Wiley-Blackwell, December.
- **Hale, B.** (2013), Pollution: Harm, Vice, or Trespass? *The Handbook of Global Ethics*, Ed. D. Moellendorf and H. Widdows, Acumen Publishing, December.
- **Hale, B.** (2013), Remediation vs. Steering: An Act-Description Approach to Approving and Funding Geoengineering Research. *Designer Biology: The Ethics of Intensively Engineering Biological and Ecological Systems*, Ed. J. Basl and R. Sandler 197-217, Lexington Books, July.

- **Hale, B.**, A. Pérou Hermans, and A. Lee (2013), Climate Adaptation, Moral Reparation, and the Baseline Problem. *Successful Adaptation to Climate Change*, Ed. S. Moser and M. Boykoff 67-80, Routledge, May.
- Liverman, D., S. C. Moser, P. S. Weiland, **L. Dilling**, **M. T. Boykoff**, H. E. Brown, E. S. Gordon, C. Greene, E. Holthaus, D. A. Niemeier, S. Princetl, W. J. Steenburgh, and V. C. Tidwell (2013), *Climate Choices for a Sustainable Southwest. Assessment of Climate Change in the Southwest United States*, Ed. G. Garfin, A. Jardine, R. Merideth, M. Black, and S. LeRoy 405-435, Island Press, May.
- Moser, S. C. and **M. T. Boykoff** (2013), Climate Change and Adaptation Success: The Scope of the Challenge. *Successful Adaptation to Climate Change*, Ed. S. Moser and M. Boykoff 1-33, Routledge, May.
- Overpeck, J., G. Garfin, A. Jardine, D. E. Busch, D. Cayan, M. Dettinger, E. Fleishman, A. Gershunov, G. MacDonald, K. T. Redmond, **W. R. Travis**, and B. Udall (2013), Summary for Decision Makers. *Assessment of Climate Change in the Southwest United States: A Report Prepared for the National Climate Assessment*, Ed. G. Garfin, A. Jardine, R. Merideth, M. Black, and S. LeRoy 1-20, Island Press, May.
- **Pielke, Jr., R. A.** (2013), Letter from America: A Memo to Sir Mark Walport. *Future Directions For Scientific Advice in Whitehall*, Ed. R. Doubleday and J. Wilsdon 122-133, University of Cambridge's Centre for Science and Policy; Science Policy Research Unit (SPRU) and ESRC STEPS Centre at the University of Sussex; Alliance for Useful Evidence; Institute for Government; and Sciencewise, April.
- Theobald, D. M., **W. R. Travis**, M. A. Drummond, and E. S. Gordon (2013), *The Changing Southwest. Assessment of Climate Change in the Southwest United States: A Report Prepared for the National Climate Assessment*, Ed. G. Garfin, A. Jardine, R. Merideth, M. Black, and S. LeRoy 37-55, Island Press, May.

Letters/reports/notes/memos

- McAneney, J., R. Crompton, D. McAneney, R. Musulin, G. Walker, G. and **R. Pielke Jr.** (2013), Market-based mechanisms for climate change adaptation: Assessing the potential for and limits to insurance and market based mechanisms for encouraging climate change adaptation. *National Climate Change Adaptation Research Facility Gold Coast*, 129 pp., May.

- **Travis, W. R., and Z. Johnson** (2013), Tracking Socioeconomic Impacts of Drought with Rapid Analytics and Dashboards. Western Water Assessment White Paper, 10 pp., January.

Newspaper/magazine articles

- Linnér, B. and **R. A. Pielke, Jr.** (2013), Don't throw the baby out with the bathwater. Dagens Nyheter, December 4.
- Linnér, B. and **R. A. Pielke, Jr.** (2013), Final Comment: The question is how global institutions should be governed (English version). Dagens Nyheter October, October 8.
- Linnér, B. and **R. Pielke, Jr.** (2013), More authoritarian politics is not the solution to climate change (English version). Dagens Nyheter, September 27.
- **Pielke, Jr., R. A.** (2013), No, Europe's ETS definitely doesn't work. Lowy Institute for International Policy, The Interpreter, April.
- **Pielke, Jr., R. A.** (2013), Overcoming the Tyranny of the Stylized Fact. Bridges 37, May.
- **Pielke, Jr., R. A.** (2013), Providing Evidence to Policy Makers: an Integration of Expertise and Politics. Bridges 38, August.
- **Pielke, Jr., R. A.** (2013), Europe's ETS: Good branding, poor substance. Lowy Institute for International Policy, The Interpreter, April.
- **Pielke, Jr., R. A.** (2013), A Deeper Look at FIFA's Reform Scorecard. Play the Game, October 15.
- **Pielke, Jr., R. A.** (2013), A Report Card on FIFA Reform. Play the Game, June 19.
- **Pielke, Jr., R. A.** (2013), After Haiyan: How to act on scientific advice that's politically inconvenient? The Guardian, November 19.
- **Pielke, Jr., R. A.** (2013), Claims at odds with IPCC report. Financial Times, October 21.
- **Pielke, Jr., R. A.** (2013), Dear Expert, Please Cook the Books. Wall Street Journal January 29.
- **Pielke, Jr., R. A.** (2013), Going to the moon was easy by comparison. The Financial Times, August 4.
- **Pielke, Jr., R. A.** (2013), Guest column: The flood next time. Daily Camera Sept. 25, September 25.
- **Pielke, Jr., R. A.** (2013), Have the climate sceptics

really won? The Guardian, May 24.

- **Pielke, Jr., R. A.** (2013), How innovations such as goal-line technology make sport better. The Guardian, June 5.
- **Pielke, Jr., R. A.** (2013), Letter from America: a memo to chief scientific adviser Sir Mark Walport. The Guardian, April 15.
- **Pielke, Jr., R. A.** (2013), Which Way for Sunil Gulati on the FIFA ExCo? Play the Game, June 3.
- **Pielke, Jr., R. A.** (2013), Why Monbiot's attack on Walport misses the mark. The Guardian, April 30.
- Sarewitz, D., and **R. Pielke, Jr.** (2013), Learning to Live With Fossil Fuels. The Atlantic, April 24.

Reviews

- **Boykoff, M.** (2013) review of 'Governing the Wild: Ecotours of power' by Stephanie Rutherford, University of Minnesota Press, for The AAG Review of Books 1(1), 30-31
- **Pielke, Jr., R. A.** (2013), Book Review: A Man in a Hurry. The Least Thing, A blog about the study of sport in society, May 15.
- **Pielke, Jr., R. A.** (2013), Book Review: The Bet - Paul Ehrlich, Julian Simon, and the Gamble over Earth's Future by Paul Sabin. The Breakthrough Institute, August 28.
- **Pielke, Jr., R. A.** (2013), Ignoring Innovation: A Review of Michael Levi's 'The Power Surge'. The Breakthrough Institute, May 15.
- **Pielke, Jr., R. A.** (2013), Should Scientists Rule? A Review of The Geek Manifesto. The Breakthrough Institute, January 7.

TALKS AND EVENTS SPONSORED BY THE CENTER

(Center personnel bolded)

CSTPR NOONTIME SEMINAR SERIES (BOULDER, CO)

Spring

New Policy Research at CU and Beyond

- January 31, Too Hot To Touch: The Problem of High-Level Nuclear Waste, William Alley and Rosemarie Alley

Noontime seminar discussion



- February 21, International Efforts in The Area Of Energy And Development, Morgan Bazilian, National Renewable Energy Laboratory
- March 7, Ecohydrological Vulnerability to Changes In Climate And Land Use In The Rocky Mountains, Noah Molotch, Geography Department, University of Colorado Boulder
- March 14, The Human Dimensions Of Plug-In Hybrid Electric Vehicles in Boulder, Barbara Farhar, Renewable and Sustainable Energy Institute, University of Colorado Boulder
- April 18, Moral Jurisdiction, **Benjamin Hale**, Center for Science and Technology Policy Research, University of Colorado Boulder
- April 24, Power Politics: The Political Ecology of Wind Farm Opposition In Wyoming, **Shawn Olson**, Center for Science and Technology Policy Research, University of Colorado Boulder

Fall

Research with A Policy Impact

- October 10, International Negotiations Survey: Exploring Possible Avenues for Climate Diplomacy, Björn-Ola Linnér, Centre for Climate Science and Policy Research, Linköping University
- October 16, Climate Change Communication and Adaptation Decision-Making In The Humanitarian Sector In East Africa: Three Cases, Amy Quandt, **Arielle Tozier de la Poterie**, and **Kanmani Venkateswaran**, Environmental Studies Program and Center for Science and Technology Policy Research, University of Colorado Boulder

- October 24, Balancing Cost, Performance, And Efficiency for Complex Water Problems: A Many Objective Approach To Sustainability, co-sponsored with Western Water Assessment, Joseph Kasprzyk, Civil, Environmental, and Architectural Engineering, University of Colorado Boulder
- November 6, Estimating the Historical And Future Probabilities Of Large Terrorist Events, Aaron Clauset, Department of Computer Science, University of Colorado Boulder
- November 14, Multi-Level Governance, Climate Change and Urban Energy Transitions: State-Local Relations In Colorado's 'New Energy Economy', Michele Betsill, Political Science, Colorado State University
- December 5, Political Extremism Is Supported By an Illusion Of Understanding, Phillip Fernbach, Leeds School of Business, University of Colorado Boulder

OTHER TALKS AND PRESENTATIONS BY CENTER PERSONNEL

Max Boykoff

- January 27-February 1, paper presentation, International Human Dimensions of Global Change meeting, Tokyo, Japan
- February 14-18, presentation, American Association for the Advancement of Science (AAAS) meeting, Boston, MA
- February 19, Boston College, Department of Sociology colloquium
- April 3, Journalism that Matters, invited plenary

discussion with Bill McKibben

- April 9, Association of American Geography meeting, invited by Communications Geography group for 'author meets critics' session
- June 9, "The History of Climate Communication: A Journalist's Perspective." AGU Chapman Conference invited talk, Granby, CO
- October 12, International Conference on Climate Change Communication invited talk, Beijing, China
- October 22, "What have future generations done for me lately? Making sense of the role of media in shaping awareness and engagement with climate change." University of Copenhagen's Sustainability Science Centre
- November 7, keynote address, International Conference of Communication, Pamplona, Spain

Deserai Crow

- April, paper presentation, Heikkila, T., Gallaher, S., Pierce, J, Kagan, J, Weible, C, & Crow, D.A. (2013). Understanding a Period of Policy Change: The Case of Hydraulic Fracturing Disclosure Policy in Colorado. Midwest Political Science Association Annual Conference, Chicago, IL
- September, paper presentation, Crow, D.A. (2013). Mass Media in the Policy Process: Drafting a Comprehensive Approach to Policy Influence. American Political Science Association Annual Meeting, Chicago, IL

Lisa Dilling

- January 7-11, paper presentation, Dilling, L., Ravikumar A., Berggren J., and K. Andersson. Adaptation to climate-related hazards in Colorado, Wyoming and Utah: Explaining differences in local responses. American Meteorological Society Annual Meeting. Austin, TX
- Feb. 4-7, paper presentation, Dilling, L., Fernandez D., Milford, J., Kelsey, K., Barger, N. and J. Neff. Mapping decision zones for carbon management in the San Juan National Forest. 4th Annual North American Carbon Program All-Investigators Meeting, Albuquerque NM.
- April 3, paper presentation, Dilling, L., Berggren, J., Ravikumar, A., Bardsley, T., and K. Andersson. Adaptive actions: Why communities take them and implications for vulnerability. National Adaptation Forum, Denver, CO
- April 15, paper presentation, Dilling, L. Making adaptive decisions in the face of climate change: Progress, barriers and the role of scientific information. Invited Colloquium Speaker, Lewis and Clark College of Law School, Portland Oregon
- April 23-25, paper presentation, Dilling, L., Berggren, J., Ravikumar, A., Bardsley, T., and K. Andersson. Adaptation to climate-related hazards in Colorado, Wyoming and Utah: Explaining differences in local responses. 11th Annual CPASW (Climate Prediction Applications Science Workshop), Logan, UT



Kanmani Ventakeswaren at a noontime seminar presentation on October 16, 2013

- October 25-26, paper presentation, Dilling, L., and M. Daly. Carbon management in Colorado, USA and adaptation in Northern Tanzania: An examination of conditioning factors affecting the ability to deliver knowledge in support of decisions. Annual Policy Sciences Institute, Collegeville PA
- December 9-13, paper presentation, Dilling, L., Daly M., Klein R., Wilhelmi O., Kenney, D., Travis W., Ray, A., and Miller, K. The Dynamics of Vulnerability and Implications for Climate Change Adaptation: Lessons from Urban Water Management. American Geophysical Union Annual Meeting, San Francisco CA

Ben Hale

- February 19, Invited Speaker: “Ethics, Environment, and Markets,” Center for Ethics, Muhlenberg College
- March 16-19, “Wolf Reintroduction: Ecological Management and the Substitution Problem.” Adam Pérou Hermans, Alex Lee, and Benjamin Hale. Public Philosophy Network Conference Atlanta, GA
- March 30, “Wildness Without Naturalness: Expanding Environmental Focus in the Anthropocene,” Adam Pérou Hermans, Alex Lee, and Benjamin Hale, Pacific Division APA, University of Colorado, Boulder, CO
- April 26-28, Hale, Benjamin, Lucy McAllister, and Amanda Magee. “Women, E-Waste, and Technical Solutions to Climate Change,” Workshop in Global Environmental Justice. Universität Bremen
- August 18-19, Scripps Oceanographic Institute, two-day workshop leader on Environmental Ethics
- Sept 26-28, “The Shifting Frontier: Ethics in a Changing Climate,” Multimedia presentation, Multi-disciplinary Perspectives on Climate Change, Lake Como, Italy
- Nov 14-16, Invited Participant: “Adaptation, Reparation, and the New Substitution Problem.” Extinction Symposium. Benjamin Hale, Adam Pérou Hermans, Alex Lee. Laurentian University, Sudbury, Ontario
- Nov 21-24, “Women, E-Waste, and Technical Solutions to Climate Change,” Lucy McAllister, Amanda Magee, and Benjamin Hale. Paper presented by Lucy McAllister at the American Studies Association, Washington DC

Roger Pielke, Jr.

- February 4, “What counts as good evidence for policy?” London’s Institute of Physics

- February 6, “Credibility across cultures: expertise, uncertainty and the global politics of scientific advice.” STEPS Annual Symposium at the University of Sussex on the complex relationship of science and politics
- February 11, Colorado Rural Electric Association Annual Meeting on Climate Change
- April 20, “Weather Risk and Climate Change.” Keynote address, Intermediaries and Reinsurance Underwriters Association (IRUA) spring conference, Bermuda
- April 30, “Five Lessons of Science Advice.” ESRC Genomics Network Policy and Research conference, London, UK
- June 5, “Wicked Problems, Clumsy Solutions and Uncomfortable Knowledge.” Keynote address, InSIS 10th Anniversary, Oxford University
- July 11, “Climate Policy for a High Energy Planet.” Columbia University, NY, NY
- July 23, “Are We Seeing a ‘New Normal’ in Catastrophes?” Aon Benfield Analytics Insights conference, Atlanta, GA
- October 23, EU JRC Seminar on how to maximize the Impact of Science on Commission Policymaking
- November 4, “IPCC and Extreme Events.” INSTAAR, University of Colorado, Boulder, CO
- December 10, “Adaptation as an Innovation Challenge.” Adaptation workshop, CSPO, Washington, DC

Bill Travis

- April 28, “Means vs. Extremes: Challenges in Adapting to a Changing Climate.” 150th annual meeting of the National Academy of Sciences, Washington, DC
- June 20, “Drowning and Drought: Agricultural Impacts of Climate Change.” 2013 AGU Conference on Science Policy

Graduate Student Presentations

- Averill, M. (Dec. 2013). What Does It Mean to Agree? United Nations Framework Convention on Climate Change Conference of the Parties 19. Warsaw.
- Averill, M. (Oct. 2013). Science, Courts and Climate

Change. Society for the Social Studies of Science. San Diego.

- Averill, M. (Aug. 2013). Civil Society Engagement with the UNFCCC. Taiwan UNFCCC NGO Conference. Taipei.
- Averill, M. (March 2013). Courts and the Diffusion of Climate Science. International Studies Association Annual Conference. San Francisco.

OTHER TALKS CO-SPONSORED BY THE CENTER

ENVS Speaker Series is a new graduate student initiative aimed at providing students and faculty with the opportunity to network with a variety of professionals and researchers from outside the CU-Boulder community. These speakers discussed a wide variety of topics through an interdisciplinary lens following the three pillars of Environmental Studies Program: science, policy, and values and theory.

April 1, James Balog, “A Conversation with James Balog on the Art of Chasing Ice,” cosponsored with University of Colorado Boulder Institute of Arctic and Alpine Research (INSTAAR), Learn More About Climate, CIRES, the National Snow and Ice Data Center, the University of Colorado Boulder Office for University Outreach, the University of Colorado Boulder Environmental Center and Flatirons Bank.

October 6, Inside the Greenhouse: A Conversation with Climate Wise Women. Macky Auditorium with Beth Osnes (Department of Theater & Dance) and Rebecca Safran (Ecology & Evolutionary Biology Department)

November 21, Roman Mikael, Energy and Innovation in Brazil: Current drivers and trends, cosponsored with the Renewable and Sustainable Energy Institute (RASEI)

MEDIA REFERENCES

Center personnel and alumni were quoted, cited, interviewed or referred to 66 times in numerous media including Discover Magazine, the Guardian, Hindu Business Line, Le Temps, London Times, Los Angeles Times, NBC News, New York Times, Wall Street Journal, Washington Post, and USA Today. A complete list with links to articles is located at <http://sciencepolicy.colorado.edu/news/in-the-news.html>

SERVICE ACTIVITIES

MAX BOYKOFF

- Royal Geographical Society of the Institute for British Geographers
- Association for Environmental Studies and Sciences (AESS)
- Association of American Geographers
- The Society for the Social Studies of Science
- International Studies Association member
- National Communication Association
- CU-Boulder Red Cross/Red Crescent Climate Centre Internship program Director
- University of Colorado Environmental Studies peer teaching evaluation committee (chair)
- University of Colorado Geography Department colloquium committee
- CIRES Center for Science and Technology Policy Research Executive Committee
- CIRES graduate research program committee
- University of Colorado co-organizer of UN observer credentialing (with Marilyn Averill and Prof Jim White)
- Co-organizer & steering committee member, CU-Boulder ‘Peak to Peak Sustainability Workshop’
- University of Colorado Forum on Science, Ethics and Policy (FOSEP) Faculty Advisor
- University of Colorado Sustainability committee advisory member
- University of Colorado Geography Department colloquium committee
- Associate Editor, Ethics, Policy & Environment
- Editorial Board, Environmental Communication: A Journal of Nature and Culture
- Contributing Editor, Los Angeles Review of Books
- Associate Deputy Editor/Deputy Editor, journal of Climatic Change
- Board Member on Board of Directors – Three Americas solidarity group (Santa Cruz, Calif)
- Coordinated University of Colorado Boulder ‘Campus to Congress’ activities (in coordination with Bard

College) for visit of Rep Jared Polis to the CIRES Center for Science and Technology Policy Research, April

DESERAI CROW

- Center for Environmental Journalism: Associate Director. As part of my role with the CEJ, I develop research projects (see works in progress) with my graduate research group “Western Policy and Narratives graduate research group” and assist in planning the weekly seminar series.
- Executive Committee, Center for Science & Technology Policy Research.
- Member, Graduate Committee, ENVS. Service includes regular meetings and routine business, revision of the preliminary exam structure for Ph.D. students, and review/acceptance of incoming graduate students.
- Editorial Board Member, Journal of Applied Environmental Education and Communication, 2013-Present.

LISA DILLING

- Associate Director, CSTPR
- CIRES Fellow (governance meetings)
- Executive Committee, ENVS
- CIRES Distinguished Lecture Committee
- Co-Director Red Cross/Red Crescent Climate Centre Internship Program
- Affiliate, Renewable and Sustainable Energy Institute (RASEI)
- Affiliate, Center of the American West
- CIRES Executive Committee
- ENVS Undergraduate Committee
- Reviewer for CU’s Innovative Seed Grant Program
- Review Editor, National Climate Assessment. United States.
- Western Water Assessment Associate Director, University of Colorado Boulder, CO
- Western Water Assessment Executive Board, University of Colorado Boulder, CO

- Advisory Board, Advancing Knowledge Systems to Inform Climate Adaptation Decisions (ICAD), European Research Council project based at University of Exeter, UK
- Board of Scientific Counselors (BOSC), Office of Research and Development, U.S. EPA
- Advisory Board, Decision Center for a Desert City, Arizona State University, Tempe AZ

BEN HALE

- Vice-President, International Society of Environmental Ethics (ISEE). Elected Office.
- Coordinator with Alastair Norcross (Philosophy) of RoME VI: the Sixth Annual Rocky Mountain Ethics Conference
- Executive Committee, Center for Science and Technology Policy Research
- Environmental Studies Program, Director of Graduate Studies
- Executive Steering Committee: Center for Values and Social Policy
- Executive Committee, Critical Theory Certificate
- Committee Member, Taskforce on Restricted, Proprietary and Classified Research, through the Vice-Chancellor for Research’s Office.
- Co-editor, Ethics, Place, and Environment

ROGER PIELKE, JR.

- Senior Visiting Scholar, Arizona State University, Consortium for Science, Policy and Outcomes
- Senior Fellow, The Breakthrough Institute (a San Francisco-based think tank focused on progressive solutions to environmental issues)
- Member, Science Advisory Board, CliSAP, University of Hamburg, Germany
- Member, Advisory Committee, Pacific ENSO Applications Center
- Visiting Senior Fellow, Mackinder Institute, London School of Economics
- Research Fellow, Risk Frontiers, Macquarie University, Sydney, Australia

- NRC Committee on Responsible Science
- Member, Advisory Board, Ethnic Studies Undergraduate Certificate Program in Critical Sports Studies
- Member, CIRES Career Track Committee
- Member, CIRES ESOC Director Search Committee
- Member, ENVIS PUEC Committee (Max Boykoff)
- Chair, ENVIS Policy Secondary Core Review Committee
- Director, Graduate Certificate Program in Science and Technology Policy
- Associate Editor, Natural Hazards Review, American Society of Civil Engineers
- Member, Editorial Board, Policy Sciences
- Member, Editorial Board, Global Environmental Change
- Member, Editorial Board, Environmental Science and Policy
- Member, Editorial Board, Darwin
- Member, Editorial Board, Water Resources Research
- Member, Editorial Board, Environmental Hazards

BILL TRAVIS

- Geography Department Honors Representative
- Member, Fellows Executive Committee, CIRES
- Affiliate Faculty, Environmental Studies Program
- Member, Executive Committee for the Western Water Assessment
- Chair, Geography Department Undergraduate Studies Committee
- Fellow, CIRES
- Trustee, The Nature Conservancy, Colorado Chapter

GRANT ACTIVITY

PROJECT TITLE: Climate Corps (Boykoff)

SOURCE: University of Colorado Boulder -Information, Communication, Journalism, Media and Technology

AMOUNT: \$1,000

START DATE: 2012

END DATE: 2013

PROJECT TITLE: Inside the Greenhouse: Utilizing Media to Communicate Positive Solutions for Climate Change (Boykoff)

SOURCE: University of Colorado Boulder - Environmental Center and Sustainability Initiative

AMOUNT: \$2,500

START DATE: 2013

END DATE: 2013

PROJECT TITLE: Improving Climate Science Communication and Adaptation Decision-making in the Humanitarian Sector (Boykoff & Dilling)

SOURCE: University of Colorado Boulder -Outreach and Engagement Program

AMOUNT: \$7,912.50

START DATE: 2013

END DATE: 2013

PROJECT TITLE: Lens on Climate Change in Colorado: Video Contest for Secondary Students (Boykoff)

SOURCE: University of Colorado Boulder -Outreach and Engagement Program

AMOUNT: \$5,588

START DATE: 2013

END DATE: 2013

PROJECT TITLE: A Conversation with James Balog at Macky Auditorium (Boykoff)

SOURCE: University of Colorado Boulder -Outreach Program

AMOUNT: \$5,000

START DATE: 2013

END DATE: 2013

PROJECT TITLE: Evaluating Informational Inputs in Rulemaking Processes: A Multi-State Regulatory Analysis (Crow)

SOURCE: University of Colorado Center to Advance Research and Teaching in the Social Sciences

AMOUNT: \$3,000

START DATE: 2013

END DATE: 2014

PROJECT TITLE: Policy Learning and Political Context: Analyzing Responses to Colorado's Extreme Flood Events of 2013 (Crow)
SOURCE: University of Colorado Natural Hazards Center
AMOUNT: \$2,000
START DATE: 2013
END DATE: 2014

PROJECT TITLE: Evaluating adaptive policies for urban water resource management: Interactions between short-term drought responses and long-term climate change adaptation strategies (Dilling)
SOURCE: Sectoral Applications Research Program (NOAA)
AMOUNT: \$298,255
START DATE: 2010
END DATE: 2013

PROJECT TITLE: Carbon management on public lands in the Intermountain West: Multi-scale analysis of carbon stock responses to human and natural disturbances (Dilling, co-PI)
SOURCE: USDA
AMOUNT: \$717,927
START DATE: 2011
END DATE: 2014

PROJECT TITLE: Knowledge, Power and the Coproduction of Climate Information for Adaptation to Climate Change in Tanzania (Dilling)
SOURCE: CU Innovative Seed Grant Competition
AMOUNT: \$47,930
START DATE: 2012
END DATE: 2013

PROJECT TITLE: Identifying Constraints to and Opportunities for Co-production of Climate Information for Improved Food Security Among Agro-pastoral Populations in Tanzania (Dilling)
SOURCE: USAID
AMOUNT: \$50,625
START DATE: 2013
END DATE: 2014

PROJECT TITLE: Understanding the Drivers of

Adaptation at the Municipal Level in CO, WY and UT (Dilling)
SOURCE: Western Water Assessment (NOAA)
AMOUNT: \$126,467
START DATE: 2011
END DATE: 2013

PROJECT TITLE: Collaborative Research: Deliberation and Communication--Building Practical Skills in the Next Generation of Environmental Scientists (Hale)
SOURCE: National Science Foundation (NSF)
AMOUNT: \$99,967
START DATE: 2012
END DATE: 2015

PROJECT TITLE: The Colorado Basin River Forecast Center and the Decision Making Process (Klein and Dilling)
SOURCE: Western Water Assessment (NOAA)
AMOUNT: \$30,343
START DATE: 2012
END DATE: 2013

PROJECT TITLE: How Philanthropy can Improve its Effectiveness in Policy and Politics (Pielke)
SOURCE: Nathan Cummings Foundation
AMOUNT: \$100,000
START DATE: 2012
END DATE: 2014

PROJECT TITLE: Building Climate Science into Land and Water Conservation Planning and Decision-Making in the American Southwest (Travis)
SOURCE: NOAA
AMOUNT: \$195,500
START DATE: 2012
END DATE: 2014

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POLICY RESEARCH

CIRES Center for Science and Technology Policy Research
<http://sciencepolicy.colorado.edu>