Ogmius

NEWSLETTER OF THE CENTER FOR SCIENCE AND TECHNOLOGY POLICY RESEARCH

Center for Science and Technology Policy Research

NO. 21
WINTER 2008

Online ISSN 1936-9921
Print ISSN 1936-9913

CENTER FOR SCIENCE AND TECHNOLOGY POLICY RESEARCH
COOPERATIVE INSTITUTE FOR RESEARCH IN ENVIRONMENTAL SCIENCES
UNIVERSITY OF COLORADO AT BOULDER

CIRES

Subscribers to Ogmius will be notified by email when a new edition is available, and may access it either in pdf or html format. The newsletter is also available online at http://sciencepolicy.colorado.edu/ogmius.

Inside this issue:

Introduction to Ogmius Exchange

This issue of Ogmius features an article by Lisa Dilling (http://sciencepolicy.colorado.edu/about_us/meet_us/lisa_dilling/), a faculty member at the University of Colorado, Boulder, in which Lisa argues that we need to rethink how we communicate about the urgency of climate change if we wish to motivate an effective response. Lisa co-edited a book from Cambridge University

Press, entitled "Creating a Climate for Change: Communicating Climate Change and Facilitating Social Change", now available in paperback. Please see our New and Upcoming Books page (http://sciencepolicy.colorado.edu/publications/special/creating_climate_for_change/) for more information.

Ogmius Exchange
Something to Talk About: Rethinking Communication and Climate Change

This has been a tremendous year for climate change science. The capstone event, of course, was the awarding of the Nobel Peace Prize jointly to the Intergovernmental Panel on Climate Change (IPCC) and former U.S. Vice-President Al Gore. The citation reads: "for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change". Mr. Gore's communication efforts are called out specifically by the Nobel Committee, which stated: "He is probably the single individual who has done most to create greater worldwide understanding of the measures that need to be adopted [to combat climate change]."

And yet, when the 13th Conference of the Parties met last month in Bali for the United Nations Framework Convention on Climate Change, nations could only agree on a "roadmap" for a process of negotiation—actually adopting new measures was beyond the comfort level for the Parties involved at this juncture. The existing Kyoto Protocol, with its targets of reducing emissions at least 5% for the Parties involved, will not come close to preventing much higher levels of CO_2 in the atmosphere. To keep CO_2 from doubling or tripling from pre-industrial levels, much larger reductions are needed. And the challenge for adaptation has barely begun to be addressed by the existing international framework. With attention and awareness at perhaps an all time high, why have we not yet embarked upon an effective strategy to counteract and prepare for climate change?

I would submit that we are not yet talking about what we ought to be talking about in order to move forward. The documentary "An

Ogmius Exchange Continued

Inconvenient Truth" featuring Mr. Gore epitomizes our current approach to communicating about climate change—the slideshow that the film is based upon is nearly entirely devoted to the scientific causes and observed and anticipated impacts of climate change. Only perhaps a quarter of the movie touches upon the challenge of how we might respond, and even then the scope of the challenge is not truly discussed. The real "inconvenient truth" of the climate change story is how difficult it is to bring about the necessary changes, whether to our energy infrastructure, our transportation choices, or our preventative and adaptive capacity. And yet it is precisely discussion of these issues that is needed in order to move forward and respond to climate change.

Communicating about science is of course essential to bringing awareness of the problem to the world's attention. Climate change is the kind of problem that "creeps up" on society (a term coined by Mickey Glantz at the National Center for Atmospheric Research, or NCAR) and without the discoveries and hard work of scientists, the issue would likely have remained undetected until large-scale impacts were at hand. But our communication and media coverage of the climate change issue now seem to predominantly consist of escalating frightening predictions of the future, documentation of rapid changes already occurring, and threats to species and humans in far flung corners of the globe. Advocacy groups have resorted to extreme imagery, such as a child about to be hit by a train, to depict the urgency of the issue and presumably spur people to action. The scientific findings about climate are not exaggerated, and the picture can be frightening, but the overall effect of this barrage of information is to overwhelm and "distance people from the problem" according to researchers at the Institute for Public Policy Research in the UK, who describe the language used by the media as "climate porn". Andy Revkin of the New York Times sums this up on his blog, "dotearth", by asking: "…If quiet warnings are ignored, and the politics of fear is as empty as pornography, what is a message on climate risks and responses that is true to the science, but also effective?"

My colleague Susi Moser of NCAR and I, along with about 40 other colleagues, pondered a similar question in 2003—why, given high levels of awareness, was the urgency to respond to climate not more evident in society? The disconnect between the urgency of the problem as perceived by scientists, compared with the societal perception of urgency, is an interesting conundrum. And this disconnect begs the question, how can the problem become more urgent, and therefore more of a priority for societal action? Various lines of evidence across disciplines, from psychology, to social marketing, to communication, suggest that appealing to fear is an ineffective strategy for motivating change on the issue. Similarly, the literature on the public understanding of science indicates that simply providing more scientific information is equally unlikely to motivate change. Both strategies have been heavily relied upon in communication on climate change to date.

Our survey of research thus far suggests that there are indeed other communication strategies that may prove more fruitful in motivating change on climate. With a problem so large and seemingly complex as climate change, it is important to communicate in such a way that audiences are empowered to act, rather than being made to feel afraid, and, potentially, despairing, rejecting or apathetic. The risk of just such reactions is a real one, as problems that are overwhelming can provoke denial or inaction as a coping strategy. Messages that include solutions that are practical and accessible can therefore be more effective. Of course the solutions that are discussed must also be effective, accessible, and realistically make a difference. It does no good to exhort an audience to take the bus more often if there are no practical routes that allow them to reach their daily destinations. Audiences can also experience a disconnect if the solution seems inordinately out of keeping with the scale of the problem (i.e. if we all just change our light bulbs we will fix the problem). Of course many actions do add up to a substantive difference, but it is important to keep a realistic perspective on the ultimate scope of the changes that will be necessary—i.e. at least an 80% reduction of CO_2 emissions by many accounts.

Another strategy that may seem counter-intuitive is to not talk about climate at all. Experience at the city level suggests that other values, such as saving money, creating a desirable image, or keeping up with neighbors may be more effective motivators for saving energy, for example, than the less tangible message of combating climate change itself. Advocates have argued that reducing our oil consumption will have beneficial effects on national security (and, coincidentally, on our CO_2 emissions as well). Improving a city's resilience to future hurricanes or droughts is a win-win situation, as we know damages from these can already be devastating, regardless of what the future may bring in terms of climate change. Adaptation to climate is a conversation topic that has thus far remained fairly "taboo", as some advocates for CO_2 reduction measures have labeled such discussion as defeatist and even counterproductive to achieving emissions reductions. In reality, science tells us we will need to consider both mitigation of emissions and adaptation to impacts as we are committed already to a certain amount of climate change.

These brief examples suggest that the answer may not lie in increasing the urgency of climate change itself, but rather in finding ways to link everyday priorities to positive climate

Ogmius Exchange Continued

actions. By finding those actions that are compatible with climate goals and opening the discussion to solutions rather than emphasizing dire consequences, we just may spur the conversation towards more effective actions.

On a policy level, we also need a more realistic conversation about the scale of the problem. Examining the various measures to reduce emissions outlined in the "wedge" calculations of Pacala and Socolow in Science magazine in 2004, it becomes clear that any of the strategies would require a monumental effort in itself. For example, Pacala and Socolow estimate it would take 3500 'Sleipners' (Norway's experiment in carbon capture and storage in the North Sea) to reduce emissions by 1 gigaton a year (1 billion metric tons) by 2054.

Which brings me back to the efforts of Gore and scientists to communicate about climate change. Scientists often feel uncomfortable speaking about issues that they are not themselves experts in. When asked to discuss climate change, they will focus on the science, the part they feel they can evaluate with their technical expertise. Many will specifically say that they do not wish to go out on a limb to comment on policy, or discuss the implications of the scientific information they are presenting. As Susan Solomon, Co-Chair of Working Group I of the Intergovernmental Panel on Climate Change and National Medal of Science recipient said in a recent interview with the Boulder Weekly: "I think the best service I can render is to keep my input on the scientific plane." There are, of course, ways for scientists to partner with others who are experts in the policy options, but perhaps also this suggests that we need to look beyond scientists as the only catalysts for public conversation on climate. Fortunately, there are other leaders beginning to speak on climate—from those in the business community to those in evangelical churches across the nation. As James Rogers, the CEO of Duke Energy, one of the largest electric power companies in the U.S., puts it: "…I am convinced that it is prudent to take action now to address what we do know (about climate change)." [quoted on the Pew Center on Global Climate Change website.] Each leader finds what appeals to her or his constituency, and thus the message is transformed into something meaningful in its own context.

Ironically, Gore is in a perfect position to discuss the true challenge of climate change. As a national-level politician who has followed the issue for many years, he can speak to many of the thorny issues of the practical matter of switching energy systems, taxing carbon, raising fuel efficiency for vehicles, improving zoning laws in flood zones, encouraging better stewardship of water and other scarce resources, and so on. But Gore has thus far chosen to focus his communication on climate science. He follows the same logic as many others- that we need people to understand the science and its dire implications before we can expect people to act in response to climate change.

Until we rethink this logic, we are destined to repeat the same failures of communication of the past 30 years. We need to develop new strategies, new messengers, and new ways of stimulating discussion and action that will be effective to respond to the changes in climate that are upon us. Science tells us that we just don't have another 30 years to wait.

Lisa Dilling
Lisa.Dilling@colorado.edu

Research Highlight
The Ecology of Organizations in Greater Yellowstone

This Research Highlight was written by Center graduate student David Cherney. David is a doctoral student at the University of Colorado at Boulder and a research associate with the Northern Rockies Conservation Cooperative in Jackson, WY. He holds a master's degree in environmental management from Yale University and a bachelor's degree in the environment, economics, and politics from Claremont McKenna College. David has conducted research on natural resource policy and management in California, New England, Ecuador, and greater Yellowstone. His dissertation work focuses on strategies to manage persistent policy conflict in greater Yellowstone.

This research highlight focuses on a collaborative research project David is working on with Garry Brewer and Susan Clark of Yale University, Lydia Dixon and Jason Wilmot of the Northern Rockies Conservation Cooperative, and Jonathan Schechter of the Charture Institute. For more information please contact david.cherney@colorado.edu.

Yellowstone National Park – the world's first national park – was established in 1872 as an innovative tool to protect the unique landscape and wildlife in the Northern Rockies. As ecological knowledge of the Yellowstone system developed, conservation leaders suggested that protection of the 2.2 million acres within

Research Highlight Continued

Yellowstone's borders was a necessary but insufficient means to achieve regional conservation goals. Today the Yellowstone region is often referred to as 'greater Yellowstone.' Greater Yellowstone is a complex array of more than 20 million acres of private and public land including two national parks (Yellowstone and Grand-Teton), three national wildlife refuges, and seven national forests. This system is often hailed as one of the last intact ecosystems in the United States, serving as a global model for conservation.

Not long after the formation of Yellowstone, the first non-governmental organization (NGO) to operate in Yellowstone was founded. The Boone and Crocket Club was established in 1887 by Theodore Roosevelt as a means to eliminate the unregulated killing of wildlife in North America, including unregulated take within Yellowstone's boundaries. The role of a number of NGOs, such as the Boone and Crocket Club, have played in the development of greater Yellowstone is well documented. In contrast, little attention has been paid to the progression of growth within the non-governmental conservation community. We are interested in how a non-governmental community matures.

As a precursor to our project, we informally canvassed conservation leaders in Yellowstone to ask: 'How many NGOs work within Greater Yellowstone?' The answer we received from these leaders was "30 to 40 organizations;" a substantial amount of non-governmental activity. However, when we systematically documented the number of organizations in the region we were astonished to find more than 200 conservation NGOs currently operate in greater Yellowstone. Even more stunning was the amount of resources leveraged by these organizations. Our preliminary data suggests that these 200 organizations spend at least $150 million per year.

Our research is centered on the question, "How can conservation organizations more effectively secure their desired outcomes?" The initial phase of our project can consists of two tasks. (1) We are developing a 'natural history' of greater Yellowstone's conservation NGOs. Questions include: Are there patterns in the creation or dissolution of organizations? On which topical issues do they focus? Why functional types of organizations – advocacy, enforcement, land-trusts, etc – exist? How are resources spent? (2) We are conducting a 'network analysis.' Questions include: Which organization work with each other? On which issues? Which organizations compete with each other? Which activities appear to complement or detract from each other?

Our project is designed to move beyond what we learn and have an explicit practical component. In the spring of 2008, we plan to hold the first annual Greater Yellowstone Conservation Summit. The workshop will assemble a diverse group of non-profit leaders, experienced professionals, and donors to discuss our current understanding of the greater Yellowstone conservation community. The purpose is to stimulate dialog on the direction of the conservation community and identify opportunities for improved effectiveness.

David Cherney
david.cherney@colorado.edu

Center News

Woods Hole Oceanographic Institution Names Susan K. Avery New President and Director

Woods Hole Oceanographic Institution (WHOI) recently announced that Dr. Susan K. Avery has accepted the position of president and director of the institution. Avery becomes the ninth director in WHOI's 77-year history, and the first woman to hold the title. Avery is an atmospheric physicist with extensive experience as a leader within scientific institutions. She comes to WHOI from the University of Colorado at Boulder (UCB), where she most recently served as interim dean of the graduate school and vice chancellor for research.

From 1994-2004, Avery served as director of the Cooperative Institute for Research in Environmental Sciences (CIRES), a 550-member collaborative institute between UCB and the National Oceanic and Atmospheric Administration (NOAA). Avery was the first woman and first engineer to lead CIRES.

Avery will officially assume the office early in 2008.

> "Susan Avery is an atmospheric scientist and an engineer with a reputation as an effective leader and spokesperson for the geosciences," said Newton Merrill, chairman of the WHOI Board of Trustees. "She understands and appreciates the rewards and challenges of fieldwork, and she appreciates the value of creative partnerships between scientists and engineers. She is renowned for her skill in

Center News Continued

bringing together researchers from different backgrounds to approach scientific problems in new ways. She possesses the right combination of scientific leadership, experience administering a large academic research organization, and strategic planning abilities to lead WHOI into the future."

Avery has been a member of the faculty of the University of Colorado at Boulder since 1982, most recently holding the academic rank of professor of electrical and computer engineering. Her research interests include studies of atmospheric circulation and precipitation, climate variability and water resources, and the development of new radar techniques and instruments for remote sensing. She also has a keen interest in scientific literacy and the role of science in public policy. She is the author or co-author of more than 80 peer-reviewed articles.

A fellow of CIRES since 1982, Avery became its director in 1994. In that role, she facilitated new interdisciplinary research efforts spanning the geosciences and including the social and biological sciences. She spearheaded a reorganization of the institute and helped establish a thriving K-12 outreach program and the Center for Science and Technology Policy Research-efforts to make CIRES research more applicable, understandable, and accessible to the public. She continues to serve as a Faculty Affiliate at the Policy Center.

Avery has helped form an integrated science and assessment program that examines the impacts of climate variability on water in the American West. She also worked with NOAA and the Climate Change Science Program to help formulate a national strategic science plan for climate research. Recently she served on two National Research Council panels: One produced a decadal plan for earth science and applications from space, and the other provided strategic guidance for the atmospheric sciences at the National Science Foundation.

Center News
Center Staff Presentations

Lisa Dilling, *"Usable" carbon science: Supporting carbon governance and decision making across scales*, Boulder, CO, December 3, 2007.

Benjamin Hale, *Can We Remediate Wrongs?*, Boulder, CO, October 25, 2007.

Rad Byerly, *"Health Care" as a Science Policy Issue*, Boulder, CO, October 4, 2007.

Lisa Dilling, *Climate Change: Is It Debatable?*, Boulder, CO, September 25, 2007

Benjamin Hale, *What's Fair, What's Right? Respecting Autonomy in Population Policy*, Ghent Univ., September 18-20, 2007,

William Lewis, *Klamath Redux*, Boulder, CO, September 13, 2007.

Lisa Dilling, *Creating a Climate for Change*, Boulder, CO, September 11, 2007.

Center News
Spring 2008 Noontime Seminar Series

We are starting to gear up for another exciting Noontime Seminar Series this spring. The following talks are already on the schedule – visit our Events page (http://sciencepolicy.colorado.edu/outreach/center_talks.html) for a current schedule. All talks are free and open to the public in the Center conference room (For directions see: http://sciencepolicy.colorado.edu/about_us/find_us.html). Unless otherwise stated all talks are from noon – 1:00 pm.

Center Graduate Student Elizabeth McNie, who recently returned from a year studying in Indonesia, will give a talk on February 11 titled "Linking Knowledge with Action: Lessons from Indonesian Agroforestry Research."

Elizabeth McNie will give another talk on March 17 titled "Exploring the Agora: Co-producing useful Climate Science for Policy."

Joe Ryan, Associate Professor in the Department of Civil, Environmental, and Architectural Engineering, Director of the Environmental Engineering Program, and Environmental Studies Program faculty member, will give a talk on Monday, March 31, titled "On the Long Road to Jericho: Abandoned

Center News Continued

Mine Cleanups, the Clean Water Act, and Environmental Good Samaritans".

Paul Komor, Lecturer in CU's Department of Civil Engineering, Project Director at E SOURCE, and recently named Energy Education Director for the CU Energy Initiative, will give a talk on April 14 titled "New energy education programs at CU: What does it mean to teach 'energy'?".

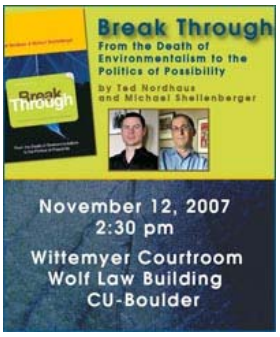
To receive notices of upcoming Center events please join our mailing list (http://sciencepolicy.colorado.edu/mailman/listinfo/events/).

For more information please contact us at 303-735-0451 or bklein@colorado.edu.

Center News

Center Sponsored Talks and Events

On December 12, René von Schomberg, Scientific Officer for the European Commission, gave a talk at the Center titled "EU Science and Technology Policy: Addressing Societal and Ethical Aspects."



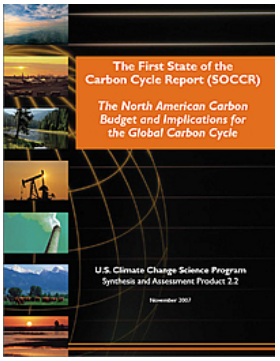
On November 12, the Center cosponsored a talk by Ted Nordhaus and Michael Shellenberger, authors of the controversial 2004 essay *The Death of Environmentalism*, to discuss their new book *Break Through: From the Death of Environmentalism to the Politics of Possibility*.

On November 1 Paul Ohm, Associate Professor at the University of Colorado School of Law, gave a talk at the Center titled "The Internet Privacy Debate: The Problem with Balancing Security and Privacy".

Project News

State of the Carbon Cycle Report

The U.S. Climate Change Science Program recently published "The North American Carbon Budget and Implications for the Global Carbon Cycle (http://climatescience.gov/Library/sap/sap2-2/final-report/default.htm)." Lisa Dilling served as co-lead of the author team. The report analyzes the amounts of carbon emitted by industry sector, the amount absorbed naturally and how these amounts relate to the global carbon budget influenced by other regions of the globe, with particular attention given to characterizing the certainty and uncertainty with which these budget elements are known.



Lisa's November 28 Prometheus blog (http://sciencepolicy.colorado.edu/prometheus/archives/climate_change/001275carbon_in_north_amer.html) describes the report in more detail:

"I didn't want the month to expire without mention this month of the release of "SAP 2.2", or The First State of the Carbon Cycle Report (SOCCR): The North American Carbon Budget and Implications for the Global Carbon Cycle, a report three years in the making issued by the U.S. Climate Change Science Program. Disclaimer, I was co-lead for the report, which was authored by over 90 scientists from a wide variety of disciplines. The bottom-line punchline is that sources (such as emissions from energy) outweigh sinks (such as forest and soil uptake) in North America by approximately 3:1. This strongly suggests that sinks by themselves are not going to be sufficient to deal with removing emissions in the future. Sinks are also likely to decline and become more uncertain in the future-- consider the scientific reports just this month on the volatility of sinks (a few weeks ago, we heard about emissions from forest fires, this week, it is about the reduced carbon uptake during the drought of 2002).

Being a bit of an insider on this report, I wanted to share my own personal opinion on what was distinct and unique about this effort for carbon cycle science and for the CCSP reports issued thus far.

As far at the treatment of carbon cycle science, it was the first attempt that we were aware of that examined the balance of carbon at the continental scale in North America with a common data framework from the ground up, meaning not from atmospheric data. We of course built off of many

Project News Continued

previous efforts at a national or regional scale. The second notable approach was the decision to place equal emphasis on the human activity components of the carbon cycle in North America and the land (and coastal) components. Carbon cycle science is often presented as a budget with much detail on the land, ocean and atmosphere side, with not much detail for the "source" terms, the energy side of the question. The document includes chapters on energy extraction and conversion, transportation, buildings, industry and so on. Also, we included from the start economic and policy analyses to provide a decision-relevant context to our information. Finally, we tried our best to include stakeholders and potential users of the information from the start of the process, at the outline stage, all the way to the finished draft. We held three separate workshops, provided numerous opportunities for comment, and changed the structure and questions answered in response to our participants. The process took more time, resources and effort, but was essential in the team's mind to fulfilling our mandate to be policy-relevant. Only time will tell if we succeeded. Some of the news coverage can be found here:

- USA Today (http://www.usatoday.com/weather/climate/globalwarming/2007-11-13-carbon-removal_N.htm)
- Associated Press (http://ap.google.com/article/ALeqM5h2b-U4e06V7ekCC_yhGNoNm4z7OgD8SSVTBG0)
- EENews (http://www.eenews.net/eenewspm/2007/11/13/#4)
- Rocky Mountain News
- Science Daily (http://www.sciencedaily.com/releases/2007/11/071114111141.htm)
- Cnet News.com (http://www.news.com/8301-11128_3-9816262-54.html)
- and blogged by Andy Revkin of the NY Times, America's Leaky Buildings and the Climate Challenge (http://dotearth.blogs.nytimes.com/2007/11/13/square-feet-kilowatts-and-the-climate-challenge/)

Please check out the report, feedback welcome!

Project News

Policy, Politics, and Science in the White House: Conversations with Presidential Science Advisers

Although the Center's lecture series "Policy, Politics, and Science in the White House: Conversations with Presidential Science Advisers" (http://sciencepolicy.colorado.edu/scienceadvisors/) wrapped up in 2006, the Center continues to explore the impact of the presidential science adviser on policy and politics.

In honor of the 50th anniversary of the appointment of Dr. James Killian, the first presidential science adviser, Roger Pielke, Jr., has a commentary in the November 15 issue of Nature titled "Who Has the Ear of the President" (http://sciencepolicy.colorado.edu/admin/publication_files/resource-2574-2007.28.pdf). He writes:

> On 15 November 1957, as part of his response to the Soviet launch of Sputnik, President Dwight Eisenhower swore in James Killian, president of the Massachusetts Institute of Technology in Cambridge, to the newly created position of special assistant to the president for science and technology. Since then, 14 men — almost all physicists — have served 10 presidents as 'science adviser', as the position is more commonly known.
>
> A recent article in Physics Today looked back wistfully on the position's early years: "Never before or since have scientists had a firmer influence on the reins of power that direct national policies." Recommendations that accompany such nostalgia, perhaps most evident during the term of the current and longest-serving science adviser John Marburger, draw more from legend than from history, with far more attention paid to how science advice is given rather than to how it is used…" read more (http://sciencepolicy.colorado.edu/admin/publication_files/resource-2574-2007.28.pdf).

Roger appeared on National Public Radio's Science Friday (http://www.sciencefriday.com/program/archives/200711166) to discuss the Nature article and the past 50 years of science advice.

Roger and Center Managing Director Bobbie Klein are editing a volume that includes chapters authored by the science advisers along with perspectives on presidential science advice by noted science policy experts. Publication is anticipated in 2008.

Project News

Science Policy Assessment and Research on Climate (SPARC)

SPARC researchers are preparing a handbook that will provide science policy decision makers with a coherent, practical, easy-to-implement approach and set of questions to design research agendas that are responsive to societal problems or identified needs. Its audience includes all those responsible for the US federal budget: e.g. OMB examiners, agency program managers, OSTP or congressional committee staffers.

Kevin Vranes, a CIRES Visiting Fellow, in collaboration with Neil Pederson of Eastern Kentucky University and Ed Cook of the Lamont Doherty Earth Observatory of Columbia University, are conducting an in-depth examination of the water management policies of New York City. They are attempting to understand why New York City has declared drought eight times over the past 20 years despite having above average rainfall over the same period and showing a clear and steady decrease in both absolute and per capita water consumption.

Kevin is also constructing an earthquake damages dataset for comparison to similar datasets already constructed for hurricanes, floods and tornadoes. His ultimate goal is comparison of natural hazards outcomes and policies across the spectrum of hazards. This research has a relationship to climate because it uses earthquakes as a "control group" in seeing whether damages from climate-related hazards are changing.

Three graduate students working at the Center are in the final stages of SPARC-related dissertations:

SPARC-Related Publications:

- Equity in forecasting climate: Can science save the poor? (http://sciencepolicy.colorado.edu/admin/publication_files/resource-2539-2007.18.pdf), co-authored by Lisa Dilling.
- Toward carbon governance: Challenges across scales in the United States (http://www.mitpressjournals.org/doi/abs/10.1162/glep.2007.7.2.28?journalCode=glep), by Lisa Dilling
- Confronting Disaster Losses (http://sciencepolicy.colorado.edu/admin/publication_files/resource-2573-2007.27.pdf), co-authored by Roger Pielke, Jr.
- The Case for a Sustainable Climate Policy: Why Costs and Benefits Must Be Temporally Balanced (http://sciencepolicy.colorado.edu/admin/publication_files/resource-2576-2007.29.pdf), by Roger Pielke, Jr.

Presentations

- Averill, M. "The Ethics of Uncertainty in Climate Change." Paper presentation for panel on "Climate Modeling and Uncertainty: Epistemology and the Construction of Climate Facts," Society for the Social Studies of Science, Oct. 12, 2007, Montreal, Canada.
- Averill, M. "Managing Climate Uncertainties." Paper presentation, American Meteorological Society, Jan. 20-24, 2008, New Orleans, LA.
- McNie, E. October, 2007. Exploring the Agora: producing useful science for climate policy. Paper presentation at the Society for the Social Studies of Science Annual Conference in Montreal, Canada,.
- McNie E. and N. Sakuntaladewi, August 8, 2007. Linking Knowledge with Action for Sustainable Development in Agroforestry. Invited talk at the Indonesia Ministry of Forestry Research and Development Agency, Bogor, Indonesia.
- McNie, E., October 2007 Boundary Work and Negotiation Support to Link Knowledge with Action in Indonesian Agroforestry Research. Paper presentation at the Sustainability Science Program Seminar Series, Center for International Development, Kennedy School of Government, Harvard University.

Recent Publications

The following represents a sample of the numerous publications authored by Center staff. For a complete, searchable list, with online versions of most articles, visit our Publications page (http://sciencepolicy.colorado.edu/publications/).

Dilling, L., Mitchell, R., Fairman, D., Lahsen, M., Moser, S., Patt, A., Potter, C., Rice, C., VanDeveer, S., 2007. ***How can we improve the Usefulness of Carbon Science for Decision Making?*** Chapter 5 in: The First State of the Carbon Cycle Report (SOCCR): The North American Carbon Budget and Implications for the Global Carbon Cycle., US Climate Change Science Program.

Excerpt: Humans have been inadvertently altering the Earth's carbon cycle since the dawn of agriculture, and

Recent Publications

more rapidly since the industrial revolution. These influences have become large enough to cause significant climate change (IPCC, 2001). In response, environmental advocates, business executives, and policy-makers have increasingly recognized the need to manage the carbon cycle deliberately. Effective carbon management requires that the variety of people whose decisions affect carbon emissions and sinks have relevant, appropriate science. Yet, carbon cycle science is rarely organized or conducted to support decision making on managing carbon emissions, uptake and storage (sequestration), and impacts…read more (http://sciencepolicy.colorado.edu/admin/publication_files/resource-2465-2007.24.pdf)

Pielke, R.A., 2007. ***Technology Assessment and Globalization***. Bridges, Vol. 16, December.

Excerpt: Fresh sushi, it seems, can be found almost everywhere. Such casual observations of contemporary trends in the globalization of food are backed up by data. Our insatiable appetite for fresh fish has had a profound effect on world fish stocks. In 2006 a study published in Science estimated that 29 percent of all fished ocean species were being harvested unsustainably. As the world struggles to cope with the many challenges of globalization, which include protecting fish populations in the face of enormous demand, it is of particular importance to understand the role of technology in globalization and the role of technology assessment in our efforts to manage the effects of globalization…read more (http://www.ostina.org/content/view/2743/827/)

Pielke, Jr., R. A. 2007. ***The Case for a Sustainable Climate Policy: Why Costs and Benefits Must Be Temporally Balanced***, University of Pennsylvania Law Review, Vol. 155, June, pp. 1843-1857.

Excerpt: The question of what actions on climate change make sense in the short term…remains largely unanswered. Until we better organize the climate science and technology enterprise to focus on policy options for the short term, the climate debate is likely to remain in its present gridlock. Policies that address climate change—including both mitigation and adaptation—have both long-term and short-term effects. To date, climate policy has focused primarily on the long term, and so too has the research intended to inform that policy. As a consequence, too little attention is paid to policy options and technological alternatives that might make sense in the short term. One reason for the short term being overlooked is the intellectual gerrymandering of the climate change issue at the international level, which has maintained a narrow focus on greenhouses gases (GHGs) and their effects. Billions of dollars of public investments in climate science and technology might be reoriented to better serve the needs of decision makers grappling with climate change, which will be a policy issue for decades to come, by focusing on policies that make sense in both the short and long terms…read more (http://sciencepolicy.colorado.edu/admin/publication_files/resource-2576-2007.29.pdf)

Ogmius

To Subscribe to Ogmius use the on-line form at:

http://sciencepolicy.colorado.edu/ogmius/subscriptions.html

Or send an email to: ami@cires.colorado.edu

and include the following information:

- *Name*
- *Email Address*
- *Interests and Needs*
- *How you heard about Ogmius*
- *Organization*

Recent Prometheus Blogs

Prometheus (http://sciencepolicy.colorado.edu/prometheus/), the Center's science policy weblog, continues to serve as an online forum for discussion of a variety of issues at the intersection of science and policy. Recent blogs include:

Climate Policy as Farce, by R. Pielke, Jr.:
According to The Telegraph to deal with the issue of climate change the UK's Chief Scientific Adviser, Professor Sir David King, has encouraged a "cultural change" among women to prefer men who save energy, rather than hog it, such as by driving Ferrari's. And for those of you unfamiliar with UK newspapers, it is important to point out that The Telegraph is not the UK's version of The Onion… read more : http://sciencepolicy.colorado.edu/prometheus/archives/climate_change/001301climate_policy_as_fa.html.

China's Growing Emissions, by R. Pielke, Jr.:
According to this paper by two researchers at the University of California carbon dioxide emissions in China are projected to grow between 11.05% and 13.19% per year for the period 2000-2010. What does this mean? I hope you are sitting down because you won't believe this.

In 2006 China's carbon dioxide emissions contained about 1.70 gigatons of carbon (GtC) (source). By 2010, at the growth rates projected by these researchers the annual emissions from China will be between 2.6 and 2.8 GtC. The growth in China's emissions from 2006-2010 is equivalent to adding the 2004 emissions of Japan, Germany, United Kingdom, Canada, and Australia to China's 2006 total (source). The emissions growth in China at these rates is like adding another Germany every year, or a UK and Australia together, to global emissions… read more: http://sciencepolicy.colorado.edu/prometheus/archives/climate_change/001295chinas_growing_emis.html.

Lieberman-Warner, by B. Hale:
Not only was there an announcement from Bali, but S. 2191 went from the Senate Committee on Environment and Public Works to the full senate. That's a pretty big deal too. It's endorsed by a variety of environmental groups, including the Apollo Alliance, Defenders of Wildlife, Environmental Defense, League of Conservation Voters, National Environmental Trust, National Wildlife Federation, Natural Resources Defense Council, The Nature Conservancy, The Sierra Club, Union of Concerned Scientists and The Wilderness Society.

Who knows how it'll fare, but I thought it possibly worth commenting on this tired minority response from some guy in Oklahoma.

Yep. It'll cost money. Whether that'll deal a devastating blow to "American families, American jobs, and the American way of life" is harder to judge… read more: http://sciencepolicy.colorado.edu/prometheus/archives/climate_change/001281liebermanwarner.html.

Historic Declaration by Climate Scientists, by T. Yulsman:
Just minutes ago, more than 200 climate scientists released an historic declaration at the United Nations Climate Conference in Bali. (Find it here: http://www.climate.unsw.edu.au/bali/) They warn that unless steps are taken immediately to begin bringing greenhouse gas emissions under control, "many millions of people will be at risk from extreme events such as heat waves, drought, floods and storms, our coasts and cities will be threatened by rising sea levels, and many ecosystems, plants and animal species will be in serious danger of extinction."

The signatories, who include many scientists we here in Boulder know well, including Caspar Ammann, Beth Holland, Kevin Trenberth, and James White, state that global warming must be kept below 2 degrees C above the pre-industrial temperature. "Based on current scientific understanding, this requires that global greenhouse gas emissions need to be reduced by at least 50% below their 1990 levels by the year 2050," according to the statement. That means "there is no time to lose." Greenhouse gas emissions must actually peak and begin to drop within the breathtakingly short period of the next 10 to 15 years… read more: http://sciencepolicy.colorado.edu/prometheus/archives/climate_change/001278historic_declaration.html.

Center In the News

Center personnel continue to receive national media attention on a variety of topics.

Lisa Dilling received press coverage for her role as co-lead on the US Climate Change Science Program's recent study of the carbon cycle:

North America carbon debt soars (http://www.rockymountainnews.com/drmn/nation/article/0,1299,DRMN_16_5747225,00.html), study says by Bill Scanlon, 14 Nov. 2007 Rocky Mountain News.

Report: N. America oversaturated in CO2 (http://www.usatoday.com/weather/climate/globalwarming/2007-

Center In the News Continued

11-13-carbon-removal_N.htm), by Patrick O'Driscoll, 13 Nov. 2007 USA Today.

Report: Carbon Removal Has Little Impact, 13 Nov. 2007 Associated Press

Government Science Panel Publishes Report on North America's Carbon Budget (http://www.eenews.net/eenewspm/2007/11/13/#4), 13 Nov. 2007 NOAA press release.

Roger Pielke, Jr.'s views on climate change policy, science policy, and other topics were quoted in the following media:

At Bali climate change meeting, a hard look at Kyoto, by Peter N. Spotts (http://www.csmonitor.com/2007/1210/p07s02-wogi.html), 10 Dec. 2007 Christian Science Monitor.

Climate scientists debunk claim of increasing storms, by Hallie Woods (http://www.coloradoan.com/apps/pbcs.dll/article?AID=/20071207/NEWS01/712070342/1002/CUSTOMERSERVICE0), 7 Dec. 2007 Coloradoan.

Are Words Worthless in the Climate Fight?, by Andrew C. Revkin (http://dotearth.blogs.nytimes.com/2007/12/03/are-words-worthless-in-the-climate-fight/), 3 Dec. NY Times blog.

The Ice Man: When Al Gore and other global-warming experts want to come in out of the cold, they turn to Boulder's Konrad Steffen, by Joel Warner (http://www.newsreview.com/chico/Content?oid=602910), 6 Dec. 2007 Newsreview.com.

Speculation Elimination: Did the Bush administration really censor science?, by Paul Georgia (http://article.nationalreview.com/?q=MzZhOThmYThlYmQ2YjUyZGU4OTUwMmJlNDUxNmM2ZjI=), 29 Nov. 2007 National Review.

How Urgent Is Climate Change? (http://www.sciencemag.org/cgi/content/full/318/5854/1230), by Richard A. Kerr, 23 Nov. 2007 Science.

S&T Opportunities

2008-2009 AMS-UCAR Congressional Science Fellowship

The American Meteorological Society (AMS) and the University Corporation for Atmospheric Research (UCAR) seek candidates with backgrounds in the Earth sciences for the 2007-2008 AMS-UCAR Congressional Science Fellowship. Fellows participate in the legislative process by joining a Congressional office of their choosing in the United States Senate or House of Representatives. Typical duties include developing legislation, negotiating legislative compromises, writing speeches and briefing memos, meeting with constituents, and conducting background research. The AMS-UCAR Congressional Science Fellow joins more than 100 other fellows through the AAAS Science and Technology Policy Fellowship Program.

Fellows must be US citizens and complete all requirements for their Ph.D. prior to the start of the fellowship year, which runs from September 1, 2008 through August 31, 2009. Support includes a $50,000 stipend, and up to $10,000 for moving, travel, health care, and other expenses.

Applications must be submitted by 1 February 2008. Details are available at http://www.ametsoc.org/CSF. For additional information contact Paul Higgins (phiggins@ametsoc.org).

Fellowships in Sustainability Science, Harvard Univ.

The Sustainability Science Program at Harvard University's Center for International Development invites applications for resident fellowships in sustainability science for the University's academic year beginning in September 2008. The fellowship competition is open to advanced doctoral and post-doctoral students, and to professionals engaged in the practice of harnessing science and technology to promote sustainable development. Applicants should describe how their work would contribute to "sustainability science," the emerging field of use-inspired research seeking understanding of the interactions between human and environmental systems as well as the application of such knowledge to sustainability challenges relating to advancing development of agriculture, habitation, energy and materials, health and water while conserving the earth's life support systems. This year we will give some preference to applicants who address the challenges related to meeting human needs for water in the context of sustainable development. In addition to general funds available to support this fellowship offering, special funding for the Giorgio Ruffolo Fellowships in Sustainability Science is available to support citizens of Italy or developing countries who are therefore especially encouraged to apply. For more information see http://www.cid.harvard.edu/sustsci/grants/fellows/08ellows_RFP.htm.

Due date for applications: 1 February 2008

About Us

Ogmius is the newsletter of the Center for Science and Technology Policy Research which is published four times a year. The Center is within the Cooperative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado-Boulder. The mission of CIRES, which was established in 1967, is to act as a national resource for multidisciplinary research and education in the environmental sciences. CIRES is jointly sponsored by the University of Colorado-Boulder and the National Oceanic and Atmospheric Administration.

On-Line Version: http://sciencepolicy.colorado.edu/ogmius/
Online version: ISSN 1936-9921
Print version: ISSN 1936-9913

Editor: Lisa Dilling (ldilling@cires.colorado.edu)
Managing Editor: Bobbie Klein (bklein@colorado.edu)
Associate Editor/Web: Ami Nacu-Schmidt (ami@cires.colorado.edu)

CENTER FOR SCIENCE AND TECHNOLOGY POLICY RESEARCH

University of Colorado/CIRES
1333 Grandview Avenue
Campus Box 488
Boulder, CO. 80309-0488
Ph: 303-735-0451 Fx: 303-735-1576
http://sciencepolicy.colorado.edu

To Subscribe:
http://sciencepolicy.colorado.edu/ogmius/subscriptions.html

Support the Center!

Support our work with your tax-deductible contribution!

Center for Science and Technology Policy Research

Colorado University of Colorado at Boulder

Enclosed is my gift of:

☐ **$5,000** ☐ **$1,000** ☐ **$500** ☐ **$250** ☐ **$100** ☐ **Other**_____

Please use my gift for: *Center for Science & Technology Policy Research #01-22744*

❐ Education fund ❐ Director's discretionary fund

Endownment fund: Contact Bobbie Klein (bklein@colorado.edu)

Please make checks payable to the ***CU Foundation*** (**please be sure to include this form**) OR

I would like to make my gift donation by Credit Card:

☐ VISA ☐ MasterCard ☐ American Express ☐ Discover

_____ _____

Card Number Exp. Date Print Name as it appears on card

Send your gift to: University of Colorado at Boulder
Gift Processing
P.O. Box 1140
Boulder, CO 80306-1140

B1038