

# Ogmius



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NEWSLETTER OF THE CENTER FOR SCIENCE AND TECHNOLOGY POLICY RESEARCH

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



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<http://sciencepolicy.colorado.edu/ogmius>.

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## Introduction to Ogmius Exchange

This edition of Ogmius features an article by Center director Bill Travis discussing the pros and cons of framing geo-engineering as an emergency response to global warming. Bill took part in a panel discussion titled "From Research to Field Testing and Deployment: Ethical



Issues Raised By Geo-engineering." The panel was part of the National Academies' workshop "Geo-engineering Options to Respond to Climate Change: Steps to Establish a Research Agenda." Bill argued at that workshop that experience with weather modification indicates a public willingness to accept interventions like cloud seeding for water resources, but a strong public aversion to larger-scale interventions like hurricane modification. Comments welcome!  
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## Ogmius Exchange

### *Emergency Use Only: Geo-engineering to Reduce Global Warming* *By William Travis*

The geo-engineering response to the threat of global warming is often framed as an emergency measure---a back-up, plan-B, last-ditch response. This notion is expressed in, for example, the American Meteorological Society (2009) policy statement: "Geo-engineering could conceivably offer targeted and fast-acting options to reduce acute climate impacts and provide strategies of last resort if abrupt, catastrophic, or otherwise unacceptable climate change



impacts become unavoidable by other means." The Royal Society (2009) echoed the "option of last resort" language, and invoked the value of having on hand a well-researched geo-engineering tool-kit just in case we find ourselves facing climate "tipping points."

It is hard to argue against a safety measure, so the "just-in-case" framing reduces aversion to further investigating climate intervention technologies, and can be seen as lessening the chance of geo-engineering becoming a substitute for greenhouse gas (GHG) emission reductions.

In a sense "emergency" actions are a logical response to low probability/high consequence events. Routine risks

## Ogmios Exchange Continued

are dealt with in routine ways (e.g., physical dividers between opposite lanes of automobile traffic) while lower probability, higher consequence, risks call for more drastic responses (e.g., on-board air bags). The highway divider operates every time a car passes to reduce the possibility that it might drift into the on-coming traffic, but the air bag is invoked only in a crash, when routine measures apparently have failed. It is a drastic response: deployment might itself harm the driver. The dividing line between routine and emergency safety measures is, of course, a fuzzy boundary, but can be found in many social responses to threat. The city of Galveston, Texas, has a sea wall to protect it from hurricane storm surges, but it also has an elaborate evacuation plan, just in case.

An emergency frame naturally raises the analog between climate change and more routine natural disasters; this gives us a place to look for lessons that might transfer to geo-engineering, a novel technology desperately in need of illumination. Two questions come quickly to mind. First, can we develop a policy system in which geo-engineering could actually work as a last ditch response? And second, does this framing reduce the likelihood that attention to geo-engineering could drain momentum from traditional global warming mitigation?

The first question falls squarely in the realm of our experience with early warning and response systems. The Royal Society (2009) report suggests that surface and near-surface albedo enhancements (via land treatments or oceanic cloud seeding) as well as stratospheric aerosol injection, could be deployed and operated on an emergency time-frame; that is, we could wait until the last minute to deploy them (on the order of a few years). The great utility is simply that this puts off deployment, allowing for more research, giving time for traditional mitigation to make a difference, and letting the need ripen to the point of obviousness. A looming climate tipping point that poses grievous harm would certainly allay qualms about the moral hazard and unintended consequences of geo-engineering. But would it evoke agreement to deploy? The Royal Society (2009) recognizes that global agreement could be hard to come by; but their deployment estimates are purely technical. Yes, we might arrange operationally to insert an aerosol cloud into the stratosphere with just a couple years of preparation, but could we get global approval of the plan in a couple of years?

Every emergency manager who has faced a hurricane knows the problem. The threat must be obvious enough, and the forecast reliable enough, to call for extra-ordinary action, like asking a million people to leave their homes. But the time required to effect the response may be large compared to the time over which the forecast is sufficiently reliable to make

the decision with a reasonably low chance of over-reacting. This is the lead time problem in natural hazards, what Lenton et al. (2008), in reference to climate tipping points, called the policy time horizon. If we are lucky, tipping points (climate emergencies) will announce themselves with enough forewarning to allow us to marshal the political and technical pieces of a geo-engineering response. The climate system may also be structured so that the largest changes exhibit relatively slow onset, allowing time for intervention to take hold. But we may be unlucky: some tipping points may offer little or no hint of their approach, may emerge quite suddenly, and may produce irreversible changes. The lesson from disaster response is that the decision-making needs to be worked out carefully in advance; geo-engineering itself may be put off to the last moment, but that would be too late to build a workable geo-engineering governance structure.

If climate science starts to suggest untenable trade-offs between lead time, accuracy, and decision-making, it may be that the most effective path for geo-intervention would not be as last resort, but rather gradual implementation, starting sooner rather than later, based on climate trends that are not yet disastrous. In this approach the first few increments can serve mostly for testing geo-engineering approaches, so that we better understand their effects in case more is needed.

The second, appealing, aspect of an emergency formulation of geo-engineering is that a technological fix meant to be used only in a climate emergency would seem inoculated against the possibility of infecting the global effort to reduce GHG emissions, thus avoiding the so-called moral hazard problem. Here, too, the hazards analog speaks to us: some hazards researchers have argued that not only do physical barriers like levees and sea-walls encourage more development in hazard zones (the "levee effect"), but even such emergency measures as warning and evacuation systems come to be relied upon as "routine" and, in turn, encourage risk-taking behavior. By this token the large, and remarkably effective, project of hurricane forecasting, warning, and evacuation might be tagged with worsening hurricane losses.

I should say here that I am not convinced that such a levee effect has been proven to operate in the hazard mitigation universe: the research is thin and the effect would have to hurdle a high bar: the greater losses that eventually occur would have to be discounted against the accrued benefits of using the hazard zone. Nevertheless, could a geo-engineering response meant to be used only as last resort still produce a global levee effect, inadvertently encouraging less stringent GHG reductions? I don't believe there's solid evidence yet to predict such an outcome, but we should examine the possibility in any geo-engineering technology assessment. It

## Ogmios Exchange Continued

might be that the GHG concentration increment “allowed” by the prospect of a geo-engineering fix would still pay off in net welfare. But that GHG increment might also turn out to push the climate system past a threshold into catastrophic impacts not ameliorable by last-ditch geo-engineering. That *would* be an emergency.

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### References:

American Meteorological Society (2009). Geoengineering the climate system: A policy statement of the American Meteorological Society. *Bulletin of the American Meteorological Society*, 90:1369–1370.

Lenton, T.M., Hermann, H., Kreigler, E., Hall, J., Lucht, W., Rahmtorf, S. and Schellnhuber, H.J. (2008). Tipping elements in the Earth’s climate system. *Proceedings of the National Academy of Science* 105: 1786-1793.

The Royal Society (2009). *Geo-Engineering the Climate: Science, Governance, and Uncertainty*. London.

## Research Highlight

### Introduction

In this issue of Ogmios we feature a description of a recent paper by Max Boykoff. Max joined the University of Colorado this fall as an Environmental Studies faculty member sitting at the Center for Science and Technology Policy Research. Before joining the Center, Max was a Research Fellow in the Environmental Change Institute (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, as well as political economics and the environment. He has experience working in North America, Central America, and Europe. From 2006-2008, Max was a James Martin 21st Century Research Fellow at the University of Oxford ECI. Through this fellowship, he was involved in both the Climate Change Research Cluster and the Environmental Governance and Climate Policy groups. 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 The Ohio State University.



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### **Discursive Stability Meets Climate Instability: A Critical Exploration of the Concept of ‘Climate Stabilization’ in Contemporary Climate Policy** By Max Boykoff

Currently in press at the journal *Global Environmental Change*, co-authors David Frame (University of Oxford), Sam Randalls (University College London) and I critically explore the concept of ‘climate stabilization’ in contemporary climate

policy. We have titled the paper ‘Discursive stability meets climate instability’. The dominant framing of climate science and policy today involves this concept of ‘climate stabilization’. This has been described as the alteration of emissions profiles to adjust future concentrations of greenhouse gases and temperature at some specified point.

Many factors contributed to the entrenchment of this concept in climate policy discourse beginning in the 1980s. In this paper we trace the factors that have contributed to the rise of this concept and the scientific ideas behind it. In particular, we explore how the stabilization-based discourse has become dominant through debates and developments in climate science, environmental economics and policymaking. That this discourse is tethered to contemporary policy proposals is unsurprising; but that it has remained relatively free of critical scrutiny can be associated with fears of unsettling often-tenuous political processes taking place at multiple scales. It was a science-policy hybrid that emerged within the context of debates at that time, using then available modes of reasoning, models and arguments. What’s more, it was a discourse that may have contributed to increased political will to act on climate change.

However, in the paper we argue that this ‘climate stabilization’ discourse is problematic in terms of its fundamental premise as well as the connected policy proposals. We posit that the fundamental premises behind stabilization targets are badly matched to the actual problem of the intergenerational management of climate change, scientifically and politically, and destined to fail. By extension, we argue that policy proposals for climate stabilization are problematic, infeasible, and hence impede more productive policy action on climate change.

Aiming for atmospheric temperature and/or CO<sub>2</sub>

## Research Highlight Continued

concentration targets, and then inferring an emissions path is challenging. Among the complicating factors, many different emissions paths and CO<sub>2</sub> concentrations are possible within associated carbon cycle uncertainty. Similarly, through factors such as uncertainty in system parameters, a range of forcings are compatible with a given temperature response. In essence, this process is like trying to work out characteristics of a person from their footprint on a beach. As a result, we argue that policy proposals for 'stabilization', as currently framed, draw upon problematic sets of inferences. It can be misleading for policy makers to think that atmospheric temperature and CO<sub>2</sub> concentration targets are achievable. We



suggest that policy efforts to 'stabilize' the climate have actually distracted from more productive efforts to reduce greenhouse gas emissions and decarbonize industry and society.

We posit that this current framing of the climate problem for mitigation actions matters not only discursively, but materially in terms of funding and prioritizing mitigation projects. Ultimately, we are calling for a rethink of the unachievable aims of 'climate stabilization'. There are clear gains associated with an expansion of the range of possible policy framings of the problem. This reconsideration is likely to help us more capably and dynamically achieve more tangible goals of de-carbonization and energy modernization. In so doing, we can diminish anthropogenic contributions to climate change.

Max Boykoff  
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## Center News

### *Job Opening at CSTPR/SPARC Research Associate*

**T**he Science Policy Assessment and Research on Climate (SPARC) project

(<http://sciencepolicy.colorado.edu/sparc/>)

is currently recruiting for a research associate. The successful candidate will conduct research on science policies for adaptation to climate change. This research will include evaluating the current supply of scientific and other information being generated for adaptation, as well as examining the demand for such information from those sectors and individuals who might be in a position to make

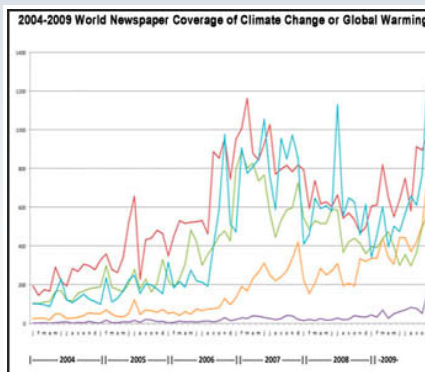


decisions about adaptation on the ground. The research will therefore include a wide variety of methods, including reviewing reports, policy documents, scholarship and workshop findings, interviewing science policy decision makers as well as resource managers and others who may be considering or implementing adaptation measures, and other methods as appropriate. Institutional relationships, programmatic processes, and topic areas will also be examined. The position will be located in the CIRES Center for Science and Technology Policy Research at the University of Colorado in Boulder. For more information and to apply: Go to jobs@CU using this link to apply: <http://www.jobsatcu.com/applicants/Central?quickFind=59823>

## Center News

### *2004-2009 World Newspaper Coverage of Climate Change or Global Warming*

**T**he Center has a new website ([http://sciencepolicy.colorado.edu/media\\_coverage/](http://sciencepolicy.colorado.edu/media_coverage/)) that tracks newspaper coverage of climate change or global warming in 50 newspapers across 20 countries and 6 continents. Max Boykoff and Maria Mansfield first assembled this figure while conducting research at the University of Oxford, Environmental Change Institute. Boykoff is now here at the University of Colorado-Boulder, and Mansfield is at Exeter University in the UK. They will continue to update this figure on a monthly basis as a resource



for journalists, researchers, and others who may be interested in tracking these trends.

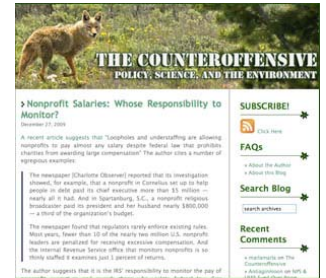
## Center News

### New Blogs by Center Staff

The Center's Ben Hale recently launched a new blog, **Cruel Mistress** (<http://cruelmistress.wordpress.com/>). The blog "offers a discussion of environmental ethics, interspersed with links to articles about policy and philosophy, all aimed at covering what are to me the most interesting areas of academic study: ethics, policy, and the environment." Check out the latest entry in the Center's blogging community.



The Center's David Cherney also recently launched a new blog, **The Counter Offensive: Policy Science, and the Environment** (<http://thecounteroffensive.com/>).

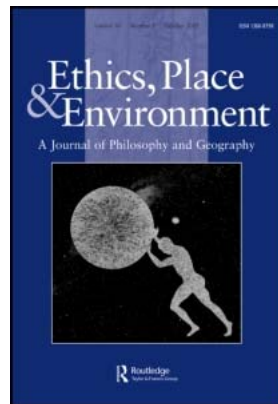


The blog "aims to be part of Lasswell's counter offensive; aspires to help us see the forest in addition to the trees. The majority of content will focus on areas about: the environment, environmentalism, science policy, nonprofits, wildlife policy, and the Greater Yellowstone Ecosystem."

## Center News

*Benjamin Hale co-editor of Ethics, Place & Environment*

Benjamin Hale recently accepted co-editorship of the journal *Ethics, Place & Environment* where he will serve with Andrew Light (George Mason University and Center for American Progress), one of the journal's founders. They plan to strengthen the journal's focus on environmental policy, ethics, and philosophy, and will encourage environmental philosophers to engage in applied research on environmental problems. They



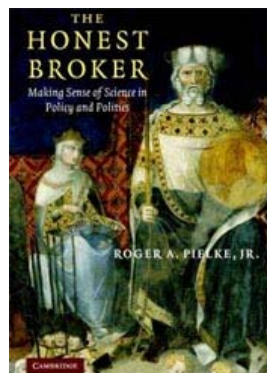
invite members of the decision-making community with an interest in issues at the cross-section of policy and ethics to submit an article. Volume 12, Issue 3 of *Ethics, Place & Environment* (which Ben co-edited with Andrew Light), is now out. You can read about this issue on Ben's blog: <http://cruelmistress.wordpress.com/2009/11/05/greenhouse-development-rights/>.

The next issue of *Ethics, Place & Environment* will have many more of our faculty, including its editorial assistant, Sarah Leshan, on the masthead. Links to articles can be found here: <http://www.informaworld.com/smpp/title~db=all~content=g916460304~tab=toc~order=page>.

## Center News

*Honest Broker Reviewed*

Roger Pielke's book *The Honest Broker* continues to receive positive reviews. Don Monroe states: "Pielke's short, readable book provides a helpful guide for what we can hope for in policy debates involving science, and how scientists can most productively contribute. What we can't hope for is a single, science-endorsed answer



to complex issues that trade off competing interests and conflicting values. For that, we have politics." To read the entire review see: <http://middleyard.blogspot.com/2009/11/honest-broker.html>.

## Graduate Student and Alumni News

### *The Forum on Science Ethics and Policy (FOSEP)*

**F**OSEP is a non-advocacy, non-partisan, multidisciplinary organization that is run by graduate students and post docs. It works to build bridges between scholarship and society in order to explore solutions to 21st century challenges that are impacted by science and technology. FOSEP prepares future leaders who not only have specialized technical knowledge, but understand the complexities of the system that governs science, technology, and innovation, and an appreciation for how science and technology may be integrated with economic, social, and other factors to advance solutions to societal challenges. FOSEP emphasizes inclusion and intellectual modesty in order to create a neutral ground for exchange and collaboration



among people with diverse views and expertise.

FOSEP was founded by graduate students and postdoctoral fellows at the University of Washington in 2004, and currently has approximately 200 members from more than twenty academic departments and programs. They have organized well over 100 events, including small discussions, seminars, public forums, and stakeholders' meetings with policy makers. Membership is open to all graduate and professional students who are enrolled at the University of Colorado, and to postdoctoral fellows at the University of Colorado or affiliated research organizations such as NOAA and NCAR.

To join complete a membership application form and email it to [Ursula.rick@colorado.edu](mailto:Ursula.rick@colorado.edu). For more information visit the FOSEP website (<http://sciencepolicy.colorado.edu/outreach/fosep/>).

## Graduate Student and Alumni News

### *Dave Cherney Comments about National Parks in New York Times*

**T**he New York Times ran CSTPR graduate student Dave Cherney and Susan Clark's comment about the national parks to coincide with the airing of the first episode of Ken Burns's 12-hour history, "The National Parks: America's Best



Idea." Cherney and Clark argue that "the greatest threat to our national parks is the "therein" philosophy of management — the idea that effective park management ends at a park's boundaries. Decades of ecological research has shown that even the largest national parks are too small to maintain viable populations of wildlife in the long run..." read more at: <http://roomfordebate.blogs.nytimes.com/2009/09/27/whats-wrong-with-the-national-parks/#susan>.

## More Graduate Student and Alumni News

### **Marilyn Averill**

Marilyn attended the Barcelona Climate Change Talks 2009, which is last interim UN climate meeting before Copenhagen. It included talks on the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA), and the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP). Marilyn is a member of the planning committee for the RINGOs (Research and Independent NGOs, <http://www.ringos.net/>), an approved observer organization to the UNFCCC, whose members include universities, think tanks, and other research institutions.



at the Center, recently accepted the position of Assistant Director for Collaborative Research at the Colorado Initiative on Molecular Biotechnology. In this position Melanie will be establishing interdisciplinary research projects and collaborations between CU researchers, the business school, biotech, and physicians and clinical researchers. Congratulations to Melanie!

### **Ursula Rick**

Center postdoc Ursula Rick gave a noontime presentation on November 2 titled "Climate Change Metrics and Their Uncertainty" discussing her research at the Center on sea level rise and its representation in the media.



### **Melanie Roberts**

Melanie Roberts, formerly a CIRES Fellow



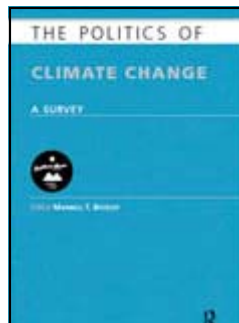
## Recent Publications

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>.

A paper published by **Max Boykoff** and his brother Jules was selected for Geoforum's 40th anniversary special issue. The paper "Climate change and journalistic norms: A case-study of US mass-media coverage" is also listed as the fifth most downloaded paper in the journal: [http://www.elsevier.com/wps/find/journaldescription.cws\\_home/344/description#description](http://www.elsevier.com/wps/find/journaldescription.cws_home/344/description#description).



**Max Boykoff's** new book "The Politics of Climate Change: A Survey" (Routledge Press) was just released. About the book: Climate change is a defining issue in contemporary life. Since the Industrial Revolution, heavy reliance on carbon-based sources for energy in industry and society has contributed to substantial changes in the climate, indicated by increases in temperature and sea level rise. This particular period of time has been referred to as the 'Anthropocene Era', or the 'Age of the Hydrocarbon Human'. Read more at: <http://www.routledge.com/9781857434965> or [http://sciencepolicy.colorado.edu/publications/special/politics\\_climate\\_change/index.html](http://sciencepolicy.colorado.edu/publications/special/politics_climate_change/index.html).



CSTPR graduate student **Dave Cherney** wrote a section on the Endangered Species Act in the book "Culture Wars: An Encyclopedia of Issues, Voices, and Viewpoints". Cherney, D.N., 2009. Endangered Species Act. In: R. Chapman (ed.), The Encyclopedia of Culture Wars, Volume 1, M.E. Sharp: New York, pp. 159-160, [http://sciencepolicy.colorado.edu/admin/publication\\_files/resource-2796-2009.56.pdf](http://sciencepolicy.colorado.edu/admin/publication_files/resource-2796-2009.56.pdf).



**Ben Hale's** article, "Is justice good for your sleep? (And therefore, good for your health?)" was published in Social Theory & Health.



*Abstract:* In this paper, we present an argument strengthening the view of Norman Daniels, Bruce Kennedy and Ichiro Kawachi that justice is good for one's health. We argue that the pathways through which social factors produce inequalities in sleep more strongly imply a unidirectional and non-voluntary causality than with most other public health issues. Specifically, we argue against the 'voluntarism objection' – an objection that suggests that adverse public health outcomes can be traced back to the free and voluntary choices of individual actors. Our argument proceeds along two lines: an empirical line and a conceptual line. We first show that much of the empirical research on sleep supports the view that those with fewer opportunities are those who have poorer sleep habits. We then argue that sleep-related decisions are not of the same nature as most other lifestyle choices, and therefore are not as easily susceptible to the voluntarism objection. Read more: <http://www.palgrave-journals.com/sth/journal/v7/n4/abs/sth200915a.html>.

**Roger Pielke**, along with coauthors Philip J. Klotzbach, Roger A. Pielke Sr., John R. Christy, and Richard T. McNider, have a new paper published in the Journal of Geophysical Research titled "An alternative explanation for differential temperature trends at the surface and in the lower troposphere." This paper investigates surface and satellite temperature trends over the period 1979 to 2008. Surface temperature data sets from the National Climate Data Center and the Hadley Center show larger trends over the 30-year period than the lower-tropospheric data from the University of Alabama in Huntsville and Remote Sensing Systems data sets. The differences between trends observed in the surface and lower-tropospheric satellite data sets are statistically significant in most comparisons, with much greater differences over land areas than over ocean areas. These findings strongly suggest that there remain important inconsistencies between surface and satellite records. Read more at: [http://sciencepolicy.colorado.edu/admin/publication\\_files/resource-2792-2009.52.pdf](http://sciencepolicy.colorado.edu/admin/publication_files/resource-2792-2009.52.pdf).



## Recent Publications Continued

**Roger Pielke's** article "Does Geo-engineering Meet Criteria for a Successful Technological Fix?" is part of a five person debate in Seed Magazine on engineering the climate, how it would be governed, and the ways we're doing it already.

[http://seedmagazine.com/content/article/will\\_the\\_future\\_be\\_geo-engineered1/#pielke](http://seedmagazine.com/content/article/will_the_future_be_geo-engineered1/#pielke).

**Roger Pielke's** article "Improving the contribution of experts in policy and politics" was published for PSCA International Ltd., and featured in [www.publicservice.co.uk](http://www.publicservice.co.uk). This article on the key challenges at the interface of advice and decision making can be read online at: [http://www.publicservice.co.uk/feature\\_story.asp?id=13169](http://www.publicservice.co.uk/feature_story.asp?id=13169).

**Roger Pielke** co-authored an article with Mike Hulme and Suraje Dessai titled "Keeping prediction in perspective" in Nature Reports Climate Change.



*Excerpt:* Decision-makers from 155 nations agreed last month to establish the world's first framework for 'climate services', an effort that will supply on-demand climate predictions to governments, businesses and individuals. By providing tailored information on how climate change will affect certain regions and sectors, the Global Framework for Climate Services will help the world "better adapt to the challenges of climate variability and change". Such was the promise issued by the World Meteorological Organization in Geneva on 4 September, following its World Climate Conference. Read more at: <http://www.nature.com/climate/2009/0911/full/climate.2009.110.html>.

**Roger Pielke** had a letter to the editor published in December's issue of Nature Geoscience: Pielke, Jr., R. A., 2009. Air capture update, Nature Geoscience, Vol. 2, December, p. 811, [http://sciencepolicy.colorado.edu/admin/publication\\_files/resource-2797-2009.57.pdf](http://sciencepolicy.colorado.edu/admin/publication_files/resource-2797-2009.57.pdf).



**Bill Travis** has a new article in Climate Change: Travis, W., 2010. Going to Extremes: Propositions on the Social Response to Severe Climate Change. Climatic Change, Volume 98, Numbers 1-2, January, [http://sciencepolicy.colorado.edu/admin/publication\\_files/resource-2668-2010.03.pdf](http://sciencepolicy.colorado.edu/admin/publication_files/resource-2668-2010.03.pdf).



*Abstract:* The growing literature on potentially dangerous climate change is examined and research on human response to natural hazards is analyzed to develop propositions on social response pathways likely to emerge in the face of increasingly severe climate change. A typology of climate change severity is proposed and the potential for mal-adaptive responses examined. Elements of a warning system for severe climate change are briefly considered.

# Ogmius

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## Center Talks and Presentations

### Steve Rayner Visit

Steve Rayner, James Martin Professor of Science and Civilization and Director of the Institute for Science, Innovation and Society at Oxford University's Saïd Business School, visited the Center for a week in October. Steve was kept busy that week giving the keynote address at the



Renewable and Sustainable Energy Institute's Third Annual Research Symposium titled "Finding the Right Trousers: Radically Rethinking Climate Policy and Low Carbon Energy" (available online at: [http://rasei.colorado.edu/siteadmin/images/files/file\\_871.pdf](http://rasei.colorado.edu/siteadmin/images/files/file_871.pdf)) and the CIRES Distinguished Lecture titled "The Problem of Uncomfortable Knowledge in Science Policy Debates." Steve also participated in an ENVIS Colloquium on Geo-engineering.

## Other Center Talks and Presentations

### Noontime Seminar Series

- Yohei Mitani, The Effects of Ecological Information Provision, December 7.
- Marilyn Averill, The Role of the Judiciary in U.S. Climate Policy, November 16.
- Ursula Rick, Sea Level Rise as a Climate Change Metric, November 2.
- Max Boykoff, Inconvenient Celebrity? Celebrities and Climate Change, Oct. 26.
- Deserai Anderson Crow, Recreational water rights in Colorado, October 19.
- Rad Byerly, The Colorado Air Quality Control Commission, October 5.
- Sonia Akter, Climate change mitigation in Australia, September 28.
- Robert Frodeman, What is interdisciplinarity?, September 21.
- Krister Andersson, Community Self-Governance of Forests in Bolivia, September 14.



*Deserai Anderson Crow giving a talk on October 19.*

### Other Talks and Presentations by Center Faculty and Students

- Benjamin Hale, Nonrenewable Resources and the Inevitability of Outcomes, ISEE Meeting, December 30.
- Ursula Rick, Relative Magnitude of Mass Change Mechanisms on the Greenland Ice Sheet, December 18.

- Lisa Dilling, Providing policy-relevant information for greenhouse gas management, December 16.
- Max Boykoff, AGU Workshop on Communicating Climate Change: Media, Dialogue, and Public Engagement, Dec. 13.
- Maxwell Boykoff, NOAA Seminar: The cultural politics of climate change: Focusing on mass media, December 9.
- Benjamin Hale, Assessing the Mitigation and Remediation Options, COP15, December 7-18.
- Maxwell Boykoff, Who Speaks for the Climate? Historical Account of Media Coverage of Climate Change, December 4.
- Maxwell Boykoff, Cultural Politics and Climate Change, Oxford University, December 1.
- David Cherney, Yellowstone's Saviors? Nongovernmental Organizations in Policy and American Democracy, October 24.
- Max Boykoff, Association of Environmental Studies and Sciences Meeting, October 9.
- Max Boykoff, Signals and noise: examining media representations of climate change, September 25.
- Lisa Dilling and Roger Pielke, The First 300 Days: An Assessment of Obama's Energy and Climate Policy, Panel Discussion at CU, September 3.
- Rocky Mountain Ethics Congress, University of Colorado-Boulder, August 6-9.



*The First 300 Days Panel Discussion on September 3.*

## Center in the News

**Maxwell Boykoff's** work "Balance as Bias" was referenced in a 13 November 2009 Columbia Journalism Review article.

**Lisa Dilling** was quoted in the October 2009 Himal Southasian magazine article on communicating about climate change.

**Lisa Dilling** was interviewed in a September 2009 CU-Boulder video on new energy for Colorado.

**Roger Pielke, Jr.** was quoted, cited, or referred to in the following:

- 1 December New York Times blog on recent global temperature data scandal.
- 30 November New York Times blog on climate science data and peer review.
- 29 November Wall Street Journal article on recent climate change science scandal.
- 29 November Times articles on CRU's global temperature data.
- 25 November Science Insider article on Union of Concerned Scientists.
- 22 November Wall Street Journal article on cyclones and global warming.



- 13 November Science article on global warming and U.S. public concerns.
- 12 October Wall Street Journal blog on the Senate climate bill.
- 8 October environmentalresearchweb article on Japan's Mamizu policy.
- 30 September Bangor Daily News article on climate leadership.
- 28 September Philadelphia Inquirer article on economics of El Niño.
- 23 September Christian Science Monitor on recent UN global warming summit.
- 23 September Wall Street Journal blog on the business of the environment.
- 22 September Science Insider article on China and Climate.
- 19 August New York Times blog on Climate Engineering.
- 10 August New York Times blog on climate engineering.
- 7 August Wall Street Journal blog on climate geoengineering.
- 4 August Wall Street Journal article on Climate Change in India and China.

To read these and other news articles about the Center see our In the News page: <http://sciencepolicy.colorado.edu/outreach/news.html>.

## S&T Opportunities

### Special Off-cycle STPP (Science, Technology and Public Policy) Fellowship

**T**he Harvard Kennedy School's Science,



Technology, and Public Policy (STPP) Program of the Belfer Center for Science and International Affairs is seeking two postdoctoral fellows to conduct advanced research on Science and Technology (S&T) policy. Particular areas of focus may be Information and Communications Technology (ICT), Energy, and Water Policy. The S&T Policy research fellows will work with the Director of the STPP Program. They will do research on the development and adoption of novel technologies, and the role of the government and the private sectors in facilitating and shaping their deployment.

#### Required Education, Experience, and Skills

Applications for the S&T Policy fellowships are welcome from recent Ph.D. recipients. The ideal candidates will have a

background in physics/engineering, materials science, or computer science, and (preferably) some experience in private sector innovation. In addition, the ideal candidate should have either experience or a strong interest in technology policy, strategic planning for research and development, and/or technology access issues. Candidates will also have excellent skills in presenting complex material to a wide range of audiences. Candidates should hold a Ph.D. in engineering or the physical sciences. Candidates with strong undergraduate degrees in the physical sciences or engineering who have focused on other aspects of technology policy in their doctoral work and hold a Ph.D. in public policy, economics, political science, or a related field, with a clear focus on technology policy (in particular in ICT, energy, and water), or those holding technical Master's degrees and have extensive experience, will be considered.

#### About the STPP Program

The STPP Program engages in research, teaching, and outreach on how: (a) science and technology (S&T) influence

## S&T Opportunities Continued

public policy; (b) public policy influences the evolution of S&T; (c) the outcomes of these interactions affect well-being in the United States and worldwide; and (d) the processes involved can be made more effective and their outcomes more beneficial (at present and in the future). With this broad backdrop, STPP activities will center around a number of thematic areas where public policy plays an important role, with a particular emphasis on their international implications: S&T, Energy, and the Environment, S&T and Security, Emerging Technology Clusters (which include ICT, Biotechnology/Medical Technologies, and Nanotechnologies), and S&T and the Economy. For more information, please visit: <http://belfercenter.ksg.harvard.edu/stpp>

### Application procedures

Each applicant should submit as one complete packet:

1. A completed one page application (application PDF : <http://belfercenter.ksg.harvard.edu/files/uploads/fellowship1pageapplication.pdf>).
2. A 3 to 5 page double-spaced statement that proposes a major research project or dissertation prospectus, including its relevance to the research interests of one of the Center's programs or projects; the statement should

clearly indicate at the top of the page the specific Belfer Center program or project to which the application is being directed and whether or not you are applying for funding.

3. A curriculum vitae;
4. 3 sealed letters of recommendation (not emails) attesting to the applicant's professional competence;
5. A short writing sample pertinent to the application (No more than 50 pages; please do not send books or lengthy manuscripts);
6. Pre-doctoral candidates must also provide a sealed graduate school transcript.

The steps above constitute the application process. The applicant is responsible for collecting all materials, including letters of recommendation and transcripts and submitting them as one packet to:

Karin Vander Schaaf  
Harvard Kennedy School  
Mailbox 53  
79 JFK Street  
Cambridge MA, 02138

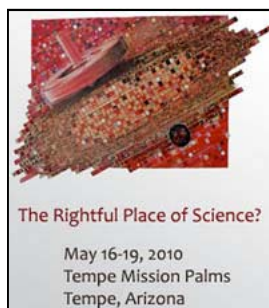
Materials submitted will not be returned to the applicant. Emailed materials will not be accepted.

## S&T Opportunities

### The Rightful Place of Science Mission Palms Hotel | Tempe, Arizona May 16-19, 2010

**T**he Rightful Place of Science will address the challenges facing a society that is at once utterly dependent on science and technology and yet equally unprepared to govern the implications of that dependence. In his inaugural address, President Obama promised to “restore science to its rightful place” in U.S. society, but that location is far from obvious. How can we understand this provocative formulation in the context of the complexity, uncertainty, and political, social and cultural diversity that mark our world?

In this conference – amid art, music, literature, media, humor and more – we will explore the place of science in society and how science and technology can most effectively contribute to an improved quality of life for all. The transformative



potential of science and technology challenges our ability to understand and shape our common destiny. What inquiries, communities, networks, and institutions can improve our ability to effectively engage this challenge?

The conference program will include a mix of:

- keynote speakers to catalyze our thinking
- “exemplars” of innovative approaches to managing the promises and complexities of science and technology
- participant-led roundtables that will broaden our agenda
- the next generation of scholars, decision makers, and communicators who will take our ideas forward

Among the outcomes of the conference will be a strengthened community of science and technology policy scholars and practitioners and a more developed research, education and outreach agenda to enhance linkages between scientific and technological research and beneficial societal outcomes – a well-centered place for science, in the midst of an engaged society.

For more information or to register see: <http://www.cspo.org/conference2010/>

## About Us

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