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Introduction to Ogmios Exchange

This issue of Ogmios features

an article by Ryan Meyer, a graduate student at Arizona State University's School of Life Sciences and the Consortium for Science, Policy, and Outcomes; a Research Associate in the ASU Office for Sustainability



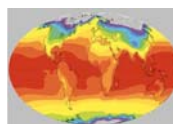
Initiatives; and a researcher with the joint CU-ASU project, Science Policy Assessment and Research on Climate (SPARC). Ryan's work focuses on how uncertainty in science interacts with decision making processes, with particular emphasis on modeling of long term climate change.

In this Ogmios Exchange article Ryan discusses the limitations of climate impact models. Comments welcome!

Ogmios Exchange

Arbitrary Impacts and Unknown Futures: The shortcomings of climate impact models

How do we predict the impacts of climate



change on ourselves and on our environment? Lost in the controversy and hype of climate change is the reality of an enormous community of scientists working on the incredibly difficult task of predicting the way in which not one, but many different and highly complex systems will behave and interact over the coming decades and centuries. For the most part, these scientists either develop, or contribute to, models. Some of these models project the way the climate may change, while others – the focus of this essay – project impacts, or the ways in which society might be affected and, in turn, react to that change.

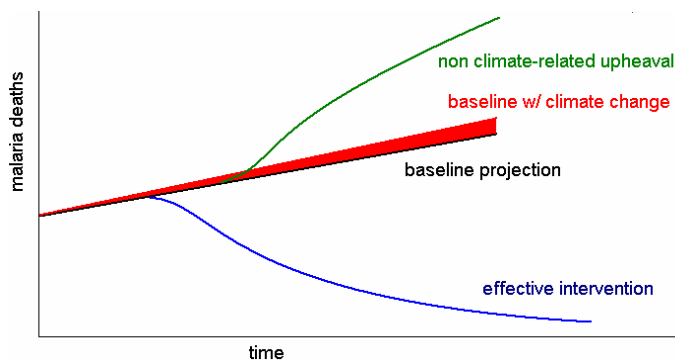
What sort of phenomena get included in a model of climate impacts? Quite a few, it turns out. One paper I recently read boasts the addition of "diarrhea deaths" to the list of health related impacts. Other variables include, to name only a few, malaria deaths, storm damage, and square kilometers of land lost due to sea level rise. On the one hand, incorporating factors like these makes sense: we can see plausible links between these problems and *current* climate, so we look to climate science for information on how they might change. But on the other hand, we might ask if there is any reason why climate change will be at all important in determining the presence or absence of these problems in the future. This is one question, I would argue, that modeling simply can't answer.

Ogmios Exchange Continued

Take malaria, for example. Some very simple links have been established that relate climate to the life cycle of mosquitoes and the dynamics of malaria transmission (Rogers and Randolph 2000, Tanser et al. 2003). A quantitative understanding of this relationship can then be used to calculate a marginal change in the number of malaria deaths when the average temperature rises by a given amount – *when all other potentially relevant factors remain fixed*.

But of course, we know that all things will not be equal. Many social, political and cultural factors will come into play. Malaria epidemiology may be related in part to climate conditions, but the amount of suffering and death caused by malaria ultimately should have little to do with climate or climate change. For example, the absence of malaria in the southeastern United States, where environmental conditions are conducive to the disease, is due to a massive Centers for Disease Control (CDC) eradication program begun in 1947, which rendered the problem insignificant within four years (CDC 2004). Defeating the disease may be more difficult in some areas than others, but it is nonetheless treatable and controllable through means entirely unrelated to climate change (Sachs 2002).

With that in mind, consider this crude figure showing malaria deaths over time in a hypothetical country where the disease has been a burden historically:



The red wedge represents the marginal increase in deaths that a climate impacts model might tell us to expect, all other things being equal. But the baseline projection is actually quite unlikely, especially in the context of an unstable government, a fragile and decaying agro-economic system or, conversely, a transitioning economy with the capacity to eradicate the disease. Whether the problem is largely solved by effective intervention, or greatly exacerbated by non-climate-related disasters like a civil war, overpopulation or some other collapse, the marginal change due to climate is rendered less important. Even if the baseline proves relatively accurate, the impact due to climate change pales in comparison to the

massive failure of efforts to intervene in an eminently solvable problem that causes 8 millions deaths a year.

A similar argument has been made by Roger Pielke, Jr., Dan Sarewitz, and Roberta Klein (2000) with regard to hurricane impacts, and the National Science Foundation has funded further work of this type as part of the Science Policy Assessment and Research on Climate, or SPARC (<http://sciencepolicy.colorado.edu/sparc/>) project at CU Boulder's Center for Science and Technology Policy Research and ASU's Consortium for Science, Policy, and Outcomes.

None of this is to say that climate change will be unimportant; of course it may bring huge potential consequences for socio-ecological systems at many different scales. Rather, I would like to offer a few points/suggestions:

The first is that *climate change will likely prove unimportant to many of the phenomena identified by modelers as being impacted by climate change*. Society is too complex for us to create a global model of its dynamics (as many failed efforts – like the notorious Limits to Growth model – have shown in the past). Modelers select those variables that can be defensibly and quantifiably linked to climate, while taking into account a handful of currently identifiable global trends such as population growth, urbanization, and certain kinds of technological change. But, because the exercise is, by definition, one of climate modeling, these variables are selected without consideration for other drivers that are completely unrelated to climate change - drivers that may prove far more important than a change in average temperature of a few degrees.

For the same reason, *a global model of climate impacts has little chance of telling us what the biggest impacts will be*. In other words, the simplest relationships between climate and society (like malaria and temperature) are not necessarily the most important ones. In an increasingly globalized world, we are lucky to recognize problems as they happen, let alone anticipate them (e.g. Kennedy 2001, Young et al. 2006). Multiple feedbacks through technology, politics, culture, and environmental processes will eventually reveal what our models could not.

Finally, global models of impacts give top-down accounts of how society will be affected by climate change. As such, they do a poor job at dealing with distributional issues (who will be affected and how much), and local dynamics. For example, an impacts model might show that crop yield will be affected in certain regions with certain types of agriculture, and then extrapolate this relationship to show an economic impact in

Ogmios Exchange Continued

many regions around the world. But in some communities this might be irrelevant. Perhaps insurance covers any shortfall, and in any case it is merely a competitive edge that is important to local farmers, and not the aggregate crop yield. Or then again, perhaps subsidies half way around the globe put far more pressure on a farmer's livelihood than a small change in crop yield. One local study found that the biggest source of uncertainty and risk for farmers, even in the face of climate change, was tractor maintenance (Clark Miller, personal communication). Of course it is very important to try to understand how farmers might be impacted by climate change, but what makes us think we can do this with a global model?

What is the alternative to global modeling of climate impacts? The following two points provide a starting point:

1. The a priori assumption that global *climate* change is the only global change problem we need to deal with is misguided. Starting with climate change as the central problem, and then building a model around variables that plausibly can be linked to climate change, will of course yield a picture of the future in which climate change is the dominant problem. If one insists on framing problems in global terms, climate should be just one of many changes important to the future of humans on Earth. The broad perspective of global change may provide a far more useful (and balanced) context for specific global problems like climate change.
2. A bottom-up approach to identifying and quantifying potential climate impacts is crucial to understanding the importance of climate change in socio-ecological systems. The marginal social cost of one ton of carbon emitted into the atmosphere - a number actively debated among environmental economists (e.g. Richard 1999, Clarkson and Deyes 2002, Pearce 2003, Guo et al. 2006) - is no more useful to the rural farmer in Zimbabwe than the knowledge that the global average temperature might rise by a few degrees. Local dynamics must be incorporated into any realistic and usable account of climate impacts.

Watching old science fiction movies can often tell us more about the time in which they were filmed than it can about the future. And so it may be with impact models of climate change. These incredibly complex tools strive to show us what the problems *will* be, based on an interpretation of present-day problems. They identify what we should worry about now, so that some abstract notion tomorrow will be better. But in the end we may better serve future generations by focusing on the problems we know we have now, leaving

them better equipped to deal with the problems we could never have predicted.

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Research Highlight

The Challenges Facing Homeland Security S&T

“As a Nation, we will emphasize science and technology applications that address catastrophic threats. We will build on existing science and technology whenever possible. We will embrace science and technology initiatives that can support the whole range of homeland security actors.”

The above passage comes from the National Vision outlined in The National Strategy for Homeland Security; a document ordered by the President and written by the Department of Homeland Security in efforts to create an overarching all-incident strategy for homeland security.

While seemingly straightforward at first glance, the passage presents several challenges for the Science and Technology (S&T) Research and Development (R&D) projects under the auspices of homeland security.

The ambiguity of language in the passage leads to the question what poses as a catastrophic threat. With thousands of threats existing, prevention and mitigation efforts can realistically only focus on a select few. Furthermore, without any metric to distinguish “catastrophic threats” from other threats, how are these threats differentiated from each other? More so, among the catastrophic threats, what determines the magnitude of one threat posing a greater hazard than another? These questions contribute to the challenges facing decision makers in prioritizing the different threats for federal funding and management. What determines which projects are chosen for funding? In theory, the criteria for project prioritization should be based on risk assessments of the greatest threats and vulnerabilities. Yet are risk assessments the only criteria being used in prioritization or is there a political aspect involved? Could politics be playing a role in prioritization of homeland security S&T R&D projects?

Building upon existing science and technology initially appears

to be an efficient strategy for developing new R&D initiatives. However, the challenge is in maintaining the balance between existing S&T initiatives and new applications, ensuring that the original initiatives are never overtaken by new ones. For example, while the pursuit of bioterrorism countermeasures stemmed from public health research, a struggle for balance ensues with the increased focus and resources dedicated to bioterrorism research. Is this trend validated by vulnerability assessments identifying bioterrorism as the greatest threat or is the nation more vulnerable to a natural pandemic, which is a topic of public health research currently being overtaken by bioterrorism research?

Furthermore, who is considered a homeland security actor? The current administrative and congressional rhetoric suggests homeland security S&T initiatives should provide protection from a range of scientific-based threats including bioterrorism, natural pandemics, and natural disasters. Yet do the policies follow the rhetoric and meet the challenge of implementing protection from these three threats?

These challenges have permeated into the homeland security policy process for S&T R&D and warrant new solutions to bring clarity and consistency to homeland security policies while also better allocating attention and resources. My research strives to answer the questions associated with these challenges. In order for prevention and mitigation efforts to prove worthwhile, we must make sure we are investing in the appropriate S&T R&D countermeasures based on the hazards that pose the greatest threats to the security of the homeland.

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Center News

Roger Pielke, Jr., Resigns from Federal Relations Advisory Committee over Lack of CU Earmark Policy

Center Director Roger Pielke, Jr., recently resigned from CU’s Federal Relations Advisory Committee over CU’s lack of a campus policy on academic “earmarking” (federal funding obtained outside the normal process of proposal and peer review – also known as “pork”). Pielke had urged the committee to adopt a formal policy to clarify the circumstances under which the university

would seek and/or accept congressionally directed or “earmarked” funds. Pielke explained his reasoning in a November 9 letter to the editor to the Silver and Gold Record that can be found at: http://sciencepolicy.colorado.edu/prometheus/archives/education/000983earmarking_at_cubou.html.

Center News

*Center Faculty Affiliate Carl Mitcham Receives
World Technology Award for Ethics*

Center Faculty Affiliate Carl Mitcham (http://sciencepolicy.colorado.edu/about_us/meet_us/carl_mitcham/) won this year's prestigious World Technology Network (WTN) award in the category of ethics. The WTN (<http://www.wtn.net/aboutus.html>) combines a global meeting ground, a virtual think tank, and an elite club whose members are all focused on the business or science of bringing



important emerging technologies of all types (from biotech to new materials, from IT to new energy sources) into reality. The WTN's membership is comprised of nearly 1000 individuals and organizations from over 60 countries nominated and judged by their peers to be the most innovative in the technology world.

The World Technology Awards are presented each year to the outstanding innovators from each sector within the technology arena, both as a way to honor those individuals and as a vetting mechanism to determine the newest WTN members. Congratulations Carl!!

Center News

Center Students at 4S Annual Meeting, Nov 2-5, 2006

Several of the Center's graduate students and alumni took part in a session organized by the Center at this year's Society for the Social Study of Science (4S) Annual Meeting. The session, "Questioning Relevance: Exploring the Boundary Between STS and STP," raised several questions about Science and Technology Studies (STS) scholarship such as: What is relevance? Where does it fit within the goals of STS scholarship? What does it mean in different contexts (i.e. relevance to whom)? Finally, what strategies might STS researchers use to encourage more relevant outcomes? By exploring relevance as an ongoing relationship between academic work in STS and the real-world practice of science and technology policy, the participants in the session brought the often-neglected idea of relevance to the attention of attendees, and discussed whether encouraging the idea as a goal could enhance the robustness of STS as a field.



It began with a paper by Center graduate students Nat Logar and Genevieve Maricle entitled: "Seeking relevance: Defining and Evaluating the STS/STP Boundary." The talk laid out the relevance-related goals of those members of the STS community who have argued for a new, more relevant model of doing science, and questioned the idea that relevance could be achieved without consideration of the processes through which we produce knowledge. Genevieve Maricle and Center director Roger Pielke, Jr., delivered "The Role of Science Studies in Science Policy," which evaluated the trends with respect to these goals, and suggested that due to cultural and institutional constraints, STS often falls victim to the same irrelevance as the science that it critiques. The following

paper by Center graduate student Elizabeth McNie and Center alumni Erik Fisher, "Questioning Utility: What should count as useful (scientific) information?" then identified cases where STS researchers did have a successful, informative relationship with science policy, and from those suggested how STS might become more broadly relevant to science policies through mediating influences that are analogous to the boundary work that sometimes occurs between scientists and decision makers. After this, Center graduate student Marilyn Averill and Center alumni Adam Briggie questioned relevance as a goal and posited that before we progress too far in such a conversation, we must understand that "relevance" is a very contextual idea that depends highly on what consists of a relevant piece of information, and on to whom such information is pertinent.

Matthew Harsh from the University of Edinburgh and Genevieve Maricle then considered how these same issues play out in different settings, specifically in the United Kingdom and the US. Finally, Jane Lehr from Virginia Tech and others put all of these ideas into action in the context of the Public Engagement of Science and Technology for Education model.

The audience raised several challenging questions, and the session initiated a discussion that could be significant if pursued by the participants and others in the STS community. The session had approximately 30 attendees representing several countries.

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Graduate Student News

Since its inception in the summer of 2001 the Center for Science and Technology Policy Research has seen quite a few faces pass through its doors. Our alums are working in a variety of interesting positions at the interface of science and decision making:

- **Shep Ryen** received his Masters in Environmental Studies and has been working for the staff of the U.S. House of Representatives Committee on Science in Washington, D.C. since the summer of 2005.
- **Anne Ruggles** received her law degree after completing an externship at the Center. She recently accepted a position as Executive Director of the Alaska Bird Observatory and moved to Fairbanks where she watches moose from her front porch every morning.
- **Edouard Von Herberstein** received his Masters in Environmental Studies and is working for Glacier Re in Switzerland.
- **Jessica Lowrey** received her Masters in Environmental Studies and is working with the Western Water Assessment in Boulder.
- **Erik Fisher** received his Ph.D. in Environmental Studies and is working as a postdoc at Arizona State University jointly for the Consortium for Science, Policy, and Outcomes (CSPO) and the Center for Nanotechnology and Society (CNS).
- **Adam Briggie** received his Ph.D. in Environmental Studies and is working as a postdoc in the Netherlands at the University of Twente on a project called 'Evaluating the Cultural Quality of New Media.'
- **Joel Gratz** received a Masters in meteorology and policy as well as an MBA and is working at ICAT Managers, a Boulder-based hurricane and earthquake insurance company, in a role that combines both science and business responsibilities.

Project News

Science Policy Assessment and Research on Climate (SPARC)

SPARC recently produced final reports from two of its workshops.



1. Final report from the **“Decision Support and Carbon Cycle Science: Practical Strategies to Reconciling the Supply of and Demand for Carbon Cycle Science”** workshop held in June 2005. From the report:

Participants agreed that there were existing models and experience in the use of scientific information that could be applied to the formation of an effort focusing on usable carbon science. Some of these examples and lessons learned include:

- Start with a “problem-centric” or stakeholder perspective to orient around as research is planned. Such a model is more likely to result in research that meets societal needs rather than beginning from basic science interests.
- Build in a dynamic, two-way relationship that is ongoing between knowledge producers and societal decision makers, or pursue fully-integrated co-production of knowledge. Experience has shown that a mediated approach such as these is more likely to result in useful information that has a greater chance of being used.
- Allow for community creativity in seeking out projects that might provide good pilots for creating usable carbon science.
- Through appropriate metrics and evaluation procedures, ensure that accountability to the goals of usable science is met. Such governance and metrics may be different than the traditional ones usually relevant for basic research.
- Models exist that can be evaluated for their applicability for organizing a usable carbon science effort. Such models include dedicated institutions, regional integrated sciences and assessment projects, boundary organizations, and grant programs.
- Consider how successful usable carbon science efforts might transition to an ongoing, operational status. Do such organizations exist now for carbon? If not, can the function be incorporated into existing organizations?

The complete report can be downloaded at: http://sciencepolicy.colorado.edu/sparc/research/projects/rsd/workshop_report.pdf.

2. Final report from the **“Workshop on Climate Change and Disaster Losses: Understanding and Attributing Trends and Projections”** held in May 2006. From the report:

Project News Continued

Consensus (unanimous) statements of the workshop participants:

1. Climate change is real, and has a significant human component related to greenhouse gases.
2. Direct economic losses of global disasters have increased in recent decades with particularly large increases since the 1980s.
3. The increases in disaster losses primarily result from weather related events, in particular storms and floods.
4. Climate change and variability are factors which influence trends in disasters.
5. Although there are peer reviewed papers indicating trends in storms and floods there is still scientific debate over the attribution to anthropogenic climate change or natural climate variability. There is also concern over geophysical data quality.
6. IPCC (2001) did not achieve detection and attribution of trends in extreme events at the global level.
7. High quality long-term disaster loss records exist, some of which are suitable for research purposes, such as to identify the effects of climate and/or climate change on the loss records.
8. Analyses of long-term records of disaster losses indicate that societal change and economic development are the principal factors responsible for the documented increasing losses to date.
9. The vulnerability of communities to natural disasters is determined by their economic development and other social characteristics.
10. There is evidence that changing patterns of extreme events are drivers for recent increases in global losses.
11. Because of issues related to data quality, the stochastic nature of extreme event impacts, length of time series, and various societal factors present in the disaster loss record, it is still not possible to determine the portion of the increase in damages that might be attributed to climate change due to GHG emissions.
12. For future decades the IPCC (2001) expects increases in the occurrence and/or intensity of some extreme events as a result of anthropogenic climate change. Such increases will further increase losses in the absence of disaster reduction measures.
13. In the near future the quantitative link (attribution) of trends in storm and flood losses to climate changes related to GHG emissions is unlikely to be answered unequivocally.

Policy implications identified by the workshop participants:

14. Adaptation to extreme weather events should play a central role in reducing societal vulnerabilities to climate and climate change.
15. Mitigation of GHG emissions should also play a central role in response to anthropogenic climate change, though it does not have an effect for several decades on the hazard risk.
16. We recommend further research on different combinations of adaptation and mitigation policies.
17. We recommend the creation of an open-source disaster database according to agreed upon standards.
18. In addition to fundamental research on climate, research priorities should consider needs of decision makers in areas related to both adaptation and mitigation.
19. For improved understanding of loss trends, there is a need to continue to collect and improve long-term and homogenous datasets related to both climate parameters and disaster losses.
20. The community needs to agree upon peer reviewed procedures for normalizing economic loss data.



A short brochure can be downloaded at: http://sciencepolicy.colorado.edu/sparc/research/projects/extreme_events/munich_workshop/ccdl_workshop_brochure.pdf.

To download the complete report see: http://sciencepolicy.colorado.edu/sparc/research/projects/extreme_events/munich_workshop/workshop_report.html.

SPARC Presentations:

Nat Logar, Relevant knowledge and user collaboration in the U.S. Department of Agriculture, Beijing, China, Nov. 11.

Lisa Dilling, Terrestrial Carbon Sink Thresholds, Ecothresholds Project meeting, Nov. 9.

Kevin Vranes, Colorado Academy talk on Global Warming/Climate Change and Energy Use, Oct. 24.

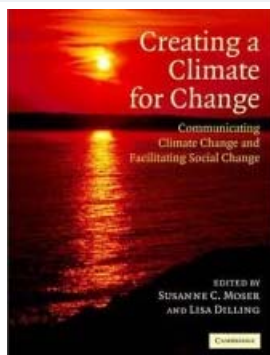
Lisa Dilling, Enhancing Reliability and Usability of Science Information, GSA Specialty Meeting, Sept. 18-20.

Project News

***Creating a Climate for Change:
Communicating Climate Change and Facilitating Social Change***

Lisa Dilling's multi-collaborator project on the effective communication of climate change has resulted in an exciting anthology, due to be published January 31, 2007:

Moser, Susanne C. and Lisa Dilling (eds.). *Creating a Climate for Change: Communicating Climate Change and Facilitating Social Change* (<http://www.cambridge.org/uk/catalogue/catalogue.asp?isbn=0521869234>). Cambridge University Press, in press.



Brief Summary

The need for effective communication, public outreach, and education to increase support for policy, collective action and behavior change is ever-present, and is perhaps most pressing in the context of anthropogenic climate change. This book is the first to take a comprehensive look at communication and social change specifically targeted to climate change.

Creating a Climate for Change is a unique collection of ideas examining the challenges associated with communicating

climate change in order to facilitate societal response. It offers well-founded, practical suggestions on how to communicate climate change and how to approach related social change more effectively. The contributors of this book come from a diverse range of backgrounds, from government and academia to non-governmental and civic sectors of society. Each chapter goes beyond posing problems or discussing the difficulties, and offers constructive suggestions for improving communication and social change efforts. The book concludes that re-envisioning communication strategies and exploring new approaches are necessary if we are to effectively facilitate action on climate change. The book is accessibly written, and any specialized terminology is explained.

Creating a Climate for Change will be of great interest to academic researchers and professionals in climate change, environmental policy, science communication, psychology, sociology, and geography.

For a table of contents see: <http://www.isse.ucar.edu/communication/toc.htm>.

To place an order through Amazon see: http://www.amazon.com/Creating-Climate-Change-Communicating-Facilitating/dp/0521869234/sr=8-1/qid=1163456783/ref=pd_bbs_sr_1/103-3861529-9333464?ie=UTF8&s=books.

Recent Publications

- Fisher, E. and R. Mahajan, 2006. Contradictory intent? US federal legislation on integrating societal concerns into nanotechnology research and development, *Science and Public Policy*, Vol. 33, No. 1, pp. 5-16, http://sciencepolicy.colorado.edu/admin/publication_files/resource-2452-2006.03.pdf.
- Fisher, E., R. Mahajan and C. Mitcham, 2006. Midstream Modulation of Technology: Governance from Within. *Bulletin of Science, Technology and Society*, Vol. 26, No. 6, pp. 485-496, http://sciencepolicy.colorado.edu/admin/publication_files/resource-2482-2006.16.pdf.
- Pielke, Jr., R.A., Gratz, J., Landsea, C.W., Collins, D., Saunders, M., and Musulin, R., 2007. Normalized Hurricane Damages in the United States: 1900-2005. *Natural Hazards Review*, (submitted), http://sciencepolicy.colorado.edu/publications/special/nhd_paper.pdf. Data available at: http://sciencepolicy.colorado.edu/publications/special/normalized_hurricane_damages.html.
- Pielke, Jr., R.A., 2006. Self-Segregation of Scientists by Political Predispositions. *Bridges*, Vol. 11, September, http://sciencepolicy.colorado.edu/admin/publication_files/resource-2473-2006.11.pdf.
- Pielke, Jr., R. A., 2006. The 2006 US Midterm Elections and Science & Technology Policy. *Bridges*, Vol. 12, Dec., <http://www.ostina.org/content/view/1674/630/>.
- Pielke, R.A., 2006. What just ain't so: It is all too easy to underestimate the challenges posed by climate change. Book review of *Kicking the Carbon Habit: Global Warming and the Case for Renewable and Nuclear Energy* by William Sweet, *Nature*, Vol. 443, pp. 753-754, http://sciencepolicy.colorado.edu/admin/publication_files/resource-2477-2006.13.pdf.

Recent Prometheus Blogs

Prometheus (<http://sciencepolicy.colorado.edu/prometheus/>), the Center's science policy weblog, has attracted much attention from the science policy community, academia, and decision makers for its provocative posts. A sample of recent blogs is as follows:

Dec. 13: Dan Sarewitz - Lies We Must Live With (http://sciencepolicy.colorado.edu/prometheus/archives/religion_science/001019dan_sarewitz_lies_.html).

"Dan Sarewitz, a professor at ASU and faculty affiliate at the CU Center for Science and Technology Policy Research, has penned a thought-provoking essay on science and religion in the latest CSPO Newsletter. Here is an excerpt, but do read the whole thing (and bring your thinking cap):

Now the most serious conflicts among humans are all, at root, conflicts about how to balance a variety of moral concerns such as justice, equality, and liberty. So, when scientists argue that the world would be better off without religion, then they are also arguing that humans would be better able to solve their

deepest and most vexing problems in the absence of religion. A slightly different way to make the scientific claim is this: Moral discourse among those who don't believe in ultimate meaning will yield more satisfactory results for society than if such discourse also includes believers..."

Nov. 15: Looking Away from Misrepresentations of Science in Policy Debate Related to Disasters and Climate Change (http://sciencepolicy.colorado.edu/prometheus/archives/climate_change/000990looking_away_from_mi.html).

"For me the most amazing aspect of the repeated misrepresentation of science related to disasters and climate change is not that political advocates look to cherry pick science or go beyond the state of the science. What is most amazing is that in the face of incontrovertible and repeated misrepresentation that the overwhelming majority of scientists, the media, and responsible advocacy groups have remained mute (with a few notable exceptions such as Hans von Storch)..."

Center Staff in the News

Roger Pielke, Jr. was quoted in a 15 November 2006 Nature News article on evidence of 'cherry-picking' in UK politics: UK civil servants accused of warping science: Politicians criticized for 'cherry-picking' evidence (<http://www.nature.com/news/2006/061113/full/444252a.html>), by Jim Giles.



Roger Pielke, Jr. was quoted in a 13 November 2006 Christian Science Monitor article on science and technology issues in Congress: Congress's sci-tech agenda to shift under

Democrats (<http://www.csmonitor.com/2006/1113/p02s01-stgn.html>), by Peter N. Spotts.

Roger Pielke, Jr. was quoted in a 6 November 2006 Marketplace radio broadcast on the 2006 United Nations Climate Change Conference in Nairobi: Low expectations for climate talks (<http://marketplace.publicradio.org/shows/2006/11/06/PM200611066.html>), by Sam Eaton.

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S&T Opportunities

2007-08 AMS/UCAR Congressional Science Fellowship

Are you fascinated by what goes on in Washington, D.C.? Do you understand how Congress and the president make science policy? Would you like to become involved--to make a difference?



Through the AMS/UCAR Congressional Science Fellowship, scientists interested in public policy can spend a year working for a member of Congress or a congressional committee. Each fellow is free to choose from a wide variety of positions within Congress, spending the year on Capitol Hill with more than 30 fellows from other

professional societies. A stipend of \$50,000 is provided, plus up to \$10,000 for moving, travel, and other expenses. The 2007-08 fellowships run from 1 September 2007 to 31 August 2008.

For more details or to apply for the fellowship, please see the AMS Web site below.

Application deadline: 1 February 2007

Contact:

Jack Fellows

UCAR Corporate Affairs

303-497-8655, jfellows@ucar.edu

<http://www.ametsoc.org/atmospolicy/congressionalfellow.html>

S&T Opportunities

IIASA Young Scientists Summer Program 2007: Summer Fellowship in Austria for Graduate Students in Natural and Social Sciences, Math, Policy, and Engineering

Each summer, the International Institute for Applied Systems Analysis (IIASA) near Vienna,



Austria, hosts a selected group of graduate students, primarily doctoral, from around the world in its Young Scientists Summer Program (YSSP). These students work closely with IIASA's senior scientists on projects within the Institute's 3 theme areas of Natural Resources & Environment, Population & Society, and Energy & Technology. The U.S. Committee for IIASA provides airfare and a modest living allowance for the applicants from American institutions who are selected to participate.

Applications Deadline: 15 JAN 2007

Program Dates: 4 JUNE-31 AUGUST 2007

What is IIASA and what are its program areas?

IIASA is an international institution, supported by the U.S. and sixteen other governments, that engages in scientific research aimed at providing policy insight on issues of regional and global importance. Its suite of programs and initiatives in 2007 will include the following:

Energy and Technology, Land Use and Agriculture, and Population and Society. Detailed information about each program is available on the IIASA Website: <http://www.iiasa.ac.at/>.

Should you apply?

You should consider applying if:

- You are an advanced graduate student at a U.S. University;
- Your field is compatible with ongoing research at IIASA;
- Your research and career would profit from interactions with scientists from all over the world;
- You would like to investigate the policy implications of your work.

How do you apply?

Each applicant must submit the on-line application form, including 2 references and descriptions of research interests. The form can be found at: <http://www.iiasa.ac.at/Admin/YSP/register/index.html?sb=10>.

Questions?

Contact:

Margaret Goud Collins

Program Director for the U.S. Committee for IIASA

National Academy of Sciences

W1010 500 5th St. NW

Washington, D.C. 20001

Phone: (508) 548-2502

Fax: (202) 334-2231

Email: mcollins@nas.edu

S&T Opportunities

DISCCRS III Symposium Interdisciplinary Climate Research Network for New Ph.D. Graduates

After years of specialization, today's Ph.D. graduates embark

on a multidimensional trajectory that requires a breadth of knowledge sufficient to make connections among distant disciplines, and depends on development of a global network of colleagues from divergent backgrounds.



DISCCRS (pronounced "discourse") was founded in 2002 to meet the specific challenges involved in building successful interdisciplinary careers dedicated to understanding climate change and mitigating its impacts.

New Ph.D. scholars from the natural and social sciences, humanities, mathematics, engineering and other fields are invited to join the DISCCRS network and apply for the DISCCRS symposium.

RESOURCES: Web Page: <http://disccrs.org>

The public web page introduces new scholars to the global community and provides resources for early-career development.

It includes:

- Program information;
- Network Registration form;
- Registered Ph.D. Dissertation abstracts;
- Climate-change resources;
- Career-development resources; and
- Symposium application instructions.

ELECTRONIC NEWSLETTER

A weekly newsletter highlights new resources and transmits time-sensitive material to DISCCRS registrants.

The weekly newsletter includes:

- Research, education and policy updates;
- Job and other timely announcements.

Newsletter Submissions: Send a brief summary (no attachments) to: disccrs@whitman.edu

SYMPOSIA

In years to come, a familiarity with diverse specialties and connections among colleagues in disparate fields will increasingly determine the success of young professionals and

the advancement of our knowledge.

DISCCRS Symposia provide an international forum where recent doctoral recipients can expand their scientific and professional outlook and forge lifelong, interdisciplinary collegial relationships with their peers. Graduates from doctoral programs throughout the world and spanning the full spectrum of disciplines are eligible to apply. Thirty-six scholars will be selected each year. During the weeklong event:

- The 36 scholars will present their research in both oral and poster format;
- Four veteran climate-change researchers from the natural and social sciences will present and discuss their research and share insights on building successful collaborative interdisciplinary research projects and careers;
- Communication skills will be developed in the context of interchange across disciplines and beyond academia;
- A Representative from the U.S. National Science Foundation will describe programs and proposal review; and
- Proposal-development skills will be practiced in interdisciplinary teams.

Travel and on-site expenses are covered through grants from the U.S. National Science Foundation. Symposia are currently funded for 2007 and 2008.

DISCCRS III SYMPOSIUM

Sept. 10 - 17, 2007

Hawai'i Island*

Symposium Eligibility

Ph.D. completed between April. 1, 2004 - March 31, 2007 in any discipline.

Selection will favor applicants who plan to engage in interdisciplinary research careers in any subject within or relevant to climate change and its impacts.

A committee will select 36 participants based on the submitted applications.

Application Deadline April 30, 2007

HOW TO PARTICIPATE

Visit: <http://disccrs.org>

Contact: C. Susan Weiler

disccrs@whitman.edu

*Hosted on Hawai'i Island by the Kohala Center for Pacific Environments <http://www.kohalacenter.org>.

About Us

Ogmios 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.

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