

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



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

Ogmius Exchange Transitions By Kevin Vranes

Letter to the Editor

Science Policy Development: Acknowledging the Public's Reluctance to Participate

Research Highlight

Co-producing useful information for climate policy: Informing science policy research for improved decision-support By Elizabeth McNie

Center News

Roger Pielke, Jr. testifies before Congress about climate change	
Roger Pielke, Jr., awarded Eduard Brückner Prize	
• No Se Nasa Weblog	e
• Prometheus	e
• Center Briefings	e
• 2005-2006 Center Annual Report	e
• Fall Noontime Seminar Schedule	7
• Center Staff Participate in Gordon Research Conference	2
Project News	7
New Publications	8
Center Staff in the News	8
S&T Opportunities	9
About Us & Donation Information	1

Introduction to Ogmius Exchange

evin Vranes joined the

Center in January 2006. Kevin's background is not

1

1

2

3

atypical of individuals working in the science policy field. As an undergraduate he studied geology, water and dams. While working on

his Ph.D. at the Lamont-Doherty Earth Observatory in physical oceanography and climatology, he took policy classes at the School for International and Public Affairs and



later became a Fellow of the Public Policy Consortium. He served as the 2003 - 2004 Congressional Science Fellow of the American Geophysical Union, working as a legislative fellow for U.S. Senator Ron Wyden (D-OR). Kevin taught undergraduate and graduate courses in geology, oceanography, climate change, and science policy in the Geology Department at the University of Montana (Missoula) before joining the Center as a CIRES Visiting Fellow.

In the following essay Kevin describes his path to science policy.

Ogmius Exchange Transitions

t seems inevitable: as society grows increasingly complex, the efficiencies provided society by dividing labor demand ever more specialization. This holds not just for factories, computers and medical fields, but for the Earth sciences as well. A quick comparison between any 2006 issue of the Journal of Geophysical Research and any 1966 issue of the same will show just how specialized the Earth sciences have become in four decades.

Increased specialization means that anybody wishing to study the Earth sciences at a high level must, well, specialize. And deeply.

The problem is, even though I am certainly a scientist-type, I am not a specialist. I've always been more comfortable considering myself a sort of jack-of-all-trades-master-of-none Earth scientist than a "number one expert in the submicroparameterization of Lagrangian vector fields in mesoplutonic cryospheres" type. Even while working toward a Ph.D. in physical oceanography, which required considerable specialization, I had an eye toward the bigger picture.

For me, the "bigger picture" meant not, "how does the global ocean and climate system work?" but, "why do we care how the ocean works?" And, "what does society get out of prioritizing one science over another?" That kind of thinking is your one-way ticket out of specialized research in the physical sciences and

Page 2

Ogmius Exchange Continued

into science policy. So, realizing that I wanted to understand issues in both fields, I stuck it out in the physical sciences and planned my eventual transition to science policy.

To be sure, the study of science policy requires as much specialization as any academic field. The difference is that within science policy I can look at two universes simultaneously and thus be a bit of generalist. I can study science in a wide sense while also studying the "whys" of our society's approach to science. This bimodal study has presented me with challenges and opportunities – a set of challenges and opportunities quite different than what I faced upon completion of my Ph.D.

Finishing graduate school in 2003, I sailed two degrees in latitude south to Washington D.C., jumped off the research ship and landed as the Congressional Science Fellow of the American Geophysical Union. I served as a senior staffer and science advisor to a Senator from the Pacific Northwest. Fortuitously, my boss held seats on all three authorizing committees with jurisdiction over science issues. There the opportunities and challenges were quite clear:

- A chance to learn the legislative process and congressional decision-making first-hand, from the inside-out.
- A chance to interact with major movers and shakers throughout the political and policy worlds.
- A chance to get my phone calls answered or messages returned immediately by powerful people.
- A chance to write legislation and thus have a direct influence on national policy (hint: see PL 108-360).

Heady stuff for an anonymous former academic.

The challenges were just as clear: Know your boss' goals and priorities and be willing to subordinate yours to his. Understand how the interactions and discourse in politics are nothing like in academic science (while both can be quite antagonistic, they are antagonistic in very different ways). Be willing to be a mile-wide and inch-deep rather than the converse. Transition from the grad student uniform of sandals and ratty t-shirts to wearing a suit everyday. Don't screw up.

Now that I've come back to academia there are still broad challenges and opportunities, but here they are the array familiar to all academics: the opportunity and the challenge of being original and creative, of setting your own goals and priorities, and of being relevant.

In coming from science into science policy via politics, however, I recognize a unique set of possibilities. Using your inside knowledge, can you still influence the process, this time from the outside? If so, can you teach those unfamiliar with inside-politics to also have an influence? Can you live in both worlds, speaking two languages, and be successful in either? Can you convince traditional scientists to pay attention to decision-making and convince decision-makers to listen to scientists?

Perhaps most challenging is that the academia-to-politics-toacademia experience has pulled me into a new shape, one possibly incompatible with the traditional methods of academic research. While I distrusted the ephemeral nature of how the political machine processes important issues, I came to love the fast pace (minutes versus years). I also came to appreciate being a decision-maker (or close to one) rather than somebody who studies decision-makers. Despite these heady political-side benefits, by rationally examining situations academia provides ultimate flexibility and the chance to have long-lasting effects on thoughts and decisions.

As the political process leaves little time for rational, detailed examinations into issues, the dichotomy between academia and politics is clear and the choice of emphasis black-andwhite. For now I have chosen the rational, detailed side. Tomorrow? We'll see.

> Kevin Vranes vranes@colorado.edu

Letter to the Editor

gmius received the following response to an article in our Spring 2006 edition, Reproductive medicine, politics and religion in Italy: Reflections on the 2005 referendum (<u>http://</u> <u>sciencepolicy.colorado.edu/ogmius/archives/issue 15/</u> <u>reproductive medicine.html</u>) by Gilberto Corbellini. Its author, Daniel Alberts, describes how the experience of the Michigan Wind Working Group supports Corbellini's suggestion that "the percentage of Italians who went to the

polls for the referendum corresponds to the percentage of people who understand how the scientific method works."

.....

Science Policy Development: Acknowledging the Public's Reluctance to Participate

n the Spring 2006 issue of Ogmius, Gilberto Corbellini wrote about Italy's referendum on medically assisted fertilization. After detailing the political fight over the

Letter to the Editor Continued

issue and voters' response, Corbellini noted that "the percentage of Italians who went to the polls for the referendum corresponds to the percentage of people who understand how the scientific method works." Although Corbellini dismissed his own observation as chance, Michigan experienced a similar response when we asked for public help developing wind energy policy. Examined together, the Italian and Michigan cases seem like more than a coincidence. They seem to indicate a widespread phenomenon with an important implication.

The Michigan Wind Working Group (MWWG) had been debating how to address turbine noise and potential wildlife impacts in the Michigan Siting Guidelines for Wind Energy Systems. The highly contentious debate raged for months, and the group showed no signs of reaching agreement. Members of the MWWG thought that including more stakeholders, educating them on the issues, then asking their opinions would lead to a resolution. So they asked Lawrence Technological University (LTU) to conduct educational seminars and Delphi Inquires into both issues.

Our Inquiry into turbine noise started with 33 participants, but only 5 had visited a wind farm, and only 1 had prior experience with noise ordinances. The seminars failed to educate the participants sufficiently for them to feel comfortable making decisions on the issue, and only 11 participants (40%) continued to the second iteration.

Our Inquiry into wildlife issues included more subject matter experts and yielded better participant retention. This Inquiry started with 15 participants, but 13 possessed a degree or professional experience in wildlife conservation. Nine participants (69% of experienced) continued through the second iteration. This result suggested a strong correlation between prior experience and participation. prior knowledge of a subject contributed to participative capacity, i.e. willingness and ability to participate. Corbellini's observation that voter turnout in the Italian referendum correlated with scientific understanding suggests that we may also draw broader conclusions for democratic processes in general: People may only be willing to participate in public policy development when they have knowledge of the subject and confidence in their knowledge.

This conclusion has at least one important implication. As our society integrates more technological advances, more and more public policy will relate to those advances. But with our public education lagging behind these developments, fewer and fewer people are being prepared to participate in our democratic processes. What happens when only a few people are capable and willing to participate in democratic processes? Do we accept that being governed by éminences grises might be necessary? Given most people's knee-jerk reaction to any suggestion that democracy isn't the greatest form of government, this seems unlikely.

But if we want people to participate in a technological and democratic society, we must prepare them for it. This means more than just increasing funding for scientific education. Our schools must start teaching all students how to continually educate themselves on developing technology and participate in developing the policies related to that technology.

> Daniel J. Alberts <u>dja1701@nethere.com</u>

The surveys and final research report can be found here: http://www.ltu.edu/engineering/mechanical/delphi_wind.asp

Wikipedia entry on the Delphi method: <u>http://en.wikipedia.org/wiki/Delphi technique</u>

I analyzed our participation and concluded that participants'

his edition of Ogmius features a Research Highlight describing the work of Environmental Studies Ph.D. candidate Elizabeth McNie (<u>http://</u> <u>sciencepolicy.colorado.edu/</u> <u>about_us/meet_us/</u> <u>elizabeth_mcnie/</u>), who works with the Center on science policy issues.

Research Highlight

Co-producing useful information for climate policy: Informing science policy research for improved decision-support

merica's de-facto science policy can be traced back to Vannevar Bush's essay, Science: The Endless Frontier, describing Bush's notion of an ideal 'social contract' between science and society. In order for science to serve society, Bush argued that it was necessary to "remove the rigid controls" that had been in place during World War II, "and recover freedom of inquiry and that

Research Highlight Continued

healthy competitive scientific spirit so necessary for expansion of the frontiers of scientific knowledge." Only through unfettered research would there be "a flow of new scientific knowledge to those who can apply it to practical problems in Government, in industry, or elsewhere." The National Science Board's Rising Above the Gathering Storm and President Bush's American



Competitiveness Initiative represent the persistence of this assumption.

The Endless Frontier's "flow" of knowledge is often analogized as a 'linear model' because knowledge, resources and scientific information flow one way from basic research to applied research and eventually to society. Many researchers, however, now consider the model outdated because it oversimplifies what is essentially a more complex and dynamic relationship, fails to adequately link science to society, and falls short on informing decision making. Indeed, many researchers point to a 'science-policy gap' that artificially separates science from society, and vice versa, resulting in unnecessary obstacles to effectively linking science with society – a prerequisite for the production of useful information and thus improved decision support.

Major shortcomings of the linear model have led several researchers such as Stokes, Kitcher, and Gibbons to call for new models or relationships between science and society. They offer important propositions about ways in which science can respond to the needs of society by producing more useful information for improved decision support. Taken together, their propositions reflect the values that science can be pragmatic, responding to the needs of society; participative and democratic in nature; and directed toward social needs without sacrificing the value of pure basic research. Bridging the gap between science and society, they suggest, will improve policy outcomes for society. Barring any real-life demonstration, however, these ideas remain engaging, yet untested, propositions that bear little impact on science policy in the United States. An obvious next step in research, therefore, is to test and evaluate these propositions in order to inform science policy research.

One way to explore their validity and effectiveness is to identify organizations premised on such propositions and evaluate their effectiveness. Hence, my dissertation research will explore these questions:

1. Does use-inspired research, produced transparently and with participation by users, lead to the production of

useful scientific information and thus better policy outcomes? This question entails exploring what constitutes 'useful information', and mapping what information is needed, produced, and utilized. I will also explore how stakeholders value the information produced, understanding that information can be useful even if it is not used in the way it was intended.

 How do scientists and users co-produce useful information? This question entails exploring how decisions are made regarding the production, dissemination, selection, evaluation and use of information; understanding the social process between producers of information and users; and in evaluating organizational dynamics.

The Regional Integrated Sciences and Assessments (RISA) program, supported by the National Oceanic and Atmospheric Administration Office of Global Programs, provides fertile ground for exploring these research questions, and thus will be the focus of my dissertation research. The RISA program was created with the aim of improving decision support for climate policy through the production of more useful shortterm climatic information. Each of the eight regional RISA programs is premised on this goal, yet each addresses different research questions relevant to its regional policy concerns. Furthermore, each RISA operates using different approaches to management, research, and stakeholder engagement. I will utilize a case-study and cross-case comparative approach with three RISAS (the Climate Impacts Group in Washington, the Pacific RISA based in Hawaii, and the CLIMAS program in Arizona). These RISAs share enough in common to answer the first research question, yet offer enough difference to also identify best practices in order to construct a 'co-production' toolkit. I will conduct archival research, semi-structured interviews, and utilize Q-sort methodology.

Answering these research questions about information utility and the co-production of information serves two important purposes. First, findings will inform the broader science policy research community about the feasibility and value of use-inspired research, socially robust knowledge, and wellordered science. Greater understanding of these issues could influence priorities in science policy funding, organizational design, and policy making. Second, exploring the organizations' process of co-production and decision making – and comparing these data with existing literature – will lead to the production of a 'best practices toolkit' in order to aid other programs seeking to produce use-inspired research. If indeed the RISA approach succeeds in producing useful information for better policy outcomes, then we need to share their process of success with others.

Research Highlight Continued

For more information:

Gibbons, M., 1999. Science's new social contract with society. Nature 402 C81-C82.

Gibbons, M., 2000. Mode 2 society and the emergence of context-sensitive science. Science and Public Policy 27 (3), 159-163.

Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., Trow, M., 1994. The New production of knowledge: The Dynamics of Science and Research in Contemporary Societies, Sage Publishers, London.

Kitcher, P., 2001. Science, Truth, and Democracy, Oxford University Press, Oxford.

Stokes, D.E., 1997. Pasteur's Quadrant: Basic Science and Technological Innovation. Brookings Institution Press, Washington D.C.

> Elizabeth McNie Elizabeth.McNie@colorado.edu

Center News Roger Pielke, Jr., testifies before Congress about climate change



oger Pielke, Jr., testified before the House Committee on Government Reform on July 20. The following is an abstract of his testimony:

The main message of my testimony is that the questions about what actions on climate change make sense in the

short –term ... remain largely unanswered, and that 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 – both mitigation (focused on modulating future climate via greenhouse gas emissions) and adaptation (focused on managing the impacts of climate events by increasing resilience and reducing vulnerabilities) -- have both longterm and short-term effects. To date climate policy has focused primarily on the long-term, and so too has



research supported to inform 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 oversight of the shortterm is the intellectual gerrymandering of the climate change issue at the international level to focus extremely narrowly on greenhouses gases 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 the short term as well as long term.

See Pielke, Jr., R.A., 2006. Statement to the Committee on Government Reform of the United States House of Representatives, Hearing on Climate Change: Understanding the Degree of the Problem, 20 July, <u>http://</u> <u>sciencepolicy.colorado.edu/admin/publication_files/</u> <u>resource-2466-2006.09.pdf</u>.

Center News Roger Pielke, Jr., Awarded Eduard Brückner Prize

oger Pielke, Jr., was awarded the Eduard Brückner Prize for outstanding achievement in interdisciplinary climate science. He is the third recipient of the prize following historian Christian Pfister (2000) and oceanographer Ernst Maier-Reimer (2003). The



Prof. Eduard Brückner 1862-1927

prize is awarded every third year. Pielke will be awarded the prize in October at the upcoming Deutsche Klimatagung (German Climate Conference) in Munich. For more information (in German) visit this website (<u>http://w3g.gkss.de/staff/storch/brueckner.pfister.htm</u>).

Center News No Se Nada Weblog

evin Vranes, our CIRES Visiting Fellow,



writes a highly entertaining and informative weblog, No Se Nada (<u>http://scienceblogs.com/nosenada/</u>), that covers science policy among other subjects. Here's how Kevin describes it: "I post on science and culture, science and politics, anything within the Earth sciences but especially issues surrounding climate change and surrounding natural hazards/disasters, space and NASA, internet and computer technology, energy, and a few other topics...The name means "I don't know" in Spanish and is just my attempt to get across a philosophy that I don't know everything, there are a lot of good ideas out there and I'm trying to sort them all out same as everybody."

Center News Prometheus



Recent posts in Prometheus (<u>http://</u> <u>sciencepolicy.colorado.edu/prometheus/</u>):

- Politics of Pluto <u>http://sciencepolicy.colorado.edu/prometheus/</u> <u>archives/space_policy/000918politics_of_pluto.html</u>
- Climate Mitigation and Adaptation in India, <u>http://</u> <u>sciencepolicy.colorado.edu/prometheus/archives/</u> <u>climate_change/000914climate_mitigation_a.html</u>
- Revisiting an old Steve Schneider Quote, <u>http://</u> <u>sciencepolicy.colorado.edu/prometheus/archives/</u> <u>science_policy_general/000913revisiting_an_old_st.html</u>

Center News Center Briefings

he Center began sending out periodic email briefings to thousands of science and technology policy decision makers in Washington, D.C. and across the world earlier this year. The briefings can be found here (<u>http://</u> sciencepolicy.colorado.edu/outreach/cstpr briefings.html). To receive notices of future Center briefings, please join our mailing list (<u>http://sciencepolicy.colorado.edu/mailman/</u> listinfo/cstpr briefing/).

Center News 2005–2006 Center Annual Report

he 2005-2006 annual report of the CIRES Center for Science and Technology Policy Research is now available online at: <u>http://</u> <u>sciencepolicy.colorado.edu/</u> <u>about_us/</u> <u>annual_report_2006.pdf</u>.



The Center had another exciting year with many notable accomplishments. The annual report provides a detailed overview of our research, education and outreach activities.

For an up-to-date view of our activities please consult our web site at: <u>http://sciencepolicy.colorado.edu/</u>.

Center News Fall Noontime Seminar Schedule

he Center continues its exciting noontime seminar series this fall with the following upcoming talks. All talks, which are free and open to the public, take place at the Center, 1333 Grandview Ave., Boulder. (For directions: <u>http://sciencepolicy.colorado.edu/</u> <u>about_us/find_us.html</u>).

Sept. 25, Jana Milford, CU Environmental Engineering, "Dealing with Uncertainty in Regulatory Applications of Air Quality Models"

Oct. 9, Genevieve Maricle, ENVS Graduate Student, "Shaping Science: The Role of Science Studies in Policy"

Oct. 18, Sarah Krakoff, CU Law, "Climate Change, Morality and Law"

Oct. 30, Carl Koval, CU Energy Initiative, "CU's New Energy Initiative"

Nov. 13, Michael Zimmerman, CU Center for Humanities and the Arts, "Outline of an Integral Ecology"

Nov. 20, Juan Bautista Bengoetxea, visiting scholar at the Colorado School of Mines, "Science and Technology Studies in Spain"

Dec. 4, Lisa Keranen, CU Communication, "Public and Technical Argument in Science-Based Controversies"

The schedule is subject to change. Check our speakers website (<u>http://sciencepolicy.colorado.edu/outreach/center_talks.html</u>) for up-to-date information.

Center News Center Staff Participate in Gordon Research Conference

he Center had a significant presence at the recent Gordon Research Conference on Science and Technology Policy (<u>http://</u>

www3.utsouthwestern.edu/ethics/STP-GRC.htm) in Big Sky, Montana. Rad Byerly gave a talk titled "What are the issues involved with science for policy vs policy for science?" Roger Pielke, Jr. discussed "Decision making in a world of uncertainty," and Lisa Dilling spoke about "Implications of mismatched supply and demand for climate science." Center affiliates Paul Komor and Dan Sarewitz also gave presentations, and several of the Center's graduate students presented posters.

Project News Science Policy Assessment and Research on Climate (SPARC)

n May 2006, Roger Pielke, Jr. and Peter Peter Höppe of the Geo Risks Research Department of Munich Re

organized a workshop (http://



sciencepolicy.colorado.edu/sparc/research/projects/ extreme_events/munich_workshop/) in Germany, sponsored by Munich Re, the U.S. National Science Foundation, the Tyndall Center for Climate Change Research, and the GKSS Research Center, to bring together a diverse group of international experts in the fields of climatology and disaster research. Thirty-two participants from 13 countries attended the two day workshop. They were selected for their high level of competence as well as their representation of a wide range of different attitudes toward the subject (although all agree that anthropogenic climate change is a concern). "White papers" from 25 participants were submitted in advance and formed the basis of the discussions. The workshop was organized in 4 sessions:

- 1. Trends in extreme weather events
- 2. Trends in damages
- 3. Data issues extreme weather events and damages
- 4. Syntheses discussion

The focus of the workshop was on two questions:

- What factors account for increasing costs of weather related disasters in recent decades?
- What are the implications of these understandings, for both research and policy?

In the syntheses session the discussion was focused on finding

Project News Continued

consensus positions among the participants on statements about the attribution of disaster losses and the policy implications. The 20 consensus statements can be found in the workshop executive summary (<u>http://</u> <u>sciencepolicy.colorado.edu/sparc/research/projects/</u> extreme events/munich workshop/workshop report.pdf).



Specific views of individual participants can be found in their white papers, which each was given the opportunity to revise following the workshop.

SPARC Presentations

Lisa Dilling, Communicating about climate change, NOAA Research Outreach Workshop, June 13.

Lisa Dilling, Implications of mismatched supply and demand for climate science, Gordon Research Conference on Science and Technology Policy, August 13-18.

Roger Pielke, Jr., Decision making in a world of uncertainty, Gordon Research Conference on Science and Technology Policy, August 17.

New Publications

Pielke, Jr., R. A. 2006. Seventh Annual Roger Revelle Commemorative Lecture: Disasters, Death, and Destruction: Making Sense of Recent Calamities, Oceanography, 19:138-147, (<u>http://www.tos.org/oceanography/issues/</u> <u>issue_archive/issue_pdfs/19_2/19.2_pielke.pdf</u>).

Pielke, R.A., Jr., 2006. How to Break up NASA. Bridges, Vol. 10, June, (<u>http://sciencepolicy.colorado.edu/admin/</u>

publication files/resource-2459-2006.08.pdf).

Pielke, R.A., Sr., and R.A. Pielke, Jr., 2006. Climatology Between Science and Politics (<u>http://</u> <u>sciencepolicy.colorado.edu/admin/publication_files/</u> <u>resource-2467-2006.10.pdf</u>), Heartland: Eurasian Review of Geopolitics, 2, pp. 59-63.

Center Staff in the News

oger Pielke, Jr., was quoted ir the June 26 Rocky Mountain News (<u>http://</u> <u>www.rockymountainnews.com/</u>

<u>drmn/local/</u>

article/0,1299,DRMN 15 4801552,00.html) about a recent paper by NCAR scientists

claiming global warming provided much of the ocean heat that fueled last year's record-setting hurricane season. Pielke stated the study is solid "but does not provide any smoking gun or final word on the hurricane issue...The debate among the climate community will still be ongoing, I'm sure, after this paper's digested," Pielke said.

Roger Pielke, Jr.'s testimony from a recent congressional hearing was quoted in a July 28 TCS Daily (<u>http://</u>

www.tcsdaily.com/article.aspx?id=072806D) article:

What is stalling [action on climate change], as Pielke noted, is that "any conceivable emissions reductions policies, even if successful, cannot have a perceptible impact on the climate for many decades. Consequently, costs ... are borne in the near term and benefits related to influence the climate system are achieved in the distant future."

Roger Pielke, Jr. was quoted in the September 8 Chronicle of Higher Education article (<u>http://chronicle.com/weekly/v53/i03/03a01001.htm</u>) on the recent congressional attention on the "Hockey Stick graph". Pielke stated "If the case for climate change is broad and deep, which I think it is," he says, "then the IPCC was wrong in choosing to let the hockey stick stand for a lot of that symbolically."

S&T Opportunities

Climate Decision Making Postdoctoral Research Fellow

ostdoctoral research fellow sought to work as part of a National Science Foundation (NSF) supported center on



Climate Decision Making (<u>http://cdmc.epp.cmu.edu/</u>). Candidate should have a good understanding of climate change and its impacts. Skill in policy analysis and modeling, as well as knowledge of economics, insurance and financial markets, and behavioral social science is also very desirable. This position will involve collaboration between investigators in Engineering and Public Policy at Carnegie Mellon University (<u>http://www.epp.cmu.edu/</u>), the Risk Management and Decision Processes Center at Wharton, University of Pennsylvania (<u>http://grace.wharton.upenn.edu/risk/</u>) and the Institute for Resources Environment and Sustainability at the University of British Columbia (<u>http://www.ires.ubc.ca/</u> <u>nav.php?page=about</u>). Location open for discussion but some travel between institutions will be necessary.

Please send your resume, references and one or two examples of your best writing to:

Barbara Bugosh Center Administrator Carnegie Mellon University 129 Baker Hall Pittsburgh, PA 15213

IIASA's Energy Research Program Senior Program Officer and Research Assistant

he International Institute for Applied Systems Analysis (IIASA) is located just outside Vienna, Austria. IIASA is an independent, international institution, supported by the U.S. and sixteen other governments, that engages in scientific research. The National Academy of Sciences serves as the U.S. National Member Organization. More information about the Institute is available on its web site (<u>http://www.iiasa.ac.at</u>). Detailed job descriptions available at:

Program Officer (<u>http://www.iiasa.ac.at/Admin/PE/</u><u>Jobs/2006-02-ene-gea-progoff.html</u>) and Research Assistant (<u>http://www.iiasa.ac.at/Admin/PE/</u><u>Jobs/2006-03-ene-gea-ra.html</u>).

Questions about the positions should be directed to Walter Foith, the head of IIASA's Human Resources Department (<u>foithw@iiasa.ac.at</u>). General questions about IIASA and about U.S. participation in the Institute can be directed to:

> Margaret R. Goud Collins, PhD US Committee for IIASA, National Academies Policy and Global Affairs The National Academies, W541 500 Fifth Street, NW Washington, DC 20001 phone: (508)548-2502 email: mcollins@nas.edu http://www.iiasa.ac.at http://www7.nationalacademies.org/usnciiasa/ index.html

 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
 • Interests and Needs
 • Organization

 • Email Address
 • How you heard about Ogmius

S&T Opportunities

Christine Mirzayan Science and Technology Policy Graduate Fellowship Program, Washington, D.C.

his Graduate Fellowship Program of the National Academies consisting of the National Academy of Sciences, National Academy of Engineering, Institute of Medicine, and National Research Council—is designed to



National Research Council—is designed to engage graduate and postdoctoral students in science and technology policy and to familiarize them with the interactions among science, technology, and government. As a result, students in the fields of science, engineering, medicine, veterinary medicine, business, and law develop essential skills different from those attained in academia, which will help them make the transition from being a graduate student to a professional.

We are pleased to announce that applications are now being accepted for the 2007 sessions. The program will comprise three 10-week sessions:

> Winter: January 8 through March 16 Summer: June 4-August 10 Fall: September 17 through November 21

Graduate students and postdoctoral scholars and those who have completed graduate studies or postdoctoral research within the last 5 years are eligible to apply. Candidates should submit an application and request that a mentor/adviser fill out a reference form. Both forms are available on the Web (http://national-academies.org/policyfellows).

The deadline for receipt of application material is November 1 for the winter program, March 1 for the summer program, and June 1 for the fall program. Candidates may apply to all three programs concurrently.

Additional details about the program and a link to join the mailing list are available on the Web site. Questions should be directed to: <u>policyfellows@nas.edu</u>.

A sampling of comments from alumni about the impact of the program:

"This is an important career building opportunity for people interested in the scientific community outside academia. Even if you plan to pursue a traditional academic track, seeing science from a policy perspective is very enlightening. There is something valuable in this experience for first year grad students to recent PhD's. Come with an open mind and expect to learn more than you bargained for."

"This program will open your mind to a world rarely envisioned from the confines of laboratory bench work. I learned an immeasurable amount about the policy and politics behind science and after the fellowship opens your mind, it opens career doors."

"Just ten weeks in the S&T policy world in DC substantially broadened my perspective on how I can use my engineering background to positively impact our society. I return to graduate school recharged about the value of advanced education, and more confident about my decisions to pursue studies that blend the boundaries of engineering and the humanities. I feel like I have much new knowledge and understanding to share with my fellow graduate students as well as my professors. No matter what field of study you are pursuing, there is no reason not to apply for a policy fellowship. By seeing the connections between your academic field and the public policy arena, you will find many new opportunities for future studies or careers. You will be enriched as a person, as a public citizen, and as a member of an academic community."

S&T Opportunities

Call for Posters: 2007 AAAS Annual Meeting 15-19 February • San Francisco

he extraordinary intellectual smorgasbord of the AAAS Annual Meeting makes it the year's most important gathering for the growing segment of the science and technology community interested in the interactions among disciplines and in the influence of science and technology on the human condition.

The AAAS Program Committee has chosen "Science and Technology for Sustainable Well-Being" as the theme for the 2007 AAAS Annual Meeting in San Francisco. The achievement of sustainable well-being depends heavily on economic, sociopolitical, and environmental conditions and processes, and on their interconnections. Progress needs to be thought of in terms of improving the human condition in all of these dimensions — environmental, sociopolitical, and cultural as well as economic — and sustainability should be thought of as making these improvements in ways and to end points that are consistent with maintaining the improvements indefinitely. This is a challenge not just for developing countries (where large proportions of the population still lack the most basic ingredients of material and social well- being) but also for the industrialized ones (where many of the practices that support the levels of material well-being already achieved are not sustainable in resource and environmental

S&T Opportunities

terms and where widening gaps between rich and poor within countries, and fraying social safety nets, threaten sociopolitical sustainability as well).

As symposium proposals are being developed, the great global issues - health, energy, environment, development, weapons of mass destruction, terrorism - should be at the forefront. Cross-cutting sub-themes to be emphasized include:

- the interactions between science and technology in the quest for sustainable well-being
- policy aspects and issues at the intersection of S&T with sustainable well-being
- international dimensions of the links between S&T and sustainable well-being
- the links between S&T education and sustainable well-being

Related topics being encouraged include the role of

population growth and other demographic change in the threats to sustainability; adequacy of public and private investments in S&T; the role of S&T in the tension between international cooperation and competition; the politics of what science is and is not; content and process in S&T advice for governments; S&T in the development of Asia, Africa, and Latin America; S&T education and literacy in relation to economic competitiveness and democratic governance; the character and role of "sustainability science" and sustainable resource management; NASA's missions to the Moon, Mars, and planet Earth; the Millennium Development Goals and other global goal-setting efforts; and the impacts of urbanization in the context of sustainable well-being.

Poster submission deadline is November 13, 2006. For more information or to register, see: <u>http://www.aaas.org/</u><u>meetings/Annual_Meeting/index.shtml</u>.

S&T Opportunities

Call for Papers Sixth Annual AMS Student Conference: Bridging the Gap Between College and Career

oin in for the Sixth Annual AMS Student Conference and Career Fair, sponsored by the American Meteorological Society, held 13-14 (Sat-Sun) January 2007 as part of the 87th AMS Annual Meeting in San Antonio, Texas.



Registration, hotel, and general information will be posted on the AMS Web site (<u>http://www.ametsoc.org</u>) in mid-September 2006.

In addition to presentations and group discussions featuring both noted professionals and fellow students, students are encouraged to submit papers about a wide range of topics. All accepted abstracts will also be scheduled as a poster. Students should create a poster (reference the AMS "Poster Presentation" guidelines here: <u>http://www.ametsoc.org/</u> <u>meet/speakersupport.pdf</u>) that will be up for display during part of the weeklong annual meeting. Students will not need to formally present their poster but they are encouraged to stand by their poster and answer questions during the 'formal poster-viewing hours', which will be released at a later date.

Abstracts for this conference should cover a wide range of student interest and activities. Suggested topics include overviews of ongoing student research projects and/or student applications of emerging technologies. This year it is especially encouraged for submissions of weather photographs and/or weather videos. Tables can be provided for holding personal laptops during the poster session, however electricity will NOT be available to power your laptop-based slideshow or video. The poster session will be held in conjunction with the 16th Conference on Education's poster session. There may be plenty of space so you can anticipate your abstract to be accepted and receive significant visibility as a poster!

The student conference and career fair is intended for junior and senior undergraduates and first-year graduate students, and will focus on interdisciplinary topics and wide-ranging opportunities in the atmospheric and related sciences. Sessions will include invited speakers from the private, academic, and government sectors. A career fair and networking evening is scheduled to provide a forum for students to personally interact with professionals who represent potential employers and graduate institutions.

Please submit your abstract electronically via the Web by 16 October 2006 (refer to the AMS Web page at <u>http://</u><u>www.ametsoc.org</u> for instructions). There is no abstract fee for the student conference. When completing the submission form, please note payment by purchase order, and indicate "Student Conference" in the box marked "Purchase Order Number". This will allow you to proceed with your submission without payment information. Authors of accepted presentations will be notified via e-mail in late-October.

For additional information please contact the program chairpersons, Doug Miller, University of North Carolina-Asheville, <u>dmiller@unca.edu</u> or John Nielsen-Gammon, Texas A&M Univ, <u>n-g@tamu.edu</u>.

Page 12

Ogmius is the newsl	etter of the Center for Scie	About Us nce and Technology Policy Rese	earch which is published four
times a year. The C	enter is within the Coopera	ative Institute for Research in En	nvironmental Sciences (CIRES)
at the University of	Colorado-Boulder. The mi	ssion of CIRES, which was estab	blished in 1967, is to act as a
national resource for	r multidisciplinary research	and education in the environme	ental sciences. CIRES is jointly
sponsored by the Un	iversity of Colorado-Bould	ler and the National Oceanic and	d Atmospheric Administration.
	(http://sciencer	olicy colorado edu/ogmi	ius/)
	Editor: Deger A	Dielles In (nielles@gelered	o odv)
	Managing Editor:	Bobbie Klein (bklein@color	o.edu)
Asso	ciate Editor/Web: A	mi Nacu-Schmidt (<u>ami@cire</u>	es.colorado.edu)
CENTER	FOR SCIENCE AN	D TECHNOLOGY PO	DLICY RESEARCH
and the second se	Univ 1	versity of Colorado/CIRES 333 Grandview Avenue	To Subscribe:
	Bo	Campus Box 488 oulder CO 80309-0488	http://sciencepolicy
		Phone: 303-735-0451	colorado.edu/ogmius/
		Fav: 3U3-/35-15/6	subscriptions html
	http://	sciencepolicy.colorado.edu	subscriptions.item
Center for Sci	http://	rt the Center!	Colorado
Center for Sci and Technology Policy Research Enclosed is my	http://	sciencepolicy.colorado.edu	bution!
Center for Sci and Technolog Policy Research Enclosed is my \$5,000	http:// Support Support our work with gift of: \$1,000 \$500	rt the Center! th your tax-deductible contrib	bution!
Center for Sci and Technolog Policy Research Enclosed is my \$5,000	http://	sciencepolicy.colorado.edu	bution!
Center for Sci and Technolog Policy Research Enclosed is my \$5,000 Please use my gift for Education for	http://	sciencepolicy.colorado.edu rt the Center! th your tax-deductible contrib \$250 \$100 e & Technology Policy Res Director's discretionary	bution!
Center for Sci and Technology Policy Research Enclosed is my \$5,000 Please use my gift f Education f Endownment fu	http://	sciencepolicy.colorado.edu rt the Center! th your tax-deductible contrib \$250 \$100 e & Technology Policy Res Director's discretionary r Pielke (<u>pielke@color</u>	bution!
Center for Sci and Technology Policy Research Enclosed is my \$5,000 Please use my gift f Endownment fu Please make checks	http://	sciencepolicy.colorado.edu rt the Center! th your tax-deductible contrib \$250 \$100 e & Technology Policy Res Director's discretionary r Pielke (<u>pielke@color</u> undation (<u>be sure to incl</u>	bution!
Center for Sci and Technolog Policy Research Enclosed is my \$5,000 Please use my gift f Education f Endownment fu Please make checks I would like to make	http://	sciencepolicy.colorado.edu rt the Center! th your tax-deductible contrib \$250 \$100 & Technology Policy Res Director's discretionary r Pielke (<u>pielke@color</u> undation (<u>be sure to incl</u> : Card:	bution!
Center for Sci and Technolog Policy Research Enclosed is my \$5,000 Please use my gift f Endownment fu Please make checks I would like to make VISA	http://	sciencepolicy.colorado.edu rt the Center! th your tax-deductible contrib \$250 \$100 s & Technology Policy Res Director's discretionary r Pielke (pielke@color undation (be sure to incl : Card: [] American Exprese	bution!
Center for Sci and Technology Policy Research Enclosed is my \$5,000 Please use my gift f Endownment fu Please make checks I would like to make VISA Card Number	http://	rt the Center! rt the Center! th your tax-deductible contrib \$250 \$100 \$250 \$100 \$250 \$100 \$400 \$250 \$100 \$400 \$250 \$100 \$100 \$250 \$100 \$250 \$100 \$100 \$250 \$100 \$100 \$250 \$100 \$100 \$250 \$100 \$1	bution!
Center for Sci and Technolog Policy Research Enclosed is my \$5,000 Please use my gift f Endownment fu Please make checks I would like to make VISA Card Number Send your gift to	http://	rt the Center! rt the Center! th your tax-deductible contrib \$250 \$100 \$250 \$100 \$250 \$100 \$250 \$100 \$250 \$100 \$100 \$250 \$100 \$250 \$1	bution! Descriptions.num Fourion! Other earch #01-22744 y fund rado.edu) ude this form) OR ess Discover ame as it appears on card
Center for Sci and Technolog Policy Research Enclosed is my \$5,000 [] Please use my gift f Endownment fu Please make checks I would like to make VISA Card Number Send your gift to	http://	sciencepolicy.colorado.edu	bution!
Center for Sci and Technology Policy Research Enclosed is my \$5,000 [] Please use my gift f Endownment fu Please make checks I would like to make VISA Card Number Send your gift to	http://	sciencepolicy.colorado.edu	bution!