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Ogmius Exchange

Katrina, Acts of God, and Acts of People

Editor's note: The companion piece of David Goldston, Republican Chief of Staff for the House Committee on Science, to Bob Palmer's July 2005 Ogmius article "Science Policy: The Victim of Partisan Politics" (http://sciencepolicy.colorado.edu/ogmius/archives/issue_12/ogmius_exchange.html) will appear in the Winter 2006 edition of Ogmius.

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Post-Katrina policy is being muddled with too much vague talk of "natural disasters" and "acts of God."



Disasters are catastrophes affecting people. A hurricane, flood, earthquake or wildfire is a disaster only where there are people present. The American Heritage Dictionary defines disaster as an event causing great distress -- to people. Storms in remote seas and deserts, or wildfires in forests where there are no people, are not disasters. Furthermore, these events do their worst damage where nature has been man-handled; they become truly catastrophic where people have made landscapes un-natural. It is dishonorable to lay off on the Almighty responsibility for the actions of people. And stupid, as well. Only by recognizing the causes and consequences of past man-handling can remediation be done economically and effectively.

Sound policy must arise from putting people first, not buildings, and from a chastened determination to reform and restore now-unnatural nature so that it can be safer for people to live in, to work in, to cultivate and to harvest. Unnatural landscapes, heedlessly manhandled, are dangerous; they can kill and injure people. Nature will do what it does; our business is to keep each other safe, whatever it does.

As we go about rebuilding levee-and-sluice-systems, we must recognize, first, that they are artificial and have man-created ill-effects that we should acknowledge and remedy; and second, that those ill-effects have been accumulating over time. Like the sudden effects of Katrina, the slow loss of naturally-productive land and marshes has stricken the poor and defenseless. Many of the people who could not escape from New Orleans were there and destitute because they could no longer make a living in the countryside.

For the people of the Delta, the destruction of the natural wetlands by channeling the Mississippi River, turning it into a sewer and conveyer-belt for commerce, has been destroying a way of life for many years, as Gulf and marshland finfish and shellfish become fewer. Stocks are likely to diminish by another thirty percent in the coming four or five decades. That is a lot of food gone and a lot of jobs gone, too. On the dry land, agriculture will lose a half

million acres as the sea continues to rise against the land, and the punctures in the freshwater marshlands made by barge canals will bring salt-water inward even faster. This salt water will contaminate and kill freshwater species and render undrinkable water sources for humans. Some of this is inevitable. Some of it is not. It is time to sort out which is which, who gains, who loses.

The loss of the Delta is a slow disaster, and it makes the sudden ones more disastrous. Hurricanes from the Gulf and floods down the rivers will afflict this weakened land, as ever larger hurricanes come from off-shore and the unnatural river becomes ever more dangerous from the land side. Deliberate straightening, narrowing, and dredging have altered the natural action of the river; it has become a fire-hose of continental proportions. But the water that Katrina drove into New Orleans did not come at it from the front, from the straightened, confined, deepened river. It came, instead, from the older river channel, where water oozes to the Gulf through shallow lakes at the city's backdoor. New Orleans is below both the old river and the new, though not below sea level. Not quite yet. That level is steadily rising against it, at a rate of almost a foot each ten years, or eight or nine feet per hundred years. The island of New Orleans and all the rest of the Delta are subsiding for two reasons. The Mississippi River annually empties four hundred million tons of mud into the Gulf of Mexico. Oliver Houck of the Tulane University Law School has been quoted as saying that it would take 200,000 dump trucks every day to convey that much soil. Two hundred thousand dump trucks full of mud, dumped daily on a landscape composed of dirt and sand, will compact that earth and press it down, inviting the sea to move in.

And that sea is warming, expanding, as warming water does, and nursing ever greater storms. The greater the storm, the greater the erosion of the land. Already, the Delta is eroding faster than it did a century ago because of all that channeling and dredging and straightening of the Mississippi – and the land is no longer replenished by the fertile, life-supporting dirt and sand that once were spread across it by many small channels of the river. Instead the great fire hose shoots the silt through one deep, concentrated course. It does not settle, it does not replenish, it does not restore fertility. It spews into the open water of the Gulf its nutrients, its compensating dirt that for millennia replenished that lost to erosion and subsidence. Nowadays it also sends pesticides into the Gulf, killing fish and contaminating water supplies.

And the hose effect also means that the river no longer gradually deposits barrier islands to protect New Orleans from storm surges. Until about 1880 the replenishing of fertility and the creation of islands created a fragile equilibrium. Today, engineers refer to another “poised

situation:” the eerie spectacle of ocean-going barges passing above the land carried by river water held in place by levees. People driving the River Road can see a ship's waterline above the roof-line of their cars. That too, is unnatural. And dangerous. It has a long history of killing people when the poise is broken.



Under French and Spanish rule, levy-building was the private obligation of each landowner who got a grant to operate a plantation along the river. In the year that Louisiana was purchased, however, the United States Army Corps of Engineers was organized. Soon thereafter, steamboats appeared, throwing big wakes against natural levees built by outwash of the river's own sediment, as augmented by the earthen private levees. The Corps became the beneficiary of commercial outrage as great swaths of private levees were swept away in the great floods of 1858, 1862, 1866 and 1867. The Civil War era floods occurred in the full glare of national attention; the Navy was there as well as the Army. So Reconstruction came to have two meanings in the Delta.

After 1874 the Corps began to use steam power to build two levees of concrete, steel, and earth, two almost continuous parallel dams, each a thousand miles long with a river in between that carried barges. After steam power replaced slave power, deep-water navigation came to New Orleans and Baton Rouge. Barge lines became big business, sustaining other big businesses. Sellers of the agricultural products from nearly half the continent, sellers of iron and copper ore, of coal, petroleum, and heavy manufactured goods came to depend upon the Corps, its levees, and its dredges. A levee-industrial complex grew stronger after each successive flood -- 1884, 1897, 1902, 1912, 1913, 1922, and the truly Greatest Flood -- so far -- that of 1927.

The end of the 1920s was the Hoover Era of Great Engineers, when the Mississippi seemed to be becoming “fully engineered.” A giant spillway was built to carry flood waters into Lake Ponchartrain. Hurricanes came and went as commerce on the river thrived. Meanwhile the Delta sickened and shriveled. Twenty-five to thirty-five square miles of it slid below the sea every average year -- a football field every half hour.

That apparent equilibrium, “poised” for trouble, was set in its fragile state not by acts of God but by acts of man, making

Ogmios Exchange Continued

Louisiana more dangerous, not less. And the number of people exposed to its dangers is much larger than it was five thousand years ago when its wary inhabitants began mounds -- artificial hills -- on its vast watery plain. On some of those mounds, towns and temples were constructed. They were manifestly safer situations for such precious buildings than the marshland below. (The earliest French maps of the Delta show many of these.) Some of those places of safety and of celebration of human interaction with nature itself, in the vast, flat Delta, were built about the time the first large town was laid out on one of the fingers of higher ground running between river channels into the sea. Sometime before 1700 it was engulfed by a hurricane, though it was still recalled by the Indians building New Orleans in the 1720s as “Balbansha” – big city. When the European planters came, some constructed their houses on the mounds as far upriver as Baton Rouge and Natchez, giving their plantations names such as “Monte Sano” and “Belmont,” and prudently retiring to their summits when the floods came.

The Spaniards and French were not ready at first to accept the risks of the Delta itself. Their maps showed the site of New Orleans as available, and strategic, for two hundred years before they put a settlement there. The first French villages were in Texas, Mississippi, and Alabama. Natchez, Natchitoches, Biloxi, and Mobile were all thriving before 1719. Finally in that year the managers of the Company of the Indies, operating Louisiana for King Louis of France, could no longer resist the strategic value of a fort on the portage between the two courses of the river, the new, deep, and most obvious one in front, and the old, now shallow, one behind, through Lake Ponchartrain. That portage left the riverbank, traversed the boggy top of its natural levee, descended to cross a marsh, and up another natural levee to the other river’s wide spaces or lakes.

A town built there would be important but dangerous. It has been, all along, ever since its founders built up the levees against the water at the same time as their fortifications against Indians, hostile Europeans, and rebellious slaves. Levee and town went together from the first day of the life of New Orleans; there has not been a moment when protecting the population from flood was not inherent in the existence of a town in a swamp between two rivers. As if to remind its founders of that necessity, three years after the founding of New Orleans a hurricane wiped out those parts of it still vulnerable to flooding. The port has grown. The city has grown with it. But the people have not been protected. All discussion of “reconstruction” is morally hollow unless that reconstruction once again couples the safety of the people to the prosperity of the place.

Reconstruction is not the same thing as restoration. Reconstruction is about buildings. Restoration is about natural and human systems, about ways of living. A fragile “poised” system now keeps traffic flowing up and down the river, as people are returning to live below the levees and thus below water level in the countryside as well as in New Orleans. What kind of life will it be? The Louisiana Department of Resources Office of Coastal Restoration and Management estimates that in fifty more years, Louisiana will have lost more than 500,000 more acres of coastal wetlands, and our nation will have lost even more of a precarious and precious culture. What remains, and what is rebuilt will still be more dangerous than it is now because the Gulf will be thirty miles farther inland, its barrier islands long gone, and with them all natural barriers to storm surges.

Yet the lesson of the recurrent floods and human tragedy that have shadowed the history of the Delta can instruct the future as well. In the twentieth century as construction and technology advanced, the will to protect the people did not. The Corps of Engineers got enough money to make the Delta safe for commerce but not for people. As a freshman Congressman, Robert Livingston, called attention to the flaws in the protection system in the levees, and for twenty years thereafter the United States government, having assumed the responsibility for those levees, did not act as if people mattered. Neither the defenses against floods nor the means to escape them were adequate, though 6,000 years of history had taught that both would be necessary.

Mankind failed. Behind whatever sea walls are built in the coming years to compensate for the further decline of the land level against the sea level, the island of New Orleans will be open to the full force of the Gulf from front and rear. All of this is the consequence of acts of man not of God. As people strive to live in what will be an even more unnatural landscape, seek to ply their trades and make their music, they may tell their children tales of the life that once was led where the waves have covered the old Delta. Surely it is not beyond expectation that other acts of man may by then have commenced to make them safe – though the costs of doing so will grow each year. Furthermore, mankind may act to restore the land upon which the waters lap; it can once again be fruitful. But not if we try to lay off on God the tasks that are our own.

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Research Highlight

Policy Dimensions of NSF's Criterion 2

Bob Frodeman was a researcher at the Center for Science and Technology Policy Research from 2002-03 and is now a Center Affiliate. This research highlight discusses some of the work that he initiated at the Center and now continues at the University of North Texas where he chairs the Department of Philosophy and Religion Studies (<http://www.phil.unt.edu/>). The coauthor, Britt Holbrook, is an assistant professor in the Department of Philosophy and Religion Studies at UNT.

In their 1998 *Physics Today* article “Beyond Basic and Applied” Roger A. Pielke, Jr. and Radford Byerly, Jr. offer a critique of the dominant vision of the science-society relationship. Pielke and Byerly describe a “paradoxical social contract” based on Vannevar Bush’s distinction between “basic” and “applied” research and the linear relationship between them, where “basic” research, conducted without concern for societal benefits, is a necessary precondition of “applied” research, which directs the pure findings of “basic” research toward societal goals. Although society is ultimately interested in the beneficial applications of science and not science for science’s sake, without funding pure “basic” research, no such applications will be forthcoming. Bush’s genius lies in managing the rhetorical feat of preserving the autonomy of scientists as a means of making their work relevant to society. But this places society in a paradoxical position: only by funding scientific research *not* directed toward societal benefits will any of the societal benefits of scientific research be realized.

In calling for the abandonment of the Bush model, Pielke and Byerly are not alone. Democratic Senator Barbara Mikulski and former Republican Speaker of the House Newt Gingrich have both argued that we should move away from the Bush model toward a model that emphasizes “strategic” research. Daniel Sarewitz (1996) has also urged a move away from the Bush model of the science-society relationship. Daniel Stokes (1997) suggested a use-inspired model for understanding the connections between science and society.

The Bush model remains popular with scientists, however, and calls to abandon it can easily be seen by scientists as backing them into the opposite of the corner into which they have heretofore forced society. From the perspective of scientists who hold on to the Bush distinction between “basic” and “applied” research, the following statement will sound like a paradox: only by conducting scientific research directed toward societal benefits will any societal funding of basic scientific research be realized. From the scientist’s point of view, the suggestion that we abandon the Bush model, much like calls for the “democratization” of science, threatens the

absolutely necessary autonomy, not to mention the highly desirable purity, of science.

Take the example provided by the U.S. National Science Foundation’s (NSF) 1997 adoption of two new generic merit review criteria: (1) What is the intellectual merit of the proposed activity? and (2) What are the broader impacts of the proposed activity? On the face of things, NSF seems to have two equally essential criteria on which to base funding decisions: one for purely scientific merit, and a second for societal benefit.

In fact, the National Science Board (NSB), NSF’s policy branch, restructured the merit review criteria largely to respond to increased demand for an account of the societal benefits achieved by NSF funded projects. Congress had passed the Government Performance Results Act (GPRA) in 1993. GPRA sends the message that Federal funding will go to those agencies that produced “results.” This message has also been reinforced since President George W. Bush took office by the President’s Management Agenda (PMA), as well as the establishment of the Program Assessment Rating Tool (PART), designed specifically to tie GPRA to budget formation.

Yet, rather than embracing the new criteria as a way of “doing their part” in justifying continued Federal funding, many scientists have reacted negatively. Summarizing a survey of the science and engineering community regarding the new criteria, the NSB Task Force on Merit Review noted that Criterion 1 was perceived by respondents as more important than Criterion 2, and that Criterion 2 was often perceived as irrelevant, ambiguous, or poorly worded. Moreover, many scientists surveyed expressed the belief that it is impossible to make meaningful statements about the potential usefulness of basic research. Indeed, as a 2001 report on the new merit review criteria by the National Academy of Public Administration (NAPA) states, “the concept of *broader social impact* raises philosophical issues for many reviewers – in particular, reviewers who see their task as exclusively one of assessing the intellectual merit of proposals” (authors’ emphasis).

Since 1997, the number of scientists who address both criteria in proposals and reviews has steadily increased. Yet a glance at the Reports of the Committees of Visitors (COVs), outside experts who provide guidance to NSF, reveals that the quality of responses to Criterion 2 is lacking. In fact, the FY2005 Report of the Advisory Committee for GPRA Performance Assessment (AC/GPA) issued on July 20, 2005 reiterates the persistence of the problem. The report notes that in 2004, 92% of reviewers addressed Criterion 2 (up

Research Highlight Continued

from 90% in 2003, 84% in 2002, and only 69% in 2001), which represents “clear improvement” in terms of the quantity of reviewers who address Criterion 2. However, the report continues, “While most COVs mention this improvement, they also *all continue to cite the uneven attention of reviewers to Criterion 2* because reviewers, proposers, and POs still don’t fully understand and apply these criteria consistently” (our emphasis). Although the *quantity* of scientists who address Criterion 2 has improved, the *quality* of their attention remains an issue. Just as society resists funding basic research without an account of its benefits, scientists resist giving an account of the societal benefits of basic research.

The consensus among policy analysts today is that the social contract between science and society needs to be refurbished. As their reaction to Criterion 2 tells us, scientists are having trouble relating their basic research to societally beneficial applications. We suggest that when a new model of the science-society relationship comes to be embraced, it will take at least one lesson from Vannevar Bush. The relationship between science and society is a paradoxical one, in that science must be both tethered to and autonomous from society. Any account worth defending will have to account somehow for both of these points.

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References

National Academy of Public Administration (NAPA). *A Study of the National Science Foundation’s Criteria for Project Selection*, a report by the National Academy of Public Administration for the National Science Foundation, February 2001.

NSB Task Force on Merit Review’s Final Recommendations (NSB/MR 97-05).

NSF. FY2005 Report of the AC/GPA (NSF 05-210).

Pielke, Jr., Roger A. and Radford Byerly, Jr. “Beyond Basic and Applied,” in *Physics Today*, February 1998, p.p. 42-6.

Sarewitz, Daniel. *Frontiers of Illusion: Science, Technology, and the Politics of Progress*, (Philadelphia: Temple University Press, 1996).

Stokes, Donald E. *Pasteur’s Quadrant: Basic Science and Technological Research* (Washington, D.C.: Brookings Institution Press, 1997).

Project News

Presidential Science Advisor Series

The Center’s “Policy, Politics, and Science in the White House: Conversations with Presidential Science Advisors” series continued this fall starting with a September 12 visit and talk by Dr. Edward David, science advisor to Richard Nixon 1970-73. Dr. David touched on issues including how politics entered into the timing of the Apollo moon mission, and the need for purpose in scientific research.



Dr. David

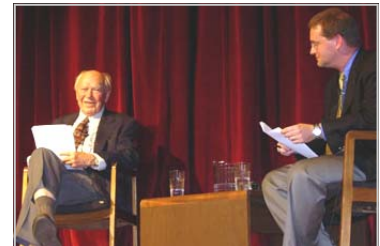
On October 5, Dr. Neal Lane, science advisor to Bill Clinton 1998-2001 gave a talk on the threats to U.S. science and technology.



Dr. Lane

On October 24, Dr. Donald Hornig, science advisor to Lyndon Johnson 1964-69, gave a talk in which he addressed the role of science in the presidential decision-making process.

Please join us for the last talk in this series which will be held January 31, 2006. Dr. George Keyworth, science advisor to Ronald Reagan 1981-86, will give a talk in Hale Room 270. This talk is free and open to the public.



Dr. Hornig and Roger Pielke, Jr.

For more information about the series, as well as transcripts and audio and video recordings of each presentation, visit the series website (<http://sciencepolicy.colorado.edu/scienceadvisors/>). To be placed on the science advisor mailing list and receive email notices of upcoming events see: <http://sciencepolicy.colorado.edu/mailman/listinfo/scienceadvisors>). Each science advisor forum will be broadcast on Boulder Municipal Channel 8 television station and also as a live webcast – check the Channel 8 schedule (<http://www.ci.boulder.co.us/channel8/schedule.html>) for more information.

Project News

Science Policy Assessment and Research on Climate (SPARC)

Our NSF project studying how to make climate science policies better support climate-related decision making held a workshop in August to examine science policy decision making across the Regional Integrated Sciences and Assessments (RISA) programs.



SPARC researchers presented a poster highlighting the goals of the project and a flyer detailing project activities as part of an exhibit at the joint Ecological Society of America/INTECOL meeting in Montreal, Canada, August 7-12th.

SPARC researchers have discussed with Swedish collaborators a project, possibly resulting in an edited volume that would involve a collaboration of our two projects.

SPARC researchers organized a special session related to SPARC at the Human Dimension of Global Environmental Change Research Community meeting in Bonn, Germany in

October 2005.

SPARC researcher Lisa Dilling presented an invited paper on "Usable Carbon Cycle Science" at the Earth System Science PostDoc network meeting in June in Breckenridge, CO, and a poster on "Usable Carbon Cycle Science" at the Seventh International CO2 Conference in September 2005 in Broomfield, CO.

SPARC graduate student Nat Logar completed his master's thesis on "Supply and demand of carbon cycle science in the Agricultural Research Service"

SPARC researchers Roger Pielke and Lisa Dilling each submitted an abstract to the CCSP Decision Support Workshop in November 2005.

SPARC researchers are submitting abstracts to the first Policy Research Symposium at the American Meteorological Society, Jan-Feb. 2006.

Student News

Shali Mohleji

Center doctoral student Shali Mohleji worked with the Science and Space Branch of the federal Office of Management and Budget (OMB) this past summer. Shali describes it as the best job she has ever had with the ideal qualities of an extremely smart staff that was dedicated to science and space issues housed within an institution capable of shaping policy in profound ways.

The staff did not just hand over extra work but prepared a project that Shali was able to complete during the time she was there. They spent great amounts of time teaching her about the agencies, the budget process, and leading issues in space policy and science R&D. Beyond that, she was extremely impressed that the staff took interest in her personally, offering great guidance and training in efforts to prepare her for a future career.

Topics she learned about during the internship included policy issues revolving around the space shuttle retirement, the reorganization of NASA, the science R&D portfolio, the Advanced Technology Program, and the Small Business Innovation Research program.

Adam Briggie

Center doctoral student Adam Briggie attended the President's Council on Bioethics meeting in Washington

D.C., Sept. 8 and 9, 2005. The Council was established by George W. Bush in early 2002 to advise the President on bioethical issues and to undertake fundamental inquiry into the social and human significance of biotechnological advances. Adam met most of the members of the Council and some of the staff. He is writing his dissertation on the Council.

Shep Ryen

Following a successful summer internship former Center doctoral student Shep Ryen accepted a position with the House Committee on Science.

Elizabeth McNie

This summer Center doctoral student Elizabeth McNie traveled to Iceland with an interdisciplinary team of graduate students to conduct research on paleo-climate, climate variability and Iceland's strategies for mitigation and adaptation to climate change. The research was funded through a supplemental grant from NSF's Integrated Graduate Education and Research Traineeship (IGERT) program. Elizabeth and the team will develop a multimedia educational DVD that focuses on the scientific, cultural, social, and environmental issues relating to Iceland's challenges with climate variability.

Elizabeth also joined the education team of the award-winning

Student News Continued

program, Students On Ice, a Canadian non-profit organization that takes students on learning expeditions to the Arctic and Antarctic. The expedition took 65 students from Canada, the United States, Denmark, Greenland, Iceland and China on a two-week voyage from Iceland to Greenland to Nunavut, Canada. The Arctic Environmental Youth Leadership Expedition focused on the environmental changes in the Arctic, as well as the impact of such change on the flora, fauna and Inuit populations, and inspired students to get involved in local and national issues back home. The group traveled by a small excursion cruise ship and made frequent landings via zodiac boat for hiking, exploring and visiting villages. For more information see the Students on Ice website (<http://www.studentsonice.com>).

Elizabeth gave a recent talk during the Policy Center's Noontime Seminar Series titled: "Climate Change, Experiential Education and Teenagers: My Experience with Students On Ice Traveling from Iceland to Greenland to Nunavut." Elizabeth and Maria Carmen Lemos (University of Michigan) organized a panel session at the 6th Open Meeting of the Human Dimensions of Global Environmental Change Research Community (Bonn, October 9-13) in which several members of the Center presented climate change research and assessment.

Elizabeth is also the Lead Graduate Teacher for the Environmental Studies Program for the second year in a row.

Center News

Recent Lisa Dilling Presentations

Dilling, L., R. Pielke, Jr. and D. Sarewitz. **Science Policy Assessment and Research on Climate.** Presentation to the Climate, Science and Policy beyond 2012 (CSP 2012+) Workshop, Soderkoping, Sweden. Sept 19-20, 2005.

Dilling, L. **"Usable" Carbon Cycle Science: Exploring the nexus of carbon cycle science and carbon management at different scales.** Seventh International Carbon Dioxide Conference. Broomfield, CO, September 25-29, 2005.

Dilling, L. **"Usable" Carbon Cycle Science: the need for a new approach.** 6th Open Meeting of the Human Dimensions of Global Environmental Change Research Community, Bonn, Germany, October 9-13, 2005.

Dilling, L. **Not So Basic Anymore: The challenges of producing "use-inspired" climate science.** 6th Open Meeting of the Human Dimensions of Global Environmental Change Research Community, Bonn, Germany, October 9-13, 2005.

Recent Center Publications

Pielke, Jr., R.A., S. Agrawala, L. Bouwer, I. Burton, S. Changnon, M. Glantz, W. Hooke, R. Klein, K. Kunkel, D. Mileti, D. Sarewitz, E. Thompkins, N. Stehr, H. von Storch, 2005. *Clarifying the Attribution of Recent Disaster Losses: A Response to Epstein and McCarthy* (<http://ams.allenpress.com/pdfserv/10.1175%2FBAMS-86-10-1481>), Bull. Amer. Met. Soc. 86(10), 1410, Oct.

Excerpt: "The December 2004 issue of BAMS contains an article warning of the threats of abrupt climate change (Epstein and McCarthy 2004, hereafter EM04). The article seeks to raise awareness of the risks of an abrupt change in climate related to human influences on the climate system, but, in doing so it repeats a common factual error. Specifically, it identifies the recent growth in economic damages associated with weather and climate

events, such as Hurricanes Mitch and Jeanne and tornadoes in the United States, as evidence of trends in extreme events, arguing "the rising costs associated with weather volatility provide another derived indicator of the state of the climate system . . . the economic costs related to more severe and volatile weather deserves mention as an integral indicator of volatility." Although the attribution of increasing damages to climate changes is but one of many assertions made by EM04, the repetition of this erroneous claim is worth correcting because it is not consistent with current scientific understandings."

Epstein and McCarthy's reply, from the same issue of BAMS, can be found at: <http://ams.allenpress.com/pdfserv/10.1175%2FBAMS-86-10-1483>.

Center Staff in the News

Roger Pielke, Jr. was cited, quoted, referenced, or interviewed with

regard to Hurricane Katrina in the Nashua Telegraph, Der Spiegel, the Washington Times, Nature, Chronicle of Higher Education, the Arkansas Democrat Gazette, The Trumpet, Wisconsin Technology Network, the AP, Wall Street Journal, Fox News, Rocky Mountain News, The Times, Fortune, Minnesota Public Radio, Capital Times, Daily Camera, Sun Herald, Colorado Daily, LA Times, National Review, Forbes, and On Point.

Roger Pielke, Jr. was quoted or cited on NPR and in the Denver Post, Science News, AP, Science Magazine, New York Times, Christian Science Monitor, Boston Globe, Travel Weekly, and Nature about hurricanes and global warming.



Roger Pielke, Jr. was quoted in an AFP wire story and the New York Times on the space shuttle program.

Roger Pielke, Jr. was quoted in the Chronicle of Higher Education on the politics of the "hockey stick" issue in climate science.

Roger Pielke, Jr.'s Prometheus blog was quoted in an LA Times article "Disaster Costs Spark Global Warming Debate."

Center faculty affiliate Tom Yulsman was interviewed on Utah Public Radio's Midday Utah program.

Center faculty affiliate Tom Yulsman had an op-ed on global warming science and policy in the Denver Post.

For links to In the News articles see: <http://sciencepolicy.colorado.edu/outreach/news.html>.

Center for Science & Technology Policy Job Opportunity *CIRES Postdoctoral Research Associate*

The Cooperative Institute for Research in Environmental Sciences (CIRES) has an opening for a Postdoctoral

Research Associate under an NSF-sponsored project called Science Policy Assessment and Research on Climate that is investigating climate science policy. The position will be located in the CIRES Center for Science and Technology Policy Research at the University of Colorado in Boulder.

Duties

- Engage in original research that will characterize the supply of, demand for or reconciliation of supply and demand of climate information.
- Engage in original research on the relative sensitivity of anticipated climate impacts to various causal factors in a range of areas, possibly including ecosystems, extreme events, water resources.
- Collaborate with colleagues within CIRES on research
- Collaborate with national and international partners
- Publish research results in peer-reviewed fora
- Assist and lead in the development of meetings and workshops in support of project objectives
- Contribute to other, related Center projects in research, education and outreach

Requirements

- Recent Ph.D. in a related field.



- Knowledge of climate science and climate policies.
- Experience working on interdisciplinary projects.
- Demonstrated ability to present and perform on a professional level through use of excellent written and verbal communication and interpersonal skills.
- Demonstrated ability to work within a team of researchers.
- Publication of articles in refereed journals and in the non-academic literature.
- Presentation of papers at national or international scientific meetings.
- International interests and experience

The position will be filled as a Research Associate in CIRES, University of Colorado at Boulder, and will be eligible for employee benefits, including 22 days of vacation per year. Screening will begin immediately and continue until the position is filled. Applicants should submit a letter of interest with Job Code, and complete resume and salary history. In addition, the applicant should furnish the names of three individuals familiar with the applicant's professional qualifications for the position to provide references.

To apply, e-mail (jobs@cires.colorado.edu), fax 303.492.1149, or mail information to: CIRES Human Resources, Job Code PL-1, 216 UCB, Boulder, CO 80309-0216.

The University of Colorado at Boulder is committed to diversity and equality in education and employment.

Job Opportunity

Graduate Fellowship Program of the National Academies

This 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 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. Applications are now being accepted for the 2006 sessions:



- Summer: June 5-August 11
- Fall: September 11-November 17

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 at <http://national-academies.org/policyfellows>.

The deadline for receipt of application material is March 1 for the summer program, and June 1 for the fall program. Candidates may apply to both 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: policyfellows@nas.edu.

Job Opportunity

Colby College - Science, Technology and Society

The Program in Science, Technology and Society at Colby College invites applications for a one-year replacement position in STS at the rank of Faculty Fellow beginning September 1, 2006. Candidates, who should have a Ph.D., may have a degree in STS, history, history of science and technology, sociology, or some other appropriate field. We are interested in a specialist in the history of the modern life sciences in such areas as bioethics, biotechnology, race and gender, and genomic research. The successful candidate may work closely with other interdisciplinary programs at Colby including environmental science and policy and the Goldfarb Center for Public Affairs and Civic Engagement. The successful candidate should have an outstanding academic background, an active research program, and a demonstrated commitment to liberal



arts education. The candidate will teach an STS introductory course and three other courses, one of which may be a January term course. Please send a letter of interest, CV with publications, statements of teaching and research interests, and three letters of recommendation to: Prof. Paul Josephson, Chair, STS Program, Colby College, 5320 Mayflower Hill, Waterville, ME 04901. e-mail: prjoseph@colby.edu. Review of applications will begin on December 15, 2005 and will continue until the position is filled.

Colby is an Equal Opportunity/Affirmative Action employer, committed to excellence through diversity, and strongly encourages applications and nominations of persons of color, women, and members of other under-represented groups.

For more information see: <http://www.colby.edu/employment/jobs/stsasstprof.shtml>.

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On-Line Version

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