Ogmius

NEWSLETTER OF THE CENTER FOR SCIENCE AND TECHNOLOGY POLICY RESEARCH

Center for Science and Technology Policy Research

NO. 7
JANUARY 2004

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

CIRES

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

Introduction to the Ogmius Exchange

As our society becomes more and more dependent on information technology for everything from banking transactions to storing vital records, we also become increasingly vulnerable to security breaches such as viruses, worms, and other malicious code. Besides causing untold headaches to users, these breaches can take a heavy toll on our economy. Microsoft recently offered a $5 million "bounty" for information leading to the arrest of virus writers. But what about the government's role in responding to cybersecurity breaches?

This month's Ogmius Exchange, by Center faculty affiliates Phil Weiser (Telecommunications, Law) and Doug Sicker (Telecommunications, Computer Science), explores some of the legal and policy questions that arise when the government decides to respond to cybersecurity breaches. Weiser and Sicker conclude that the increasing concern by government is a healthy development. However, government needs to "strike the right balance between pressuring businesses to address the problem and not dictating particular technological approaches that could potentially thwart the development of new technologies."

For more information see:

Computer and Communications Security Research and Education Center (CCSC) (http://www.ccsc.colorado.edu).

Silicon Flatirons Telecommunications Program (http://www.silicon-flatirons.org).

Ogmius Exchange
Governmental Responses to Cybersecurity Breaches

The original development of computer software arose in an environment where threats to computer security were largely contained. In the early days of computer programming, most users were not part of "networked systems" where their applications were exposed to external threats – be they from denial of service attacks, viruses, what have you. The development of high speed networks and faster computer equipment has both enabled more and more of the economy to be based on the creation, transmission, storage, and processing of information and, as a consequence, raised the importance of computer security. Not surprisingly, policymakers are taking notice of the issue.

The changing attitude toward computer (or cyber) security is likely to lead to different legal and business approaches. The traditional cyber-culture tolerated "buggy code" as the norm; after all, there was often little harm in allowing your customers to also be your beta testers, particularly where there were both competitive and customer pressures to provide fixes in the latest patches or in new versions of the software. But in the current environment, the massive amount

Ogmius Exchange Continued

of damage to intangible property – i.e., stored information and computer programs – inflicted by viruses, denial of service attacks and the like have led businesses and policymakers to approach the issue differently.

Historically speaking, the development of the computer industry arose largely outside the shadow of tort law, which holds producers of products responsible for injuries to person or property. This protection from legal liability reflected a number of self-reinforcing factors: damage to computer programs from security breaches often only involves money damages related to the product itself and thus is generally addressed outside the realm of tort law (under the economic loss rule), software often is sold through "shrink-wrap" contracts that disclaim any warranties for damage to the programs from security breaches, and the courts have yet to develop any clear standard of care that would have to be breached to give rise to liability. In the wake of recent high profile attacks, however, some are beginning to ask whether software firms should be held responsible for failures to protect their users. As Dorothy Denning, a computer science professor at Georgetown University, put it "If Firestone makes a tire with a systemic flaw, it is liable. If MSFT produces an operating system with three systemic flaws per week, it is not liable. Something is wrong there."

The comparison between Microsoft as a producer of computer software to Firestone as a tire manufacturer raises several fundamental questions about the role of tort law in the information technology sector. An initial question is whether it is fair to hold Microsoft liable for the failure to design better systems up front. The answer to this question may well turn on how one conceptualizes the nature of cybersecurity attacks: are they more like rocks in the road that should not disrupt the operation of functional tires or are they more like snipers at the side of the road who are taking shots at your tires? A second wrinkle, raised in a recent suit against Microsoft, is the argument that where a buyer lacks any real choice because a firm has a monopoly on certain software products, the seller (here, Microsoft) has special duties that require heightened attention to security. This argument, if accepted, would differentiate between cases in the market for large enterprise customers, where purchasers can often make informed choices and assume risks about security, and mass market customers who often cannot make such choices. (Over the long term, it is possible that "application providers" will sell software as a service to the mass market and differentiate from one another on, among other things, security protections.) A third wrinkle arises from the complexity of attributing blame among the various players involved. Modern communications networks are designed to combine software, hardware and services from a wide range of vendors and service providers in such a way that encourages interconnection and interoperability. This creates an

environment that makes pinpointing responsibility a complex and potentially inexact task. In some cases, tort law responds to such scenarios with the "joint and several liability" doctrine, but applying that approach to the cybersecurity context might well ensnare in liability the careful firms along with the reckless ones.

The courts are likely to continue to face more and more cases seeking to hold liable software providers, Internet Service Providers, and other information technology firms who expose customers to security risks (or fail to protect them adequately against such risks). In the meantime, however, Congress has begun to consider and, in some cases, enact certain safeguards. One basic safeguard, used to encourage solutions to Y2K issues, is to require clear disclosure by major firms as to how they are mitigating any risks to their data and their customers. Moreover, in specific industries, Congress has gone ahead to require certain levels of security protection – notably, for the financial services sector and the storage of health care information. Taking this approach one step further by prescribing certain requirements, such as security assurance testing, for all software developers would parallel the regulatory strategy used in a number of other industries (including to assure automobile safety). But imposing such requirements is not without risk, as so doing may well create undue burdens on small software developers and the open source software community. Recognizing this possibility, it would not be unprecedented for larger firms to support such measures that would constitute barriers to entry.

One reason that action by the federal government is quite likely is that, in the absence of federal leadership, state governments are likely to step into the vacuum. At present, some state governments have already become involved in this process, most notably by enacting legislation that addresses the general need for companies to secure consumer information and notify customers of potential breaches. California has even taken this process a step further by specifying guidelines for companies to follow. State governments are limited in their ability to address the entirety of computer security issues, as the interdependence of different players in this arena is a national (and indeed, an international) issue. Recognizing how the interdependence and cooperation of different entities may leave certain security issues under-addressed, the former government cybersecurity czar has called for federal government funding to spur the development of the Internet's core protocols as a means of upgrading its security and better guarding against cyber-attacks. But such responses, like the enactment of legislation or the development of new judicial doctrines, are going to take time. In the meantime, this area will continue to be in flux and beg for creative policy and business responses to an issue that is not going away.

Ogmius Exchange Continued

In the automobile industry, the concerns related to products not manufactured up to par gave rise to the development of legal liability under tort law as well as governmental regulatory oversight. The computer industry is different than the automobile in terms of its fast-changing technological environment, its intangible nature, and the fact that customers often make knowing choices about differing levels of risk and have traditionally borne the responsibility for protecting themselves against what are generally economic consequences of security failures. But for customers who do not have the necessary information and are left vulnerable by providers of faulty products or services, the government has a legitimate role to help safeguard consumers. Moreover, because the Internet will continue to contain security vulnerabilities, there are important reasons for the government to play a role in supporting its development. Identifying these problems and reasons for concern does not, however, point the way to an obvious solution. Thus, at this point, all we can conclude is that the government's increasing concern — and the concomitant awareness of businesses — is a very healthy development and that government must strike the right balance between pressuring businesses to address the problem and not dictating particular technological approaches that could potentially thwart the development of new technologies.

Authors' note:

This paper was part of a recent conference that brought together leaders in technology, business, and law to consider society's responses to cybersecurity threats and to work toward an integrated understanding of security. This conference launched the Computer and Communications Security Research and Education Center (CCSC), a new interdisciplinary unit of the University of Colorado at Boulder (see http://www.ccsc.colorado.edu). This event was co-sponsored by the Silicon Flatirons Telecommunications Program (http://www.silicon-flatirons.org).

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Letters to the Editor
Responses to the October Editorial,
"Good for the Goose…"

Roger Pielke's article, "Good for the Goose…" (October 2003 Ogmius, http://sciencepolicy.colorado.edu/ogmius/archives/issue_6/exchange1.html), provoked a lively discussion:

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Roger, interesting piece you wrote here. It seems to me, from studying the work of Joel Mokyr and others, that over the course of the last three centuries, technological problem solving almost always outstrips politics and the ability of politics to "solve" -- or, more precisely, render irrelevant -- those problems that seem so pressing to partisans in scientific and political fights. So what does that mean for today? Let's consider the three examples you cite: "global warming, genetically modified organisms, and stem cell research."

On global warming, the odds that we will be living in a carbon-intensive economy in 100 years are tiny. And that will have nothing to do with political solutions to problems, but technological changes in everything from energy generation to how and where we live to what we do. The odds that, should the planet heat up by 10 degrees, the world in which we will live in 100 years will look or feel anything like the world we live in now is laughable. Adaptive capacity will most likely outstrip environmental devastation (and that's assuming a warming planet, in the aggregate, is a bad thing from an ecological standpoint, which is certainly debatable).

The genetically modified organisms debate is, for all intents and purposes, already over (at least in agriculture). The political opposition to it simply can't stop it — for example most Europeans who are opposed to GM foods eat them without realizing it. (It would take some unforeseen catastrophe for the political momentum to change, so I do leave that possibility open.)

Stem cell research is almost impossible to restrict politically — science is a process that's globalized like any other and it's almost impossible to conceive of a way in which stem cell research, now that the IVF genie is out of the bottle, can be prohibited globally. And all that needs to happen is for the benefits (should they materialize) to be clearly appreciated for the technology to be not just de facto legalized but embraced as well.

Letters to the Editor Continued

Anyway, the biggest problem with most of the debates at the intersection of science and politics is a failure to appreciate the dynamic nature of the world we live in today. That doesn't mean there aren't valid points to be made all around in the name of junk science or sound science. Just that, those points made as they are in a snapshot of time will be largely irrelevant in a world-historically miniscule period of time.

Best,

Nick Schulz, Editor
Tech Central Station
(www.techcentralstation.com)

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Mr. Pielke,

I am the President of the Marshall Institute and was involved in the Hoover Book project that you referred to in your editorial. I want to assure you that the authors were not chosen because they are long time opponents of environmental regulation. The objective of the book was not to "disparage alleged misuse of science" but to document the actual misuse and discuss the consequences of misuse. I view the misuse of science in the policy process as a serious risk to the science enterprise, as do you, and certainly do not want politicization to become "just another weapon in partisan battle".

As long as science is used in formulating policy, there will be politicization. The challenge is to find ways to constrain that natural act and to increase the likelihood that decision makers will get a clear or clearer understanding of what science does and does not tell them about the policy issue being considered.

Holding agencies and advocates to explicit standards and insisting on greater transparency are two steps in the right direction. The Federal Data Quality Act might turn out to be another. The Supreme Court in its Daubert decision articulated some very clear standards for science in the judicial system. Those could be more broadly applied to everyone's benefit. Finally, I do not believe that decision makers or policy makers suffer from too few options. If anything, they suffer

from the options not being sufficiently illuminated in terms of their costs, benefits and distributional impacts. If you have other ideas for making science more relevant in the policy process and to limit its misuse, I would like to learn what they are.

William O'Keefe, President
Marshall Institute
(www.marshall.org)

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Hi Roger,

I enjoyed your Ogmius piece but think that your "solution" is too optimistic. IPCC has repeatedly, in the person of its chairmen, both Robert Watson and Ravedni Puchari, espoused specific policies, i.e. the Kyoto Protocol. In fact, I would argue that IPCC started this entire mess, in particular the Mann issue, by overemphasizing his result which, in perspective, is merely one of many interesting paleoclimate studies. It is very clear that IPCC saw this as a vehicle to advance the agendas of Watson and Puchari. No, I don't think IPCC or anything like it is a solution to the problem (wait till you see "Meltdown: the Inevitable Exaggeration of Global Warming by Scientists, Politicians, and the Media", coming out this fall).

One example in Meltdown is the overhyping of the NRC Extreme Events report. When scientists choose to exaggerate in overtures to the political/funding process, they GUARANTEE politicization, misstatement, and acrimony between the haves, the have-nots, and the politicians who must demonstrate some type of public good for their fund disbursement and those who oppose them. The problem lies not in another group solution, but in recognizing the dynamics of this process and broadening the bases of bias (I mean that) in the scientific funding scheme.

Hope you agree with me!
Cheers

Pat Michaels
Cato Org
(www.cato.org)

Center News
S&T Policy Certificate Program Status

We are happy to announce the first cohort of the newly initiated Graduate Certificate in Science and Technology Policy, see http://sciencepolicy.colorado.edu/stcert/. We have nine students representing several

different departments at the University of Colorado.

The first cohort includes:

- Marilyn Averill - Political Science
- Ruth Duerr - National Snow and Ice Data Center, Cooperative Institute for Research in Environmental Sciences

Center News Continued

- Erik Fisher - Environmental Studies

- Andre Grothe - Telecommunications

- Genevieve Maricle - Environmental Studies

- Jeffrey Merage - Telecommunications

- Beth Mulligan – Psychology

- Erik Noble - Environmental Studies

- Tind Shepper Ryen - Environmental Studies

The first course in the program will be taught spring 2004 and is titled "Science and Technology Policy." The course homepage can be found at http://sciencepolicy.colorado.edu/homepages/roger_pielke/envs5100/.

Center News
Recent Presentations

C enter staff, graduate students, and faculty affiliates have been busy this fall discussing their research at professional conferences, on campus, and at the Center:

Graduate student *Jessica Lang* gave a talk at the Center's October 27 noontime seminar entitled "What is an Assessment: Connections between Science and Decision-Making" about her research on scientific assessments and their potential contributions to decision makers. While the purpose of these assessments is to relate scientific information to decision makers, it is not clear whether they are effective at providing the information that decision makers can use. Jessica's research has led her to conclude that the full spectrum of assessments is so broad that it is impossible to identify the particular characteristics that would make any assessment effective at relating science to policy. However, it is clear that most assessments would be more effective if scientists better understood the context of decisions and decision makers actively pursued science as a source of information for their decisions.

On November 21 *Jessica* gave an informal talk to members of the Western Water Assessment about her summer internship with the City of Westminster's Water Resources Department. Throughout the summer, Jessica worked with senior water resources engineers, the water quality director, and the water resources analyst. She compiled information about the current science regarding climate change and the future of Colorado's water resources. She also worked with an inter-governmental group to investigate options for maintaining water quality in Standley Lake, the drinking water supply for all three cities, and to determine the kind of information needed to make a decision about what options to pursue to protect the drinking water supply.

Faculty affiliate *Jill Litt* gave two talks about gardens and health:

(with) Brett, J., Marshall, J., Buchenau, M., Bardwell, L. "Identifying Features of Gardens and Garden Neighborhoods that Promote Increased Physical Activity and Healthful Eating." Oral presentation, Annual Meeting of the American Public Health Association, San Francisco, CA. November 17, 2003.

(with) Brett, J., Marshall, J., Buchenau, M., Bardwell, L. "Cultivating Neighborhood Open Space to Promote Population Health: A Pilot Study of Community Gardens in Denver, Colorado." Oral presentation, International Conference on Urban Health, New York, New York. October 16, 2003.

On November 21 graduate student *Genevieve Maricle* spoke to the Western Water Assessment about her summer internship with the House Science Committee minority staff and its relationship to her Climate Services Clearinghouse work (see "Project News" for more details). During her internship she initiated several discussions with potential users of climate information, including the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), the American Red Cross, the Reinsurance Association of America, and others.

Genevieve also spoke at the Center's December 15 noontime seminar about "The Climate Services Clearinghouse: A Web Portal to Usable Climate Information." She presented a poster about the Clearinghouse at the American Meteorological Society Annual Meeting on January 15 when the site was officially released.

Center director *Roger Pielke* gave a talk entitled "The Politics of Preemption" on October 8 at the University of Colorado Graduate School Fall Symposium. He also participated in a debate on preemption as U.S. foreign policy at the University of Colorado on November 6. This debate was one of a series being held across the country to develop opinions on U.S. foreign policy, sponsored by the United Nations Foundation, the Rockefeller Brothers Fund, and the Open Society Institute.

Center News
Recent Publications
http://sciencepolicy.colorado.edu/publications/

- Frodeman, R., Mitcham, C. and R. Pielke, Jr., 2003: Humanities for Policy - and a Policy for the Humanities. Issues in Science and Technology, Fall 2003, pp. 29-32.

- Pielke, R., Jr., 2003: Debate on the Supply and Demand of Atmospheric Sciences Professionals, http://sciencepolicy.colorado.edu/publications/special/pielke_supply_debate.html.

- Pielke, Jr., R. A., 2003: Abortion, Tornadoes and Forests: Thinking about Science, Politics and Policy, Chapter 9, pp. 143-152 in J. Bowersox and K. Arabas (eds.) Forest Futures: Science, Policy and Politics for the Next Century (Rowman & Littlefield).

- Sarewitz, D. R. A. Pielke, Jr, and M. Keykyah, 2003: Vulnerability and Risk: Some Thoughts From A Political and Policy Perspective, Risk Analysis, 23:805-810.

Center News
Center Introduces Two New Faculty Affiliates

Faculty Affiliates are colleagues in the University of Colorado system who share an interest in science and technology policy research. The Center's faculty affiliates comprise a broad community that spans traditional disciplines and organizational units.

The Center recently welcomed two new faculty affiliates.

Kathleen Tierney is a Professor of Sociology and Director of the Natural Hazards Research and Applications Information Center at the University of Colorado at Boulder. Kathleen received her PhD from Ohio State University. Her research interests are social dimensions of hazards and disasters, including natural, technological, and human-induced extreme events. Her current research studies the organizational response to the September 11, 2001 World Trade Center disaster, risk perception and risk communication, the use of new technologies in disaster management, and the impacts of disasters on businesses.

Jerry Peterson (Department of Physics) received his PhD from the University of Washington in 1966, and has been on the Boulder campus since 1970. His research is in basic experimental nuclear physics, largely using accelerator facilities around the world. His research career in nuclear science and his contacts over the years have led to Jerry's additional current emphases on domestic nuclear security, the internationalization of nuclear science and the development of educational tools for future national workforce needs in nuclear science. See http://sciencepolicy.colorado.edu/homepages/jerry_peterson/.

Faculty interested in an affiliate appointment with the Center should contact us at pielke@colorado.edu.

Project News

Climate Services Clearinghouse
(http://sciencepolicy.colorado.edu/climateservices/)

In response to the steadily increasing production of climate products and services, Center and Western Water Assessment Graduate Research Assistant Genevieve Maricle created a website to compile and coordinate climate services across sectors.

The site, "Climate Services Clearinghouse," includes products from NOAA, other government agencies, academia, and the private sector. At present, products and services from these groups are plentiful and valuable, but they lack coordination.
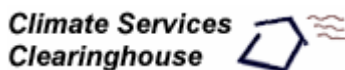
The Clearinghouse seeks to coordinate, and thus enhance, the efficiency of climate service production by enabling providers to identify and fix overlaps and gaps in existing services. We welcome your feedback! Send an e-mail to genevieve.maricle@colorado.edu.

Global Climate Change and Society
(http://sciencepolicy.colorado.edu/gccs/)

The Global Climate Change and Society program is featured as a "nugget" on the WWW site of the National Science Foundation. http://www.nsf.gov/sbe/nuggets/039/nugget.htm.

Project News Continued

New Directions in the Earth Sciences and the Humanities
(http://sciencepolicy.colorado.edu/newdirections/)

NASA recently awarded the New Directions initiative a three-year, $150,000 grant.

Western Water Assessment
(http://sciencepolicy.colorado.edu/wwa/)

The Western Water Assessment recently completed a strategic planning process. As part of this process WWA revised its mission statement to provide that "the mission of the WWA is to identify and characterize regional vulnerabilities to climate variability and change, and to develop information, products and processes to assist water-resource decision-makers throughout the Intermountain West."

The planning process also identified research objectives and developed guidelines for research projects and the proposal process, as well as selection criteria for projects. For more information about the WWA or its strategic planning process visit its website at http://sciencepolicy.colorado.edu/wwa/ or contact Brad Udall at bradu@cires.colorado.edu.

Science and Technology News
Science & Technology Policy Conference

Science & Technology Policy:
Who Wins, Who Loses, and Who Cares?
August 15-20, 2004
Big Sky, MT

Gordon Research Conferences have, since 1931, provided a place for academics, government, industry, and media representatives to share intellectual exchange in different ways than the usual academic conferences allow. The rules require afternoons free of formal meetings and strictly prohibit publication, quotation, or attribution of the ideas exchanged. The goal is a free flow of ideas to promote creative thinking about "cutting edge" science and pushing beyond the boundaries of what we know. Successful conferences lead to productive new collaborations and new lines of investigation. This second official Gordon Conference on Frontiers of U.S. Science and Technology Policy (following a planning meeting in 1999) therefore affords opportunity for those interested in the workings of science policy to step outside the time-critical environment in which the many decisions affecting science and technology policy are made.

Rather than traverse old ground or duplicate existing programs, we will focus on driving questions and propose hypotheses to be explored. First, what are the distributional impacts of science policy decisions? Do some groups of people generally "win" and others "lose" or does everyone "win?" Science policy cannot be amoral, should not be immoral, and yet does not often reflect on how to be moral. What underlying values drive policy-making, and what values emerge from the results of decisions? Is science policy just another form of politics as usual, differing only in the specifics of interest group politics? Or does science policy involve a special sort of politics, ones with different rules about winners and losers? The political process de facto adjudicates among competing values in ways that are rarely informed by deep or substantive thinking about what we actually think is important.

Second, we will examine science as politics. The scientific method and the doing of science may well follow some insulated "pure" rules of science's own so that the knowledge produced is respected and carries authority and epistemic warrant. Yet every decision to pursue some research rather than other research is intrinsically value-laden and necessarily political. Scientists rarely address this fact explicitly. On the premise that they should, and that thus informed they should become part of the policy-making process, we will ask: how, who, to what end, and based on what values? What role should scientists play in science policy? What role should non-specialists play? How should these roles relate to one another? Recognizing the role of values, how can technical issues best be used in values adjudication? And how can we educate young scientists to become reflective leaders who can guide us to wise decisions?

Third, who, when, and how do we think about what goes on the policy agenda? There is no official science policy agenda-maker, and we typically end up with nothing more than a mantra that "more science is obviously good, produces benefits, and therefore should be funded." Funding wishes almost always drive science policy, and this is not good enough. Policy decisions have consequences, since funding something and not

Science and Technology News Continued
Science & Technology Policy Conference

funding something else hurts some just as it helps others. How should scientific values and choices compete? Science is politics in this sense. Science policy has moral consequences. Scientists can play a role in policy-making, but ought not always or only to play the role of lobbyists demanding more funding. What is science policy, who makes it, what role should the scientists play, what are our goals, and what will be considered a success? In the constellation of policy issues, science is rarely at the forefront. Why? Should it be? Or is science policy best viewed as an instrument of defense, transportation, health, welfare, agriculture and other such policies? How do we distinguish between science policy and science budget policy? Should and does policy play different roles for basic and applied science?

Sessions include the following:

- Science and Technology Policy: Who Wins, Who Loses, and Who Cares?

- IT: Infrastructure, Info-Complexity, and Info-Security

- Science as Expertise, Morality, and Politics I: Creating and Constraining Expertise

- Competing Levels of Regulation and Development of Biomedicine and Biotechnology: Stem Cells, Genetically-modified Foods and Pharmaceuticals

- Science as Expertise, Morality, and Politics II: ELSI - so What?

- Forests, Fires, and Interpreting while Managing Forests: why the History Matters

- Science as Expertise, Morality, and Politics III: Politics isn't Policy

- Global or Local: Environmental Policy in the Face of Uncertainty

- What good is Science and Technology Policy?

For the complete agenda and registration information visit the conference website at http://www.grc.org/programs/2004/policy.htm.

Science and Technology News
S&T Policy Resources on the Web

The AAAS Center for Science, Technology and Congress newsletter, Science and Technology in Congress, provides timely, objective information to Congress on current science and technology issues, http://www.aaas.org/spp/cstc/pne/pubs/stc/.

Congressional Research Service Reports on environmental and related topics can be accessed via the web at http://www.ncseonline.org/NLE/CRS/.

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

Science and Technology News
Telecommunications Conference

The Digital Broadband Migration: Toward A Regulatory Regime For The Internet Age
February 8-9, 2004
University of Colorado School of Law • Boulder, CO

The transformation of telecommunications from an analog, narrowband network optimized for voice to a digital, broadband network optimized for data traffic has created a slew of challenges for businesses, policymakers, and academics alike. As increasing numbers of users are adopting digital products and services that are networked through broadband connections, it is now an opportune time to evaluate the issues that policymakers, academics, and businesses will confront over the course of this transition.

This conference, sponsored by the Silicon Flatirons Telecommunications Program, will examine three central areas of regulatory policy associated with the Internet age: broadband policy, digital rights management, and privacy and security policy. The principal speakers will be FCC Chairman Michael Powell, Stanford Law Professor Lawrence Lessig, and Microsoft CTO Craig Mundie.

For more information visit the conference website at http://www.silicon-flatirons.org/conferences/DBM_feb_2004.html.

S&T Policy Opportunities
American Geological Institute

The American Geological Institute (AGI) is offering a congressional science fellowship for the geosciences. The fellow will spend 12-16 months (beginning in September 2004) in Washington, D.C., working as a staffer for a member of Congress or a congressional committee. This is an opportunity to gain first-hand knowledge of the legislative process and contribute to the effective and timely use of geoscientific knowledge on natural hazards, the environment, and science policy.

The minimum requirement is a master's degree with at least three years of post-degree work, or a PhD at the time of appointment. All application materials must be postmarked by **February 1, 2004**, and sent to:

The William L. Fisher Congressional Geoscience Fellowship
AGI
4220 King Street
Alexandria VA 22302-1502
e-mail: govt@agiweb.org
http://www.agiweb.org/gap/csf/

S&T Policy Opportunities
Resources for the Future

Resources for the Future (RFF), an independent nonprofit organization specializing in research, policy analysis, and public education on environmental, energy, and natural resource issues, has several opportunities:

- Summer internships (for outstanding undergraduate and graduate students with priority given to graduate students)
- Walter O. Spofford, Jr. Memorial Internship (for graduate students with a special interest in Chinese environmental issues)
- Joseph L. Fisher Dissertation Fellowships (supports doctoral dissertation research on issues related to the environment, natural resources, or energy)
- Gilbert F. White Postdoctoral Fellowship Program (for researchers who have a doctorate degree and wish to devote a year to scholarly work in areas related to natural resources, energy, or the environment)

For more information about RFF please visit its website at http://www.rff.org/.

For more information about these internships and fellowships contact:

Coordinator for Academic Programs
Resources for the Future
1616 P Street, NW
Washington, DC 20036-1400
Phone: 202- 328-5060, e-mail: mankin@rff.org

S&T Policy Opportunities
Jefferson Science Fellows at the U.S. Department of State

The contribution of science, technology, and engineering to the formulation and implementation of U.S. government domestic and foreign policy has long been recognized as a critical element in good governance. Without an accurate, timely understanding of rapidly advancing science and technology issues, it is increasingly difficult to identify and establish sound governmental policy that meet the needs of modern societies.

In recognition of this, the Secretary of State recently announced the "Jefferson Science Fellows" (JSF) program at the U.S. Department of State to establish a new model for engaging the American academic science, technology, and engineering communities in the formulation and implementation of U.S. foreign policy. The three-year pilot JSF program is administered by the National Academies, philanthropic foundations, and the U.S. Department of State.

Tenured academic scientists and engineers from U.S. institutions of higher learning are eligible to apply. Fellows spend one year at the U.S. Department of State for an on-site assignment in Washington, D.C., that may also involve extended stays at U.S. foreign embassies and/or missions.

Nomination packets must be received by **January 28, 2004**. Complete fellowship information, including detailed guidelines, eligibility requirements, and placement/research specifics, is available from:

Jefferson Science Fellows Program
The National Academies, Fellowships Office
500 Fifth Street NW, GR 322A
Washington, DC 20001
(202) 334-2872
e-mail: jsf@nas.edu
http://www7.nationalacademies.org/fellowships/Jefferson_Science_Fellows.html

S&T Policy Opportunities
Societal Dimensions of Engineering, Science, and Technology

NSF's Societal Dimensions program considers a wide variety of proposals for research and education about the interactions of engineering, science, technology, and society. The Ethics and Values Studies (EVS) component supports examinations of the ethical and value dimensions in those interactions. The Research on Knowledge, Science and Technology (RST) component supports research on the directions and implications of research and innovation policy and priorities.

Proposals to NSF for this program that are received by **February 27, 2004** will be considered in this round. The program announcement is available at http://www.nsf.gov/cgi-bin/getpub?nsf01152. Target dates for submission are February 1 and August 1 of each year.

✓ The program's home page is at http://www.nsf.gov/sbe/ses/sdest/.

✓ Check out the link to assistance on "Preparing a Proposal, What You Should Know" http://www.nsf.gov/sbe/ses/sdest/proposal.htm and

✓ on "Doing Survey Research: What You Should Know" http://www.nsf.gov/sbe/ses/sdest/survey%20research.htm.

SDEST program director Rachelle Hollander can be reached at the address below; program director John Perhonis handles dissertation proposals; he can be reached at jperhoni@nsf.gov; his phone number is 703-292-7279.

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Proposal project summaries must address, separately, intellectual merit and broader impacts.

S&T Policy Opportunities
RAA - CU - NCAR Internship Program

RAA - CU - NCAR Internship Program
for Graduate Students in Science and Policy

Sponsored by the
Reinsurance Association of America
Center for Science and Technology Policy Research
University of Colorado
National Center for Atmospheric Research

The goal of this program is to place emerging professionals in policy or scientific graduate programs with reinsurance companies for approximately 3 months over the summer (i.e., 15 May – 31 August). Reinsurers insure insurance companies for catastrophe losses and therefore provide the largest share of the financing for recovery from major natural catastrophes. Much of their financial analysis is based on current scientific understanding about catastrophe risk. By placing graduate students into positions in the reinsurance industry the program seeks to increase the awareness of students to the reinsurance industry and expose the industry to highly skilled students in policy and the sciences. A longer-term vision is greater interactions of the two communities.

The minimum qualifications for an applicant are completion of one year of graduate school in a scientific or policy field of study. The application procedure will consist of submission of college transcripts, resume, two letters of recommendation, and a 500-word statement explaining your interest in this program.

Students are expected to have a range of mathematical, computer, technical, or analytical skills in fields such as atmospheric science, geology, environmental policy, or chemistry, but will most likely have little knowledge of the workings of the reinsurance industry. Interns will be expected to work full time during the period of their internship on topics that ideally, but not necessarily, would draw upon their skills and expertise in ways that contribute materially to the needs of individual companies.

The program will be conducted for its second year in 2004 with placement of 10 students. During the internships, feedback will be solicited from students and companies for consideration of future program implementation.

The following companies employed students from the 2003 program:

- ✦ Swiss Re
- ✦ ICAT Managers
- ✦ AIR
- ✦ XL
- ✦ Aspen Re

Risk Management Solutions was also involved as a program educational forum. New and renewal internship sponsors are now being recruited.

Eligibility

Enrolled and in good standing in a graduate degree program in science, engineering or policy.

Prerequisites

- Completion of one year of graduate school in a scientific or policy field of study.

- Technical or analytical skills in fields including but not limited to atmospheric science, geology, environmental policy or chemistry.

- Enrolled and in good standing in a graduate degree program in science, engineering or policy.

Application Procedure

Send graduate and undergraduate college transcripts, resume, two letters of recommendation from professors, a 500 word statement explaining your interest in this program, an email address and a telephone number, to

Attn: Joint Internship Program
Center for Science and Technology Policy Research
University of Colorado/CIRES
1333 Grandview Ave, Campus Box 488
Boulder, Colorado 80309-0488

Application Deadline

Applications must be received by **March 15, 2004**. Please send an e-mail message notifying us of the mailing of your application to ami@cires.colorado.edu.

For more information, please visit our website at http://sciencepolicy.colorado.edu/reinsurance/.

About Us

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

On-Line Version
(http://sciencepolicy.colorado.edu/ogmius/)

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Center for Science and Technology Policy Research

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Endownment fund: Contact Roger Pielke (pielke@colorado.edu)

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