



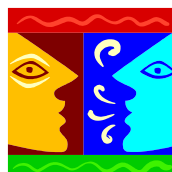
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Introduction to Ogmios Exchange

Researchers
Donna
Nelson and
Diana



Rogers reported last winter that women make up a very small proportion of scientists, mathematicians, and engineers working at top research universities in this country. They found that the proportion of female faculty at the 50 top institutions in all ranks was as follows:

Mathematics – 8.3%
Chemistry – 12.1%
Physics – 6.6%
Biological sciences – 20.2%

See Nelson, Donna J., and Diana C. Rogers, 2003: A National Analysis of Diversity in Science and Engineering Faculties at Research Universities (http://www.now.org/issues/diverse/diversity_report.pdf).

Nelson and Rogers conclude that the poor representation of women at the faculty level in the sciences may deprive female students of appropriate role models and lead to their attrition from these fields. However, Nelson and Rogers did not identify the cause of this under-representation.

Some of the problem may be discrimination. Title IX prohibits sex discrimination at institutions receiving federal financial assistance for educational programs. Because the sciences receive billions of dollars in federal funding each year the GAO

launched an investigation into what is being done to ensure compliance with Title IX in the sciences. Its final report found that federal agencies must do a better job of reviewing grantees to assure compliance with Title IX. See *Women's Participation in the Sciences Has Increased, but Agencies Need to Do More to Ensure Compliance with Title IX* (<http://www.gao.gov/new.items/d04639.pdf>), General Accounting Office July 2004.

Another part of the problem may be culture. Patricia Rankin, Professor of Physics at the University of Colorado, writes in this issue of Ogmios that the scientific fields are seen as being "highly competitive occupations that require a total commitment from their practitioners to the exclusion of all else. They are perceived as being unwelcoming and inflexible in their definitions of success." To help address these cultural barriers Rankin heads the NSF-funded Leadership Education for Advancement and Promotion or LEAP program (<http://advance.colorado.edu/>) here at CU. LEAP seeks to facilitate change by giving both women and men useful skills for organizing their own lives and by improving the leadership skills of managers.

As Rankin notes, "the lack of diversity affects everyone, and everyone should take on the responsibility of working for change."

Ogmios Exchange

Addressing the Under-representation of Women in the Sciences

I used to take it as a compliment when people told me that I did not look like a physicist. It was awhile before I realized that they were commenting on my gender and not on my sense of style. During a period of time when the percentages of women in other demanding fields such as law and medicine have grown significantly women and ethnic minorities have remained under-represented in the STEM disciplines (Science, Technology, Engineering, and Mathematics).

Increasing diversity in the STEM workforce is not just a matter of fairness. The interest of U.S.-born students in pursuing science and engineering careers is declining¹. If current trends continue, the U.S. could face a major shortage of technically competent workers. The evidence shows that the women leaving science and engineering are no less able than the men who stay². Women are not leaving because they cannot do the work; they are leaving because they choose not to do it. Beyond the purely numerical impact of this waste of talent is the loss of a broader set of perspectives which could help solve the increasingly complex problems faced by society. Studies show that teams work best when they are diverse and when team members do not always agree with each other.

An institutional, systemic approach recognizes that there is no one single explanation for the under-representation of women pursuing careers in STEM. Broadly speaking, however, a wide range of issues can be grouped under the heading of “the culture”. These fields are seen as being highly competitive occupations that require a total commitment from their practitioners to the exclusion of all else. They are perceived as being unwelcoming and inflexible in their definitions of success. Women are not alone in finding STEM fields forbidding. Debra Rolison³ argues that our current beliefs about how science should be done owe their origins to the monastic origins of learning and have yet to adapt to the fact that few people now have a “stay at home” spouse. She believes that women are acting as the “canaries in the mine” alerting us to the fact that the STEM fields will have to evolve ways to deal with the needs of a changing workforce.

I believe strongly that the changes in the culture needed to increase the number of women in STEM fields will benefit everyone. This is not a case of “fixing” women so that they can survive but of teaching everyone how to better deal with individual differences.

Workforce concerns were among those that led the NSF to launch its ADVANCE initiative in 2001. The goal of this

initiative is to develop broad programs, operating at the institutional level, to address the lack of women in STEM fields and especially the lack of women in leadership positions in these fields. The LEAP (Leadership Education for Advancement and Promotion) program here at the University of Colorado⁴ is funded through ADVANCE. All of the LEAP workshops are open to everyone, regardless of gender. The goal of LEAP is to facilitate change by both giving individuals useful skills for organizing their own lives and by improving the leadership skills of managers. The plan is that small changes in overall behaviors will have a “tipping point” effect on the culture.

Anyone supervising a group has the responsibility of ensuring that the environment will allow all of its members to succeed to the best of their abilities. Good leadership is open and transparent; there are good lines of communication between everyone. Policies are made clear and are followed. All members understand why a decision has been made and feel that their views have been listened to.

These good practices also help to minimize the effects of the subtle biases that exist and affect the women who are currently making their careers in STEM. It is important to remember that the existence of women who are successful in these fields is a necessary but not sufficient argument that all women can be successful. The invalidation of a general rule requires proof that it typically does not hold rather than that it fails occasionally. This is partly a historical problem. The low representation of women in leadership positions today is partly explained by the low numbers of women entering these fields twenty years ago. However, this does not completely explain the relative scarcity of women at the highest levels of the STEM professions.

Virginia Valian in her book “Why So Slow?”⁵ argues that both men and women hold the same set of implicit hypotheses, which she calls gender schema⁶, about the differences between the sexes which shape their conceptions. Basically – we tend to attribute to an individual the average characteristics of the group they belong to – even when there is a lot of spread around those averages. Consider height – this is an easily quantifiable characteristic. We know that on average men are taller than women. College students were given a sample of photographs of men and women and asked to guess their heights in feet and inches. These pictures always contained a reference item (e.g. a desk or chair) to help in the estimating. The sample was set up (unknown to the students) to match every man in the sample with a woman of the same height. What happened? Male and female students estimated the

average height of the sample of women to be less than that of the sample of men.⁷ What would they do when asked to judge leadership ability?

So what do I recommend women do while we are waiting for good leadership practices to become widespread and awareness of all of the issues to grow? I want everyone to be pro-active about developing his or her own career skills. If you are having problems making time for stress management – work on your time management techniques. If you are not getting the resources you need – learn how to be a better negotiator. If you are feeling that your problems and issues are unique to you – network.

The lack of diversity affects everyone, and everyone should take on the responsibility of working for change. Let's act locally and foster global changes!

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¹ <http://www.nsf.gov/sbe/srs/seind04/start.htm> is a good source of statistics on a wide range of topics. The most recent report is discussed at <http://www.physicstoday.org/vol-57/iss-7/p25.html>. There is debate over whether or not there is an impending shortage of scientists and engineers (see, for example, the lead article in the July 9th, 2004 Chronicle of

Higher Education) but there is no debate that the workforce will need to become more diverse.

² “Talking about Leaving – Why Undergraduates Leave the Sciences” by Elaine Seymour and Nancy M. Hewitt, Westview Press, Sept 2000.

³ <http://spider.ipac.caltech.edu/staff/rebull/women/rolison.aps.pdf>.

⁴ More details on LEAP can be found at <http://Advance.Colorado.Edu>. More information on the ADVANCE initiative can be found at <http://www.nsf.gov/home/crssprgm/advance>.

⁵ <http://maxweber.hunter.cuny.edu/psych/faculty/valian/valian.htm>.

⁶ This is an interesting site for learning more about gender schemas, <http://www.hunter.cuny.edu/gendertutorial/tutorials.htm>.

⁷ M. Biernat, M. Maris and T. Nelson, “Stereotypes and Standards of Judgment.” *Journal of Personality and Social Psychology* 66 (1991); 5-20. A more general and more recent article of interest about the effect of gender on evaluation is M. Biernat and K. Fuegan, “Shifting Standards in the Evaluation of Competence: Complexity and Gender-Based Judgment and Decision Making.” *Journal of Social Issues* 57 (Winter 2001):707-24.

Research Highlight

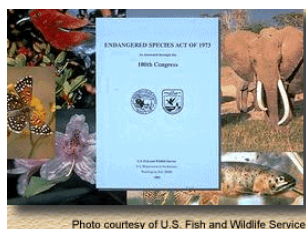
Regulatory vs. Academic Science

In this issue of Ogmios our Research Highlight features an essay by Anne Ruggles, a wildlife biologist who recently received her law degree from the University of Colorado. While a law student Anne was an

extern with the Center studying the role of science and policy in the Klamath Basin controversy. The following essay summarizes her analysis of the differences between science applied by regulatory agencies in disputes that arise under legislation such as the Endangered Species Act, and science conducted in academia.

Regulatory vs. Academic Science

Regulatory science--the science used and applied by those charged with enforcing statutes passed by legislatures and designed to protect public health and safety-- increasingly has come under fire. Politicians and interested parties charge either that the results are not protective enough or are too



protective. In either case the claims are increasingly accompanied by charges that agency scientists have engaged in “junk science” and calls for oversight by an “objective” panel, usually of academic scientists.

Regulatory science arises within administrative agencies. Their authority is delegated to them by Congress and they reside within the executive branch. They manage an overwhelming proportion of the governmental details of our lives. Agencies are subject to direction by the President, oversight by Congress, and review by the courts. Typically, Congress directs an agency to resolve some general problem and suggests some broad guidelines. The agencies promulgate regulations (subject to the requirements of the Administrative Procedures Act and funding by Congress) to implement the mandate of the statutes passed by Congress, and often enforce those rules.

The result is that, by design, the science promulgated by agencies is imbued with and surrounded by policy and politics – the norms, principles, and values that underlie the creation of the agency itself and the statutes that it was created to

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Research Highlight Continued

implement. Further, statutes and their accompanying regulations establish timelines that agencies must meet. In many instances, there may be too little information, personnel, and funds available to conduct needed research. In short, society, culture, and law create and shape the environment within which information is pursued and used in regulatory science. They influence the types of information sought, its representation, and, perhaps most importantly, its application.

The goals of politics – and by extension regulatory science – are different from and often contradictory to the goals of academic science. The goal of the political process is to resolve conflicts and therefore to facilitate action whereas academic science seeks to increase knowledge about the natural world through an ongoing process of questioning, hypothesis-development, validation, and refutation. Politics and law expect predictive certainty from science, and usually in a relatively short period of time. In reality nature is complex and evolving; thus results are always accompanied with some degree of uncertainty. Academic science thrives on this uncertainty and progresses by questioning and testing previous results, refining what is known, and asking more questions. Certitude and consensus of interpretation are not the driving forces.

Statistical testing allows estimation of the probability that a hypothesis is true in a given set of circumstances and can lead to two types of error. In a Type I error one concludes that the null hypothesis is false when it is, in fact, true. Under this type of error one would claim an effect when there is none. Conversely, in a Type II error one concludes that the null hypothesis is true when it is false. Here one would claim no effect when there is an effect.

Academic science strives to diminish the probability of Type I error. This is crucial to the ongoing process of refining ideas

and knowledge of the natural world.

However, when the regulatory emphasis is on protection of a societal value (health, safety, biodiversity) some agencies tend to minimize Type II error rather than minimizing Type I error. In effect agencies will err on the side of concluding that there is a problem. In the context of the Endangered Species Act, for example, this means that if the conclusion is in error and there is no problem, the only “harm” may be a curtailment of private property rights that can be compensated. If, on the other hand, the agencies were to strive to minimize Type I error, they might not take action when appropriate and the result could be species extinction – an event from which there is no recovery.

Because of the differences in mandate, goals, accountability, and emphasis in error analysis (see Table 1) the standards of pure academic science without some modification are inappropriate to the needs and constraints of regulatory science. Both try to understand and explain complex, multivariate, non-linear nature, but they have vastly different constraints. Thus asking a panel of academic scientists to apply the standards applied in writing for journals and applying for research grants to making regulatory decisions is inherently unfair and counterproductive.

Overview of regulatory science by academic scientists is not per se unwelcome; however, when asked to review the work of regulatory scientists, academic scientists should understand the context in which regulatory scientists work and apply criteria that are applicable to the public-sector, regulatory context rather than criteria suitable to evaluating a colleague in an academic setting.

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Table 1. Differences between Academic and Regulatory Science.

	REGULATORY SCIENCE	ACADEMIC SCIENCE
INSTITUTIONS	Government/industry	Universities
GOALS	<p>Information needed to meet regulatory requirements and to provide reliable information for decision makers.</p> <p>Research “questions” are framed by legislators and regulators and have immediate social and economic implications.</p> <p>Ultimate goal is conflict resolution via public debate over competing interests and values.</p>	<p>Original research framed by scientists and driven by rational analysis and expert judgment.</p> <p>To expand the understanding and knowledge of the natural world through an ongoing process of questioning, hypothesizing, validation, and refutation.</p>
ROLE OF UNCERTAINTY	<p>Predictive <u>certainty</u> is required by the political process and the legal system.</p> <p>Knowledge is frequently and necessarily generalized to situations very different from those in which the original data was collected.</p> <p>Uncertainty is unwelcome by the public, legislators and the courts.</p>	Uncertainty is expected and “embraced”
COMPLETENESS OF INFORMATION	Must frequently act before all the necessary information is developed.	Publish when a body of information has been developed, tested, and validated.
STATISTICAL SIGNIFICANCE/ ACCEPTABLE ERROR/BURDEN OF PROOF	Often work with a legal mandate to minimize Type II error with the result that Type I error is increased .	Strive to minimize Type I error.
ROLE OF VALUES	Regulatory scientists are <u>required</u> to consider and work with the values of many including the public, politicians, the scientific community, and the regulatory community.	Academic scientists work primarily with their own and their collaborators’ values; seldom have to incorporate public or political values .
PRODUCTS	“Gray literature,” baseline data, monitoring data, regulatory documents.	Published, peer-reviewed papers and books, presentations at professional meetings.
TIME-FRAME	<p>Determined and driven by statute, regulation, and the political process; finite and often quite short (90 days to 2-4 years).</p> <p>Resolution of problems being reacted to is often crisis-driven or driven by court-mandated timelines.</p>	Open-ended; usually carried out relatively free of an urgent need for the information generated.
POLITICAL INFLUENCE	Directly influenced by politics – upper-level administrators are appointed by the President; funding is at the will of Congress; ultimate oversight is by the courts.	Indirectly influenced by the researcher’s own political philosophy and by their perception of the preferences of grant and tenure review committees.
ACCOUNTABILITY	Legislatures, courts, and the public.	Professional peers.
INCENTIVES	Compliance with legal requirements, working for the public good.	Professional recognition, advancement in tenure system; university administration.

Center News *Comings and Goings*

Bob Frodeman to Chair Philosophy Department at University of North Texas

Center Research Scientist Bob Frodeman recently accepted a position as chair of the philosophy department at the University of North Texas in Denton, Texas. We wish Bob the best of luck!



Lisa Dilling Joins Center

On October 1 the Center will welcome Dr. Lisa Dilling for a two-year Visiting Fellowship. Dr. Dilling received a Ph.D. in Biology from the University of California,



and was most recently employed as a Project Scientist with the Environmental and Societal Impacts Group of the National Center for Atmospheric Research. Her research focuses on the use of information in decision making related to climate and, in particular, the carbon cycle.

Susan Avery to Head Graduate School

Center faculty affiliate Susan Avery recently accepted a position as Vice Chancellor for Research and Dean of the Graduate School at the University of Colorado-Boulder. Dr. Avery has been the director of the Cooperative Institute for Research in Environmental Sciences since 1994.



Project News *Science Policy Assessment and Research on Climate*

The Center recently received a \$2.4 million grant from the National Science Foundation to study decision making under uncertainty under the U.S. Climate Change Research Initiative. The 5-year project, titled "Science Policy Assessment and Research on Climate (SPARC)," will be conducted in partnership with Arizona State University's Consortium for Science, Policy, and Outcomes. The project will include research, education, and outreach focused on improving the connection between the nation's multi-billion dollar investment in climate research and people making climate-related decisions. It will examine decision makers' expectations of what science can deliver, whether they can use available information, and what future

information might be useful to them. SPARC will seek to assist the scientific community in better focusing its research on topics useful to decision makers.

The award is the culmination of more than 18 months of preparation involving colleagues from Colorado State University, the National Center for Atmospheric Research (NCAR), the University of Denver, the University of California-San Diego, Colorado School of Mines, the American Meteorological Society, and Stratus Consulting.

We'll soon announce a WWW site for the project and upcoming events and activities. If you'd like to learn more please contact us at pielke@colorado.edu.

Project News *Science and Technology Policy Certificate Program*

The Science and Technology Policy Certificate program at the University of Colorado-Boulder is a rigorous education program to prepare students pursuing graduate degrees for careers at the interface of science, technology, and decision making. The program's first cohort began in the spring of 2004.



The program is accepting applicants for the fall 2004 term. To apply students need to provide the following information to pielke@colorado.edu by November 12:

- A statement of interest

- Academic transcripts
- A letter of support from a faculty member in their home department

Acceptance will be based on the qualifications of the student, as well as the importance of fostering a diversity of disciplinary representation within the program.

For more information about the STPC program visit the website at <http://sciencepolicy.colorado.edu/stcert/>.

Faculty affiliate and Colorado School of Mines professor Carl Mitcham will teach the fall STPC course, "Science, Technology, and Society."

Graduate Student News

Graduate Student Study Featured on National Weather Service Website

A new National Weather Service website, "Lightning Safety In Large Stadiums" (<http://www.lightningsafety.noaa.gov/stadium.htm>), features a study by ENVS and Center graduate students Joel Gratz and Erik Noble about ensuring safety from lightning strikes in large college football stadiums.



Graduate Student Joel Gratz receives grant from National Weather Service

ENVS and Center graduate student Joel Gratz received a one-year grant from the National Weather Service to evaluate the policy processes and outcomes related to the Public-Private-Academic Partnership on Level II Radar Data.

Graduate Student on Loan to Tech Transfer

ENVS and Center graduate student Joel Gratz spent the

summer working for the University of Colorado's Technology Transfer Office (TTO). The TTO is responsible for protecting, marketing, and licensing University-based Intellectual Property (IP). In short, the TTO helps researchers take inventions from the laboratory to the marketplace.



Joel worked primarily with CIRES (the Cooperative Institute for Research in Environmental Sciences, which employs nearly 500 people) trying to license patented technologies developed at the University to interested private firms. Joel also investigated why the rate of technology transfer from the atmospheric sciences does not match that of other physical sciences such as chemistry and biology, and how the TTO can help close this gap.

For more information, please contact Joel at gratz@colorado.edu.

Job Opportunities

The National Academies Board on Atmospheric Sciences & Climate Program Officer

The Board on Atmospheric Sciences & Climate is seeking an exceptional person with strong scientific expertise and an interest in applying science in the policy arena. A Program Officer (sometimes called Study Director) is responsible for all aspects of implementation of the Board's work -designing studies, working with agencies and committees of experts, analyzing complex issues, and preparing reports. It's a dynamic work environment - the National Academies' staff of more than 1000 people address all the issues in today's headlines and more, from stem cell research to alternative energy sources to climate change.



Qualifications: Ph.D. or equivalent knowledge is preferred, but Master's degree or equivalent knowledge with 3 years of related experience will be considered. Requires ability to review and analyze scientific literature; good organization, interpersonal, and leadership skills; and ability to work productively in a team environment. Excellent oral and written communications skills are essential. Background in a variety of fields within the areas of atmospheric sciences, meteorology, and climate will be considered. The job is located in Washington, D.C. Some travel is required.

Responsibilities:

- Plan, develop, and direct technical and policy studies

related to a diversity of scientific issues in the atmospheric sciences, meteorology, and climate.

- Manage the study process, including organizing meetings of scientific experts; gathering and analyzing information for projects; guiding committee selection process and evolution of committee reports; and keeping projects on time and within budgets.
- Effectively express complex technical and policy information in various written forms, including status reports, project summaries, and detailed committee reports. Guide reports through review, publication, and dissemination.
- Interact with agency personnel, policy makers, and senior scientists.
- Assist in preparation of prospectuses and proposals and work on special projects.
- Supervise the work of support staff.

For more information, visit <http://www.national-academies.org/basc>. To apply, send a cover letter explaining your interest in the position and resume to Chris Elfring, Director, Board on Atmospheric Sciences and Climate at celfring@nas.edu. Send a copy of your application to Rob Carlucci, Office of Human Resources, at rcarluc@nas.edu. The Requisition Number is 040215-2. Please submit applications by September 30, 2004. No phone calls, please.

Job Opportunities

NOAA OAR Physical Scientist and Meteorologist

The National Oceanic and Atmospheric Administration's (NOAA) Office of



Oceanic and Atmospheric Research (OAR) invites applications for two positions in OAR's Office of Scientific Support. The Physical Scientist position will be on the Climate Team, while the Meteorologist will serve on the Atmospheric Team. The individuals will help plan, coordinate, and evaluate OAR's climate and weather research contributions to the NOAA Climate and Weather and Water Goals. Additional responsibilities include serving as technical liaison to selected OAR laboratories and programs and preparing program and budget materials for the OAR and NOAA leadership. The individuals will collaborate with the

OAR External Affairs and Outreach Team on climate or weather research and policy issues; engage OAR Budget staff on financial aspects of OAR programs; and support OAR Representatives to the NOAA Strategic Planning teams.

Preferred qualifications include a research background (M.S. or Ph.D.) in remote sensing techniques, model and forecast development, weather forecasting, or linking science to decision making. Applicants must apply through the Commerce Opportunity On-Line (COOL) automated vacancy announcement system (<http://www.jobs.doc.gov>), through position #H-OAR-04019A.3.TFJ or H-OAR-04020A.3.TFJ by September 22, 2004. Salary range is \$50593-\$78826, commensurate with experience. The Department of Commerce is an equal opportunity/affirmative action employer.

Job Opportunities

Postdoctoral Research Associate - Water Issues

The Center for Environmental Studies at Arizona State University is seeking applications for the position of

Postdoctoral Research Associate in water use, history, economics, or policy.

Seeking researcher with expertise in water-related issues from the perspective of either history of water use, history of agriculture, relation to climate, economics, policy or law. The successful candidate will work with researchers in both natural and social sciences that are involved with several long-term projects on the relationship of climate, water use, irrigation agriculture, and urban growth in Central Arizona over the past 150 years. Incumbent will



report directly to Charles Redman, Director of the Center for Environmental Studies and Ann Kinzig, Associate Professor of Life Sciences. Initial term is for one year, renewable.

Applicants must submit a cover letter explaining interest in the position and relevant expertise, Curriculum Vitae, name, phone number and email addresses of 3 references, and reprints (no more than 3) to Linda Williams, Postdoc Search (Water), Center for Environmental Studies, Box 873211, Arizona State University, Tempe AZ 85287-3211.

Applications due August 15th; if not filled the 15th and 30th of each month thereafter, until search closed. For inquiries, job description, required and desired qualifications contact: Linda Williams at 480-965-0867 or at linda.williams@asu.edu.

Position contingent upon funding. AA/EOE

Noontime Seminar Series

The Center's noontime seminar series is an opportunity for Center students, staff, and affiliates to meet informally to discuss their research. This fall's schedule is listed below. The talks, which are open to the public, are held at noon at the Center, 1333 Grandview Ave., Boulder. For more information please contact us at 303-735-0451.

October 11, Shep Ryen, ENVS graduate student:
"Deciding the fate of the Hubble Space Telescope"

October 25, Jana Milford, CU Dept. of Mechanical Engineering:
"Use of atmospheric chemistry and transport models in air quality management"

November 8, Bob Frodeman, Department of Philosophy, University of North Texas:
"Humanities Policy: What it is, and why it's needed"

December 6, Tom Yulsman, CU School of Journalism:
"What Makes News in Science?"

Conferences

2004 SACNAS National Conference

Science and Science Policy: Constructing an Inclusive Paradigm

<http://64.171.10.183/confNew/confClient/current/>

Austin, TX - October 21-24, 2004

The mission of SACNAS (Society for Advancement of Chicanos and Native Americans in Science) is to encourage Chicano/Latino and Native American students to pursue graduate education and obtain the advanced degrees necessary for research careers and science teaching professions at all levels. SACNAS provides unparalleled conference activities for



students, educators, administrators and researchers in science. This year's conference theme, Science and Science Policy: Constructing an Inclusive Paradigm, explores the link between current science policy issues and those communities most affected by them. It is vital that the Chicano/Latino and Native American scientific communities have a substantive voice in the creation of science policy which dictates the funding and direction of scientific research and inquiry. Continuing a third year tradition of working to increase Native American and Chicano/Latino presence in the scientific community, SACNAS offers a forum for investigation of questions related to the theme and the development of a new generation of leaders who will be instrumental in shaping equitable and inclusive science policy.

Recent Center Publications

- Kenney, D., R. Klein, and M. Clark, 2004: Use and Effectiveness of Municipal Water Restrictions During Drought in Colorado (http://sciencepolicy.colorado.edu/admin/publication_files/resource-296-water_restrictions_jawra.pdf). Journal of the American Water Resources Association, February, 77-87.
- Klein, R., and B. Udall, 2004: 2008 Colorado Drought Impact Report: A Report to the Governor (http://sciencepolicy.colorado.edu/admin/publication_files/resource-1587-2004.15.pdf). Natural Hazards Observer v. 28, n. 6, July, pp. 5-6 (invited article in "Disasters Waiting to Happen" series).
- Pielke, Jr., R. A. (ed.) 2004. Report on the Misuse of Science in the Administrations of George H.W. Bush (1989-1993) and William J. Clinton (1993-2001) (http://sciencepolicy.colorado.edu/admin/publication_files/resource-1429-ENVS%204800%20Report.pdf). By the Students in ENVS 4800, Maymester 2004, University of Colorado, June.
- Pielke, Jr., R.A., 2004. When scientists politicize science: making sense of controversy over The Skeptical Environmentalist (http://sciencepolicy.colorado.edu/admin/publication_files/resource-1621-2004.18.pdf). Environmental Science & Policy, Volume 7, pp. 405-417.
- Pielke, Jr., R.A. 2004. Making sense of science in the politics of the stem-cell debate (http://sciencepolicy.colorado.edu/admin/publication_files/resource-1619-2004.16.pdf). Rocky Mountain News, July 31.

Science and Technology Policy Online Publications

Bulletin of Science, Technology and Society
<http://www.sagepub.com/journal.aspx?pid=159>

Forum for Applied Research and Public Policy
<http://forum.ra.utk.edu/>

Journal of Law, Technology and Policy
<http://www.jltp.uiuc.edu/>

Issues in Science and Technology
<http://www.issues.org/>

Knowledge, Technology and Policy
<http://www.moted.org/kt&p/>

Minerva
<http://www.kluweronline.com/issn/0026-4695/contents>

Nature
<http://www.nature.com/nature/>

Research Policy
http://www.elsevier.com/wps/find/journaldescription.cws_home/505598/description#description

Science Magazine
<http://www.sciencemag.org/>

Science and Public Policy
<http://www.scipol.demon.co.uk/spp.htm>

Science, Technology & Human Values
<http://www.jstor.org/journals/01622439.html>

Social Studies of Science
<http://www.jstor.org/journals/03063127.html>

About Us

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

On-Line Version

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