Marburger Urges Scientists to Study Federal Budget Process and Lobby for Appropriations

John H. Marburger III ’62, science advisor to President George W. Bush and director of the Office of Science and Technology Policy, was at Princeton in early March to participate in a day-long series of discussions, panels, and meetings. Marburger was invited to participate in the program, “Advances and Applications in the Environmental and Biological Sciences: Connecting Scientists and Policymakers,” by Joshua Weitz, post-doctoral associate in the Department of Ecology and Evolutionary Biology on behalf of the PEI postdoctoral fellows. Marburger’s visit included meetings with PEI post-docs as well as University faculty.

Following the day’s private meetings, Marburger delivered a lecture to the University community entitled “Science and the Federal Budget.” Marburger urged the University’s scientists to become students of the political and social forces that influence the making of the federal budget and to actively lobby for funding in areas that interest them. He told the audience that while federal funding for science has remained at a nearly constant 11 percent for the past 30 years, the number of agencies competing for those dollars has grown. In addition, competition within the agencies themselves for shares of that funding is fierce.

Marburger said that in 2003, for example, $8 billion of the environmental research and development budget was divided among 11 federal agencies and earmarked for non-defense related scientific research and development. (continued on page 2)

CMI Researchers Dig Deep in Wyoming for Answers

By Roberta Hotinksi

Although it might sound like science fiction, one potential strategy for reducing global greenhouse gas emissions is to capture the carbon dioxide produced when fossil fuels are burned, then store it underground in spent oil and gas fields. The strategy is attractive because it would allow continued use of fossil fuels as a primary energy source while doing away with the associated climate impacts. The question is, in fields penetrated by thousands of old wells, will the carbon stay put?

John H. Marburger III

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Samples of cement and well casing retrieved by the CMI Storage team from a Wyoming oil well. (Photo courtesy George Scherer)

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Of those 11, only the National Science Foundation allocates nearly its full appropriation to research. Departments within the other ten agencies, including NASA (which received 20% of the funding), the Department of Energy (20%), and the Environmental Protection Agency (10%), compete with each other for their share of the funding.

“The struggle to fund basic science research begins in the agencies themselves, not with Congress or President Bush,” Marburger pointed out. “There is always going to be a struggle to get the money you need in science.”

Referring to an article entitled *Does Science Policy Exist, and If So, Does it Matter?* by Daniel E. Sarewitz, director of the Consortium for Science Policy and Outcomes headquartered at Arizona State University, Marburger said, “What amazed [Sarewitz] was that the percentage of the non-defense/discretionary research and development budget going to science research [11%] has not changed significantly over 30 years.” Marburger warned, however, there is no guarantee that funding will stay at that level or that that level will remain appropriate. “There are substantial shifts [in focus] in the different agencies…. It is necessary to engage the budget process… [to] achieve better agency coordination.”

In addition, Marburger believes that new science policy is needed. “I hope we can formulate policy that will focus on the machinery…. We need to regard science policy as an academic field.”

A question-and-answer session followed the lecture. When asked to describe the administration’s stance on global warming, Marburger responded, “Global warming exists, we must do something about it. We must get on with producing technology to reduce CO₂ in the atmosphere. Our policy is to spend money on R-and-D for this.”

When asked if universities are training too many scientists, Marburger said, “There aren’t too many scientists in Washington. We don’t have enough lawyers with a science background [but] universities are not encouraging science students to go into that profession. However, if we are increasing the number of scientists who will need federal support for their labs, then maybe we are training too many scientists. There is a limit to how much the public will allow for science spending.”

In the end, Marburger praised PEI for its work. “Princeton’s advocacy helps people to do the right thing. There has to be a consensus on what is important. PEI can help educate people on how they can get the right money into the right pots.”

### Macelwane Winner Sigman Believes History Yields Clues to Environmental Changes

Daniel Sigman, assistant professor of geosciences, was named a James B. Macelwane Medalist by the American Geophysical Union (AGU) in 2004. The medal is given for significant contributions to the geophysical sciences by an outstanding young scientist. Sigman’s research focuses on feedback systems between the chemicals that organisms need to live and the distribution of those chemicals in the environment. PEI News spoke to Professor Sigman to learn more about his research.

**Your interests are extraordinarily broad. Would you please describe your research?**

When discussing my research, I usually describe Earth systems by comparing them to an organism. People are amazed by how organisms work and yet the Earth has systems that maintain stability and are pretty impressive as well. For example, the amount of time oxygen spends in the atmosphere before being consumed from it is very short relative to the age of the Earth. Yet evidence points to remarkable stability in the atmospheric concentration of this gas since it first accumulated due to photosynthesis and the burial of organic matter.

Extinctions have occurred to species on Earth, but our best understanding is that Earth’s environment rarely becomes uninhabitable by its own workings, rather, major extinctions are imposed. While the Earth does potentially have very dynamic elemental cycles that could cause changes significant enough to affect the habitability of its surface, the Earth is remarkably stable. This stability requires that there be stabilizing feedbacks in the environment, things that prevent radical changes in the habitability of the Earth’s surface.

One early response to this paradox was the Gaia hypothesis—the view that Earth behaves like an organism and would develop stabilizing feedbacks such as those in an organism. For example, if we become dehydrated, we experience thirst.

We know that stabilizing feedbacks must be at work in the environment, yet there are fundamental problems with (continued next page)
Gaia. For instance, we know the process that has allowed the development of sensitive feedbacks in organisms: natural selection — or, put another way, through many failed experiments. But the Earth can’t work that way. If something catastrophic happens to Earth, most previous evolutionary lessons are lost. The Earth can’t develop by natural selection like organisms. So how is it that these feedbacks arise? It could simply be that the Earth’s habitability is an incredible fluke. Or maybe it is not a fluke. This is part of what we are trying to understand.

Within that theme I have subject-specific interests of study designed to try to address this paradox. One interest is the nitrogen cycle, both its current characteristics and its changes through geologic time.

Would you briefly explain your work on the nitrogen cycle?
In my lab we study the modern nitrogen cycle, quantifying the inputs and outputs of fixed, or bio-available, nitrogen (N) in the ocean; determining whether there are feedbacks, stabilizing or destabilizing; and identifying how these fluxes interact through time.

Measuring fluxes of N in the ocean is not as trivial as it might seem. The ocean is incredibly patchy in space and variable in time, so that ‘direct’ instantaneous measurements of rates in small water samples cannot typically provide a robust sense of the actual rates of a given reaction in a given region over the year. To overcome this problem and uncover reliable long-term rates, we make measurements of dissolved N species in the ocean which respond to N cycle reactions on a relatively long time scale, so as to understand rates not this second or today, but over the last year or the last decade.

We specifically work with the stable isotopes of N and other elements in N-bearing compounds. In biological reactions, the light stable isotope of N (\(^{14}\)N) tends to react somewhat more quickly than does the heavy isotope (\(^{15}\)N), leaving the signals of different processes in the \(^{15}\)N-to-\(^{14}\)N ratio of different N forms.

Please explain how knowledge of the past helps scientists understand today’s environmental conditions.
Knowledge of the Earth’s geological past contributes to an understanding of current environmental processes and conditions. Conversely, knowledge of modern processes can help scientists understand the Earth’s past. Our ability to relate modern and ancient systems is critical today, because understanding the environment’s potential for change has never been more important. My lab is most interested in the feedbacks that have developed on Earth between the chemicals that organisms need to live and the distribution of those chemicals in the environment. In some cases, these chemical distributions can have direct consequence for climate, for instance, carbon dioxide (\(\text{CO}_2\)), which is a greenhouse gas and is increasing in the atmosphere due to fossil fuel burning. We are working to understand past changes in atmospheric \(\text{CO}_2\) that have been reconstructed from ice cores. \(\text{CO}_2\) has varied in step with ice age cycles in the past and probably played a role in those climate cycles, being lower during ice ages and higher during warmer interglacial periods, such as the warm period we live in now. However, it is not known what causes those natural, climate-related variations.

What role does the geologic record play in your work?
While one can measure the fluxes of biogeochemical reactions in the environment, it is very hard to diagnose how these reactions will interact on the large scale over time. The geologic and glaciologic record provides an archive of “natural experiments” from the past, where some aspect of Earth change (for instance, climate) causes a change in biogeochemical fluxes. We can then hope to reconstruct the response of other biogeochemical fluxes to that change.

These large-scale experiments were given to us by nature, but of course, the geologic record was not generated with any intention to be used as a library, so we have to work very hard to extract the information we need. The challenge then, is to see through the fog of the geologic record to find clues about how these fluxes react.

How does your research relate to the greenhouse effect and human inputs of carbon dioxide?
There is a correlation between \(\text{CO}_2\) in the atmosphere and climate over time. My efforts are focused on understanding what has caused \(\text{CO}_2\) levels to change. Nevertheless, the interactive nature of the Earth is such that my work should provide insight into the effect of \(\text{CO}_2\) on climate and the way that the global environment is likely to change in the years ahead.

What is the most important message you try to communicate to the undergraduates you teach?
Most of the information to which students are exposed involves the human world. True, the sciences have always provided inroads into the natural realm. Nevertheless, there has always been a bias toward a reductionist view. There are excellent justifications for this. Nevertheless, a true appreciation of nature, it seems to me, lies in recognizing that the global environment is a highly organized, working system. At the same time, as I mentioned earlier, there is the mystery of how this system developed.

Conceptually, there are some lessons to be learned before one gets a knack for thinking about the global environment. In the traditional basic sciences, you are often allowed to ignore where your reactants come from and where your products go. This is an invitation to error when trying to understand environmental processes. Checking balances of mass, energy, and other characteristic properties is essential.
2004 Colvin Awards Fund Field Research in Kenya and China

Last May, undergraduates Wenfei Tong and Olympia Moy were co-recipients of the 2004 Becky Colvin ’95 Field Research Fund award. According to Dan Rubenstein, chair of the ecology and evolutionary biology department (EEB), the applications of these then-juniors were so outstanding that both were chosen, a first for the award.

The Colvin award is a grant that supports environmental field research projects for the senior thesis for students from EEB or the Environmental Studies Program (ENV). The fund was established in 1995 by Dr. and Mrs. Robert Colvin in memory of their daughter Becky, who died during her sophomore year. Colvin was an EEB major who was committed to field ecology and environmental studies. What follows are profiles of the co-recipients and their field projects.

Wenfei Tong

Extracting and Analyzing DNA to Help Manage Zebra Populations in Kenya

The Colvin award enabled Wenfei Tong, a senior majoring in EEB, to travel to the Mpala Research Center in Laikipia, Kenya in the summer of 2004. Tong’s thesis focuses on quantifying genetic variation in plains zebra populations. The grant enabled Tong to join a research team headed by Professor Rubenstein. Tong’s goal was to extract DNA from zebra dung for genetic analysis and, ultimately, to provide information of use to conservationists managing ungulate populations on ranches and reserves.

Because of her interest in equids and in working in the field, Tong asked Rubenstein to be her advisor in her sophomore year. Rubenstein’s own research focuses on behavioral ecology: the effect of environmental variation and individual differences on social structure and behavioral relationships within a population; fieldwork with horses, zebras, fish, spiders, and insects; and conservation biology.

According to Tong, the extraction technique she is working to develop “will be useful to conservationists interested in getting zebra DNA without having to catch the animals for blood or tissue samples. DNA microsatellite analyses can help to reveal the genetics underlying zebra dispersal patterns. The results should help in managing plains zebra populations by minimizing problems such as in-breeding where large areas of habitat are divided into reserves and parks with defined boundaries.”

Tong’s work in Kenya followed study abroad at Worcester College, Oxford during the spring of her junior year. At the same time, Rubenstein was on sabbatical at Oxford, which was a very happy coincidence for her, Tong explains. “He arranged for me to work in a lab that specializes in ancient DNA. In the process of researching horse evolution at Oxford, I learned several molecular genetics techniques that I was able to apply when working on the zebra DNA samples. While at Oxford, I was able to use zebra dung from the nearby Cotswold’s Wildlife Park to develop reliable DNA extraction techniques.”

Unfortunately, Tong didn’t get the results of her Oxford experiments until after she returned from Kenya, so she missed the opportunity to apply what she learned in the lab to her field work. “That was a disappointment,” she admits. “I didn’t know which experiments worked and which didn’t and had to hope that the DNA extraction method I used in the field would work. When I arrived in Kenya I had severe doubts that I would be able to get enough DNA from the zebra dung for the fingerprinting technique that I hoped to use.”

Tong’s initial plan was to use a special paper that contains chemicals for extracting and preserving DNA. Its use would minimize the equipment and time needed for each extraction, which had to be performed in Kenya. “Dung cannot be imported into the UK,” Tong explains, but DNA can. “We could only check for the presence of zebra DNA back at Oxford by using microsatellite genotyping, a DNA fingerprinting technique that relies on short DNA repeats that tend to be of different lengths in different lineages. I did the genotyping at Oxford because the lab there has an ABI3100, an instrument which is used for sizing the microsatellite repeats.” [In the fall of 2004, Princeton acquired a LI-COR 4300 DNA Analysis System for microsatellite genotyping and population studies of organisms.]

Tong arrived in Kenya in June. She and the rest of the Rubenstein team stayed at Mpala Research Center, near the town of Nanyuki in the central highlands of Kenya. The first priority in Kenya was to collect dung and extract DNA from it. “A team of two to five people would drive out with lots of zip-lock plastic bags for holding the dung,” Tong explains. When collecting samples, “You have to be very careful not to touch the dung or the insides of the bags with...”

(continued next page)
“What I learned in Kenya was how to improvise, as molecular genetics can be quite different in the field as compared to a posh lab at Oxford.”

The funny thing is, defecating was a rather infectious activity for the zebras, and this made collecting and photo-taking a rather fraught experience. We often had to drive after the retreating zebras to get the photos we needed and then return—usually from a different angle—to search for the dung. We had to be sure which dung came from which animal. Looking for dung in the long grass was rather challenging.

“However, one place we went to was a dung collector’s paradise. It was very heavily over-grazed and the zebras had seen so many herdsmen and so much livestock that they didn’t bat an eyelid at our approach, allowing us to collect 18 samples in less than an hour.”

Once the dung had been collected, the first problem the team encountered was getting enough DNA for microsatellite genotyping. There are enzymes in the dung that degrade DNA over time. So, “the fresher it is, the better,” Tong explains. “Chemicals, such as ethanol, stop these enzymes from working, but we didn’t use it because removing the ethanol would have made the DNA extraction step too complicated for the small lab at the research center. It is possible to preserve DNA by freezing the dung, but it is hard to do that in the field.” Tong continues, “I couldn’t check for the presence of zebra DNA until we arrived back in England, and on our return, we discovered there was almost no DNA in the extracts, certainly not enough for the genotyping.”

Despite the initial disappointment, Tong recognizes the value of the experience. “Throughout my time at Oxford and Kenya, I learned that research does not always work out the way you expect and that you can’t expect everything to go like clockwork. What I learned in Kenya was how to improvise, as molecular genetics can be quite different in the field as compared to a posh lab at Oxford.”

In addition, Tong discovered that she “greatly enjoys both lab and fieldwork, as they offer a very satisfying combination of experimental control and natural diversity.”

Since the summer, Tong has returned twice to Oxford, once to refine the methods of extracting DNA from dung, and more recently, to genotype newly collected and extracted DNA samples that Rubenstein and their collaborator from Oxford, Dr. Beth Shapiro, obtained from a second trip to Kenya in January 2005. Tong was excited to find that with a new extraction technique that uses a centrifuge to pass DNA through a filter, there appears to be enough DNA for microsatellite genotyping. Tong returned from Oxford at the end of January for the start of her last term, and is keenly awaiting the results of her genotyping experiments.

Tong’s interest in conservation developed many years before she enrolled at Princeton. A native of Singapore, she “grew up interested in conservation because Singapore has so little undeveloped land left,” she says.

Tong became aware of Princeton and was inspired to apply to the University after reading Beak of the Finch by Jonathan Weiner. The Pulitzer Prize-winning book describes the research EEB professors Peter and Rosemary Grant have conducted on Darwin’s finches. Once enrolled at the University, Tong was thrilled to meet the Grants and has taken several classes with them.

After graduation, Tong plans to earn a Ph.D. in evolutionary biology and to spend the rest of her life studying evolution as a biologist and academic. She has been accepted into Ph.D. programs at Cambridge, Oxford, and Harvard and is in the process of making her decision.

Olympia Moy
Studying the “Grain to Green” Reforestation Policy in China’s Wolong Reserve

Funded by a Colvin award, Olympia Moy arrived in China in May 2004 intending to study the giant panda’s selection of bamboo in the Wolong Nature Reserve in Sichuan. However, once in the region, Moy switched her focus to a reforestation policy called Grain to Green (GTG), one of three national environmental policies currently being implemented in Wolong.

“I gravitated away from studying the panda habitat, as I thought I would learn more about the reserve and environmental policy issues by traveling the countryside and meeting more locals,” says Moy, who is fluent in both Mandarin and Cantonese. This change enabled her to study lower-elevation trees and agriculture, not just bamboo.

Moy, a senior majoring in EEB, has long been interested in field study in Asia. As her junior year approached, she spoke to her advisor, EEB Professor Simon Levin, about
research possibilities. Levin contacted a colleague, Jianguo Liu of the Department of Fisheries and Wildlife at Michigan State University. As director of MSU’s Center for Systems Integration and Sustainability, Professor Liu heads a lab that studies interactions between people, policies and panda habitat in China.

According to Moy, the three national policies implemented in Wolong are the National Forest Conservation Policy (the NFCP is essentially a logging ban); eco-hydro-power construction projects; and GTG. Professor Liu’s lab looks at how the various policies are implemented; how they affect the people, their crops and the forest; where the locals get power; and subsidies.

“I studied the GTG policy implementation,” she says. “This national policy is not specific to the Wolong Reserve and was implemented in response to the Yangtze River flooding in 1998. The landslides created by the flooding forced Chinese authorities to realize the extent of land degradation that had occurred as a result of deforestation due to agriculture. The policy stipulates that cropland of a slope over 25 degrees must be reforested, but it was left to the locals to decide which plots and when to return them to forest.”

To begin, Moy’s general questions were, “Does the GTG policy provide a potential source of fuel wood to mitigate timber collection in Wolong Reserve? How much biomass is in these parcels? Where are they located?”

She discovered a “great deal about how the GTG program works in the area and what the national policy means from a practical standpoint when real people apply it to their lives. I saw how local residents manage to work both with and around the policy.”

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Moy worked in the two townships in the reserve, Wolong and Gengda. Some villages are along the main road and some require extensive hiking into remote valleys. She used GPS to mark the vertices of the crop fields to collect information on the area and perimeter of the parcels. She noted the physical features that surrounded the land—whether parcels were bordered with corn or artificial or natural forest among other things—as it was important to her analysis to see the land in its context. When a parcel was completely surrounded by GTG sites, she tried to sample it on a larger scale. She stood in one position and noted the distance in eight directions to the next type of land use/cover and marked what was on the border. In addition, she measured the trees within a parcel to analyze biomass.

Moy encountered problems when trying to estimate how well the GTG trees were doing. “The quality of the saplings varied from year to year, and the trees planted in 2000 are visibly taller than those planted in subsequent years. However, when a tree dies, the farmer is responsible for replacing it. So, in a plot planted in a particular year, the trees may vary in age. And because farmers are not allowed to cut down trees, they have become very resourceful, cutting branches instead of whole trees. This makes it hard to estimate biomass and the health of the trees. Some of the residents even continue to farm in the reforestation areas by planting cabbages between the saplings. The presence of the saplings therefore does not limit human activity. But it could be argued that the night soil used to fertilize the cabbage might be beneficial to the saplings as well.”

Moy also observed a fragmentation of sorts created by reforestation. Because the farmers decide which fields to return to forest, the resulting land use is a patchwork.

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Theoretically,” she says, “you would want to have a large contiguous area returned to forest, instead of cabbage and potato fields growing in between the treed areas. How much land the farmers decide to return to forest could correspond to their income for that year or to how much they are willing to pay for electricity.”

Moy, who was in China for three months, is back at Princeton studying the measurements she took. Her thesis, “Grain-to-Green Implementation in Wolong Reserve, Sichuan, China,” will use a simple model to predict what percentage of the Wolong residents’ fuel needs can be fulfilled by harvesting Grain to Green larch plantations in the future. She is planning to find a job with a health-related NGO after graduation and to pursue degrees in medicine and environmental health science or global health.
Alumni Chat:
Rajini Ramakrishnan ’95
Environmental Engineer for the U.S. EPA

Rajini Ramakrishnan graduated in 1995 with a degree in civil engineering and operations research. Soon after, she began a career at the United States Environmental Protection Agency. PEI News interviewed Ramakrishnan about her career and how the ENV Program influenced it, and asked her advice for future graduates.

Please explain what you are doing professionally.

I currently work in New York City in the Region 2 office of the U.S. EPA. I’m in the Strategic Planning and Multimedia Programs Branch, which is under the Division of Environmental Planning and Protection. I have worked in the Region 2 office for the past two and a half years.

I review reports and other documentation prepared by contractors pertaining to the remediation of hazardous waste sites in New Jersey and prepare letters detailing comments to EPA Remedial Project Managers, the people in charge of the sites. The purpose of these comment letters is to ensure compliance with various environmental statutes throughout the remediation process. The statutes I deal with include the Endangered Species Act, National Historic Preservation Act, Wild and Scenic Rivers Act, Wilderness Act, Coastal Zone Management Act, and regulations dealing with wetlands protection and floodplains protection.

I have also reviewed and commented on Environmental Assessments and Environmental Impact Statements which have been prepared under the National Environmental Policy Act and Section 309 of the Clean Air Act. I deal mainly with transportation and development projects in New York and New Jersey. The purpose of the reviewing and commenting process is to ensure that environmental impacts are being taken into account from the initial stages of a project through to its conclusion.

Did the ENV Program have an impact on your career choice and goals?

Yes, it certainly did! My interest in pursuing a career in the environmental field started out with the classes I took in both the environmental engineering program as well as the ENV Program. As part of the ENV Program, I took classes in the Woodrow Wilson School which propelled me in the direction of environmental policy. After graduation, I went on to do an internship at Environmental Defense (a national nonprofit organization based in New York City) and then on to a masters program in environmental management and policy at the Yale School of Forestry and Environmental Studies. The ENV Program gave me a good perspective on the environmental field as a whole and aided me in discovering not only what the field had to offer to me, but what I had to offer to the field.

How did the ENV Program inspire you?

One of my best and most inspirational academic experiences at Princeton was the senior thesis. This was mainly due to the fact that I was able to combine environmental engineering and, as part of the ENV Program, environmental policy. Writing the thesis and participating in the colloquium generated my interest in pursuing graduate studies in the environmental field, where again, one of my best academic experiences was writing my masters thesis.

Do you have any advice for current students pertaining to the ENV Program or to a career in the environmental field?

For me, a career in the environmental field is something that has been incredibly fulfilling, both professionally and personally. My advice to students in the ENV Program is that a career in this field offers something for anyone interested in environmental issues. If you are interested, explore all aspects of the field and find your niche. Whether you are interested in the technical side of things, the policy or legal side of things, or even a combination of these, there is something for everyone. The key for me has been to explore as much as possible—and to always be exploring. 😊
PEI Announcements

Morris K. Udall Scholarship Award Winners

The Morris K. Udall Foundation furthers the late congressman’s (D-Arizona 1961-91) legacy by awarding 80 scholarships of up to $5,000 to students who have outstanding potential, study the environment, and are committed to increasing awareness of the importance of the nation’s natural resources. Princeton University had two winners this year, both of whom are ENV students: Catherine Kunkel ’06 and Marilyn Waite ’06. Congratulations!

PEI Faculty Awards

In 2004, Professor of Psychology Bartley Hoebel was awarded the American Psychological Association Distinguished Scientist Lecture Award. The award, which includes a $1,000 honorarium, will pay for Professor Hoebel to speak at the Western Psychological Association meeting in 2005.

Francois M.M. Morel, professor of geosciences and director of PEI, was awarded the 2005 Maurice Ewing Medal by the American Geophysical Union (AGU) for his leadership in low-temperature aqueous geochemistry. His work has helped to establish a new field of studies at the interface between marine chemistry and biology.

In December 2004, Robert Socolow, professor of mechanical and aerospace engineering, was selected to be a lifetime national associate of the National Academies “in recognition of extraordinary service to the National Academies in its role as advisor to the Nation in matters of science, engineering, and health.”

Tom Spiro, professor of chemistry, received the 2004 American Chemical Society (ACS) Award for Distinguished Service in the Advancement of Inorganic Chemistry. The award is sponsored by Strem Chemicals Inc. and recognizes individuals who advance inorganic chemistry by significant service and the performance of outstanding research.

If you would like to receive the *PEI News* via email, please fill out this coupon and return it to: PEI, Guyot Hall, Princeton University, Princeton, NJ 08544-1003, or send email to chpeters@princeton.edu.

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Additional information about the Institute and the Undergraduate Program in Environmental Studies is available on the Internet:  
http://web.princeton.edu/sites/PEI/