

45 BEACON

LETTER FROM HEADQUARTERS

How *Not* to Improve Communication on Climate Change Issues

One year ago in this column (July 2011 *BAMS*, p. 923), I discussed efforts to work toward effective communication on climate change. That column summarized the results of research on “cultural cognition,” which refers to how people tend to view information in ways that align with their cultural values. That research has shown how easy it is to increase the polarization of a population with respect to a controversial issue even if you try to concentrate solely on presenting scientific facts. The column also discussed the early work of the AMS Committee to Improve Climate Change Communication (CICCC), whose charge is to provide opportunities for open and respectful dialogue on the science of climate change, with the goal of decreasing the divisiveness within our own community on this extremely important topic.

I think we are learning a great deal about how to help foster useful communication among those who have differing views on climate change. Workshops conducted by the CICCC at the AMS Annual Meeting in New Orleans last January—which brought together small groups of individuals with widely differing views on the science of climate change—were excellent examples of that. Follow-up discussions with those involved in the workshops revealed that almost everyone who participated came away with a deeper appreciation for the views of the other participants, and several have indicated that they felt this approach could lead to real progress in reducing the divisiveness and conflict that we see now.

While the AMS has been actively pursuing ways to bring together our community to discuss this very complicated topic and find common ground from

which to move forward, some organizations have been pursuing a different approach. They are trying to apply public pressure on those whose views are different. One organization, for example, publishes on its website a list of broadcast meteorologists who are identified as “deniers” based on views that they have expressed with respect to climate change (sometimes apparently using a single ambiguous or noncommittal statement by that individual as the basis for being included in the list). One gets the sense that those pursuing this tactic expect it to force broadcasters who are currently unconvinced that humans play a significant role in our changing climate to change their mind and begin promoting action to mitigate climate change. Almost every aspect of this approach, however, flies in the face of scholarly research on how to reduce polarization on a controversial topic and bring a population toward collective support for specific actions. These are examples, quite simply, of how not to improve the discussion on climate change.

If our goal is to help society deal with climate change based on the best scientific understanding available, we need a depolarization of the dialogue on climate change. We need a dialogue that allows respectful discussion of the science of climate change among those who are unconvinced of the role of humans in that change, as well as those who are convinced. We need to have that discussion clearly separate the science of what is happening, which we seek to understand through careful analysis of observations and through the physically realistic models that are at the core of the atmospheric and related sciences, from the policy options that address possible mitigation and

adaptation, which involve value judgments and are therefore inherently political.

There is no shortage of examples of how not to communicate effectively on the topic of climate change, and we see evidence of this almost daily. I hope you will join me in trying to support avenues for respectful and open discussion on this topic, and think about ways you can promote a depolarization

of the dialogue, both within our small community of the atmospheric and related sciences and within the general public.

KEITH L. SEITTER, CCM
EXECUTIVE DIRECTOR

EARLY CAREER PROFESSIONAL HIGHLIGHT

The Formation of the Board for Early Career Professionals

Over the past decade, the AMS has developed a strong student membership base due in part to the continued success of the annual student conference and AMS student chapters. Students often find the AMS a source for networking opportunities and information that will guide them into and during the early part of their careers. However, the Society has noted that early career professionals begin to lose touch with the organization during their transition to the workforce or graduate school.

To address these issues, the AMS has developed a membership subcommittee to better understand the needs of early career professionals. Feedback was solicited from AMS members during the Early Career Professional Receptions hosted at the Annual Meetings in Seattle and New Orleans. To implement a response to this feedback, the AMS established the Board for Early Career Professionals to assist AMS members and provide them with resources to develop and advance their careers.

THE COMMITTEE. The following individuals have volunteered to serve on the newly formed board and begin building resources for early career professionals.

- Andrew Molthan, Ph.D. (Chair)—Research Meteorologist, NASA Marshall Space Flight Center
- Marc Baribault—Meteorologist, US Engineering Solutions Corporation



Early career professionals networking at the Second Annual Reception for Early Career Professionals in New Orleans.

- Jill Hasling, CCM and AMS Fellow—President and Executive Director, Weather Research Center, Inc.
- Holly Hassenzuhl, M.S.—Meteorologist/Science Analyst, Weather Central, LP
- Matthew Lacke, M.S.—Meteorologist, Jefferson County Department of Health
- Scott Mackaro, Ph.D.—Numerical Weather Prediction Scientist, Vaisala, Inc.
- Chris Schultz, M.S.—Graduate Research Assistant, University of Alabama in Huntsville
- Chris Slocum—Graduate Research Assistant, Colorado State University
- Marcus Walter, M.S.—Weekend Weather Anchor, WKYC

OUR PLANS. *The Highlight.* The purpose of The Highlight in *BAMS* is to feature successful early career professionals and share their keys to success for the benefit of other early career professionals. In addition, The Highlight will include insightful advice from more senior professionals.

Do you have advice for early career professionals? Would you like to nominate a successful early career professional for The Highlight? Do you have suggestions on what you would like to read in The Highlight? We would like to hear from you! Feel free to contact the chair of the Board for Early Career Professionals via e-mail at andrew.molthan@nasa.gov.

First Conference for Early Career Professional. The 93rd AMS Annual Meeting in Austin, Texas, will include the First Conference for Early Career Professionals, specifically designed to include speakers and panels targeted to the needs of early career professionals. Conference organizers will also solicit feedback on how to increase the relevance of the AMS to this portion of the membership.

Continuation of the Early Career Professional Reception. The reception has proven to be an effective way for early career professionals to interact and network, as well as a means for the board to learn how to target its activities. Following the workshop, the board will

host the Third Annual Reception for Early Career Professionals.

Social Networking Presence. In an effort to bring the latest information to early career professionals, the Board has created the “AMS Early Career Professionals” Facebook page. We encourage early career professionals, students, and senior professionals to “like” and interact with people on the page.

The Board members look forward to further developing resources for the Society’s early career professionals, and we hope for the active involvement of the Society’s members.

GOING GREEN

GREENING THE AMS INVESTMENT PORTFOLIO

What is the color of money? While U.S. currency is green, not all financial investments are “green” in the sense of environmental stewardship. Like many other organizations, the AMS tries to manage its financial concerns with a diversified investment portfolio. But we also have environmental concerns, perhaps more so than many other organizations because of our special connection to the natural environment borne of our professional interests and affiliations. Recently, the AMS Committees on Investments and on Environmental Responsibility have teamed up to review the idea of green investing.

Green investing is a special category of social investing that typically embraces companies focused on sustainability and the environmental sector, such as pollution control, organic and natural foods, environmental cleanup, and renewable energy. Green investing also could include companies that are committed to environmentally conscious business practices.

Dan Wilson, a member of the AMS Investment Committee who also oversees UCAR’s investment portfolio, puts it this way: “Green investment strategies are diverse and can be difficult to navigate. There are definitely many shades of green. What if a company makes a green product but causes toxic pollution through its production process? Would we want to invest in the risky solar panel production business that loses money and has poor investment return?”

The AMS Investment Committee has considered this issue previously and has discussed such problems

as the dilemma of nuclear power being screened as a “bad” environmental choice while a coal-burning power company with excellent pollution controls might be rated as a “good” choice. Since the AMS does not buy individual stocks, as that would increase risk, it would have to choose a mutual equity or fixed-income fund that best matches the environmentally friendly goals, but that also has good investment returns. It’s not a simple task to implement a “green investing” strategy.

As Rich Clark, a member of the Committee on Environmental Responsibility, sees it: “With the wider range of values-driven investment products, our hope is that AMS will be able to add more green to the color of its investment portfolio as opportunities present themselves. Admittedly, the risks may be more palatable in a bullish market, but as an organization that is inherently conscious of its environmental stewardship, it is imperative that we continue to study green funds that also have the potential for good long-term returns.”

To that end, the two committees are committed to maintaining a focus on helping the AMS formulate an investment strategy that is both financially and environmentally responsible. Past President Jon Malay, who sits on both committees, offers this perspective: “The work of the AMS—enabled by our financial health and stability—is inherently ‘green.’ Therefore, a professionally managed and responsible investment strategy that supports our work for the long run is our true goal, and one we’re committed to achieving.”

John Knox, an associate professor of geography at the University of Georgia, and **Jonathan E. Martin**, professor and chair of atmospheric and oceanic studies at the University of Wisconsin—Madison, have been included in The Princeton Review’s new book, *The Best 300 Professors*.

The Best 300 Professors is the first comprehensive guidebook to America’s top undergraduate professors. Knox and Martin, both atmospheric scientists, were chosen using students’ anonymous teaching evaluations posted on the website www.RateMyProfessors.com. The Princeton Review teamed up with the website,

the highest-trafficked college professor rating site in the country, to collect both qualitative and quantitative data from surveys and ratings.

“We developed this project as a tribute to the extraordinary dedication of America’s undergraduate college professors and the vitally important role they play in our culture, and our democracy,” says Robert Franek, The Princeton Review’s senior vice president. “One cannot page through this book without feeling tremendous respect for the powerful ways these teachers are enriching their students’ lives, their colleges and, ultimately, our future as a society.”

PROFESSIONAL PRACTICES

This is the second in a series of articles encouraged by the Board of Certified Consulting Meteorologists and the National Council of Industrial Meteorologists to explore the ethical issues that can be encountered conducting business in the meteorological community. The purpose is to initiate a discussion within the broader membership about how the professional guidelines section of the AMS constitution comes to life in the conduct of everyday life of professional meteorologists. Comments are welcome and should be addressed to the authors. More formal responses can also be made to the editor of BAMS.

THE ETHICS OF DEFINING A PROFESSIONAL Who Is a Meteorologist?

BY JERRY D. HILL, CCM, AND GERALD J. MULVEY, CCM

What is a “professional?” There are professional athletes, professional actors, and the term is even sometimes used by tradesmen to indicate the quality of their work, such as “professional plumbers.” In the most basic sense, professionals are people who earn their living in a profession. More broadly, a professional has specialized skills and knowledge that required independent learning and effort on their part to attain. Before the AMS had its current categories of memberships, one of the categories was “professional member.”

In any occupation, there is usually a sense of pride of profession. People in that occupation can resent others who attempt to portray themselves as a member of that profession without “paying their dues.” This is particularly true in the atmospheric sciences profession, where the complexity of our science often warrants admiration from others.

To call oneself a professional in a certain occupation is intended to bring respect and inspire confidence. To protect the public, many professions, such as medicine, engineering, or public accounting, are regulated by state laws that establish the training, examination process, and experience required to qualify for a license. People using a title such as “medical doctor” or “certified public accountant” when not actually licensed in such a field are guilty of more than just a violation of ethical standards; they can land in jail or at least owe a hefty fine for the misrepresentation.

States have never licensed professional meteorologists, however, and some people have claimed

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publicly to be a meteorologist even with limited or no scientific training. Such representations might be considered a breach of personal ethics or professional conduct, even though no laws prohibit such actions.

We might define what, in a strict sense, the qualifications are for a person to be considered a meteorologist. In 1990, the AMS adopted a guideline (www.ametsoc.org/policy/whatisam.html) that describes a meteorologist as “an individual with specialized education who uses scientific principles to explain, understand, observe or forecast the earth’s atmospheric phenomena and/or how the atmosphere affects the earth and life on the planet.” This specialized education would involve a bachelor’s or higher degree in meteorology, or atmospheric science, consistent with the requirements set forth in a separate AMS guideline on attributes of university programs for bachelor’s degree programs in atmospheric science (www.ametsoc.org/policy/2010degree_atmosphericsscience_amsstatement.html). The guideline says further: “There are some cases where an individual has not obtained a B.S. or higher degree in meteorology, but has met certain educational requirements and has at least three years professional experience in meteorology. Such an individual also can be referred to as a meteorologist.”

The specialized education leading to a bachelor’s degree referred to in the AMS guidelines should contain 24 hours of credit in atmospheric science plus supporting course work in mathematics, physics, and computer science. The hours in atmospheric science must be specifically related to meteorology topics. The mathematics and physics coursework should be that required for other physical science and engineering majors. The physics coursework must be calculus-based and must include a lab.

A degree in a related science with a few course hours in meteorology does not qualify one as a meteorologist under these guidelines. An example might be someone with a degree in statistics who has taken a specialty statistics course in a meteorology department or online and is working in the area of climate data analysis. The person would still be considered professionally as a statistician and not a meteorologist, even though he or she is working with meteorological data.

In a different venue, the U.S. Federal Civil Service has established a standard for classifying government employees as “meteorologists” when they hold

a degree from an accredited college or university and have earned at least 24 semester hours (36 quarter hours) of credits in meteorology/atmospheric science (see www.opm.gov/qualifications/standards/IORs/gsl300/l340.htm). An alternate federal standard has been established for persons who normally do important weather-related work such as performing calculations, operating specialized meteorological equipment, and making weather observations. These are people who have received technical or military training in meteorology but do not meet the academic standards to be classified as meteorologists. Under the Civil Service guidelines, they are classified as “meteorological aids” or “meteorological technicians,” but not meteorologists.

Meeting the AMS or the relevant Federal Civil Service guidelines would be considered sufficient for persons to represent themselves as meteorologists. Otherwise, it would not be illegal, but would certainly be considered unethical, to use that label for oneself professionally.

One area where some people have historically taken liberties identifying themselves as meteorologists is in the broadcasting industry. In recent years, some broadcasters have taken meteorology courses available online to become self-appointed “meteorologists.” To help deal with this trend, the AMS took steps in the public interest to create a standard for scientific training people must meet before they can be given a seal of recognition as a “Certified Broadcast Meteorologist” (CBM).

The CBM must possess a degree in atmospheric science/meteorology or have completed coursework considered equivalent to a degree in atmospheric science/meteorology. Some weathercasters who hold bachelor’s degrees in communications or related subjects may have earned additional credits in meteorology to meet the academic requirements for equivalence to a degreed meteorologist. This additional training in meteorology should also be sufficient for them to be considered as professional meteorologists and referred to as such on the air.

People considering a career in broadcasting where they might use a university’s distance learning coursework to supplement a nonmeteorology undergraduate degree in order to meet the AMS guidelines for becoming a meteorologist should examine the institution’s curriculum closely. Distance learning programs do not normally offer the opportunity to meet the AMS requirement to

complete physics coursework that is calculus-based and includes a lab. Also, to earn the Society's CBM seal requires coursework in atmospheric thermodynamics and dynamic meteorology that has calculus as a prerequisite.

In 2005, a bill was introduced in the Texas Legislature by a Dallas-area representative that would have made it a misdemeanor to call yourself a meteorologist unless you met specific academic requirements that were included in the bill. The standards used in the bill's language were tantamount to having a four-year bachelor of science degree in meteorology and were identical to the standards for National Weather Service meteorologists. The proposal would have established the only state-set standards for meteorologists in the country. The bill's sponsor claimed to have only one motive for the bill: the safety of the public. The sponsor said, "A very real possibility exists that some unqualified person, calling himself or herself a meteorologist, might someday misinterpret meteorological data in a weather emergency and lead the public into danger."

The bill did not pass the Texas legislature, but caused a storm among the state's weathercasters,

some of whom did not meet the criteria set in the proposed bill but believed their experience gave them the equivalent skill of degreed meteorologists. There has been no effort to reintroduce the bill since 2005, and perhaps the establishment of the AMS's CBM seal, also in 2005, serves as an adequate substitute. However, the public still may not be making the connection between displaying the seal and the weathercaster's academic qualifications.

Representing oneself to the public as a meteorologist requires very specific qualifications. These differ slightly between the AMS definition and the Federal Civil Service definition. However, the fundamental academic requirements are nearly identical. Ethical questions arise when someone who clearly does not meet any of the qualifications represents himself or herself as a meteorologist—for personal aggrandizement, to gain public trust, or for financial gain. At this time, there is no law in the United States that would make this a punishable offense, but it reflects adversely on the character of the person who does this or allows others to do so on their behalf.

AWARDS

The following awards were presented at the 30th Conference on Hurricanes and Tropical Meteorology, held 16–20 April 2012 in Ponte Vedra Beach, Florida.

2012 Banner Miller Award—Mark DeMaria

The 2012 Banner Miller Award was presented to Mark DeMaria for his insightful application of the logistic growth equation as a simple dynamical prediction system (LGEM) for tropical cyclone intensity. In this system, the growth rate of a tropical cyclone is assumed to be a linear function of basic environmental parameters that are readily available in forecast operations. Although this application replicates the basic evolution of a tropical cyclone using a much smaller number of state parameters than complex dynamical and statistical models, LGEM is recognized as a skillful forecast aid upon which operational forecasters rely.

2012 Max Eaton Award—Zachary Handlos and Daniel Chavas

The Max A. Eaton Prize is awarded for the best student paper presented at each technical conference on hurricanes and tropical meteorology. The paper is judged on content and presentation by a panel selected by the conference program committee. Entrants must be currently enrolled in high school, college, or graduate school. The prize, an AMS reference book, \$100, and a certificate, was established to recognize Max A. Eaton's lifelong contributions to tropical meteorology and the encouragement he gave to so many young researchers.

There was a tie for the 2012 award: Zachary Handlos for "Estimating Vertical Motion Profile Shape within Tropical Weather States" and Daniel R. Chavas for "Equilibrium Tropical Cyclone Size in an Idealized State of Axisymmetric Radiative–Convective Equilibrium."

Maynard E. Smith, an AMS member since 1941 and a Fellow, died 17 April 2012 at the age of 92. Smith had moved to northern Connecticut after being a meteorologist with the U.S. Army and Brookhaven National Laboratory and then heading his own company, Meteorological Evaluation Services, Inc.

Immediately after graduating from Princeton in 1941, Smith became a member of the second aviation cadet class at New York University. He

MAYNARD E. SMITH
1920–2012

received his M.A. in meteorology as well as his appointment as a 2nd Lieutenant in the U.S. Army Air Corps in February 1942. His first major assignment was to the newly formed Joint Weather Center in Washington, D.C.—a group composed of U.S. Air Corps, Navy, and Weather Bureau personnel. Smith became head of the Upper Air Analysis Section, whose major responsibility was forecasting flight weather, winds, and temperatures for the North Atlantic ferry transport of fighters and bombers to the United Kingdom. In this assignment, he began a lifelong friendship with Ken Spengler, who became the AMS Executive Secretary after the war. Smith also worked with Ben Holzman, Henry Harrison, and Harry Wexler, developing new techniques for upper-air analysis and forecasting.

One of Smith's favorite stories about this phase of his work involved the group's failure to recognize the first indications of the jet stream. At that time, upper-wind observations were based on "Pibals"—balloon measurements that seldom exceeded 20,000 feet. Once in a great while, one would ascend higher, intersecting the jet stream, but the analysts would cheerfully discard the data as obviously flawed. Not until the advent of the B-29 bombers late in the war did anyone realize that the jet stream existed.

Following this, Smith developed a system for segregating the atmosphere into layers of varying thickness, each of which was characterized by temperature, wind, moisture, and stability. He and Ralph

Nelson coded this information into a teletype transmission form called MESRAN (MESmith RANelson), which became widely used in the United States and Europe. And, as a further outgrowth, the system was translated into a form that could be used by the artillery and anti-aircraft people to correct shellfire. (In 1943, the U.S. Army was still basing its artillery fire correction tables on surface wind observations and the so-called "standard atmosphere" densities.)

In the spring of 1944, Smith was assigned to the 21st Weather Squadron, Ninth Air Force, where Colonel Tommy Moorman set him to work developing a program to provide the U.S. Army ground forces with whatever weather data they could conceivably use, including the correction system for artillery fire. (The ground forces had no weather service of their own at that time.) The new Ground Force Weather Detachments began landing in Normandy on D-Day plus one, and Smith became commanding officer of both these detachments and the Advanced Headquarters of the 21st Weather Squadron in Normandy.

During the remainder of World War II in Europe, he divided his time between making the rounds of his 13 Ground Force Detachments to keep their staff, supplies, and training up to date, and developing new methods of assessing and forecasting such new items as soil trafficability, ice thickness, etc., for ground operations.

After the war, Smith spent three years with American Airlines, forecasting flight weather in the New York region, and then joined the Meteorology Group at Brookhaven National Laboratory, under Norman Beers. This group designed and built one of the most elaborate low-level research facilities available at the time, consisting of a fully instrumented pair of towers, 420- and 150-foot high, respectively, and including an oil-fog generating facility for tracer studies. Brookhaven was building an air-cooled nuclear reactor, and information on low-level atmospheric diffusion was important for the safety of the public and the laboratory staff. Data from these studies resulted in early estimates of

IN MEMORIAM

MELVIN GOLDSTEIN
1946–2012

FRANK SHERWOOD ROWLAND
1927–2012

DAVID W. SAXTON
1933–2012

CLIFFORD SPOHN
1915–2012

the “diffusion parameters” as defined by the English meteorologists Sutton and Pasquill.

Simultaneously with the development of the Brookhaven research program, close relationships were established with the New York University and Pennsylvania State University meteorological staffs, under Bernard Haurwitz and Hans Panofsky, respectively. These relationships strengthened the Brookhaven program and provided extensive turbulence and diffusion data for university graduate investigations.

As in the air force upper-air work, a practical application arose because industrial executives in the United States were becoming aware of the importance of curbing air pollution, and Smith and Irving Singer, his colleague of 24 years, left Brookhaven in 1973 to form Meteorological Evaluation Services, Inc (MES). The new company devoted its efforts to analyzing existing air pollution problems and helping locate and design new facilities, primarily for nuclear and coal-fired electric

utilities and chemical and aluminum plants. MES also continued to refine computerized techniques for summarizing and assessing both meteorological and air quality data.

Smith retired from MES in December 1986 but continued his relationship with the meteorological profession by chairing the Steering Committee of the AMS/EPA Cooperative Agreement, in which a group of scientists advised the EPA on the mathematical modeling of air quality problems and the data required for them.

He and his late wife, Doreen Dallam, spent most of their 41 years together on Long Island, in Massapequa and Southold. Since 1994, he had been living in Connecticut with his companion of 25 years, June Stern. He is survived by his daughter, Kathleen Smith, of Madrid, Spain; two grandchildren, Daniel Clay Smith and Bonnie Virginia Sims; and one great grandson, Matthew Elijah Smith.

—WRITTEN BY MAYNARD SMITH
PRIOR TO HIS PASSING

A few outstanding individuals appear in each generation, and Stanley Wasserman was one such individual. Stan was full of energy, insightful and curious about the atmosphere and life in general. He studied meteorology at the City College of New York and received an M.S. in meteorology and did additional graduate work at New York University.

Stan’s entire career was spent in the National Weather Service (NWS), except for a two-year stint in the U.S. Army at Ft. Huachuca, Arizona, providing meteorological support for artillery. Stan’s career in the NWS began at Newark, New Jersey, and progressed in research in the Scientific Services Division, the Data Acquisition Division, and as chief of the Meteorological Services Division at the Eastern Region of the NWS. He concluded his long government career as meteorologist-in-charge at the forecast office in New York City.

Wasserman was instrumental in improving interpretation of satellite information, probability forecasting, issuance of watches and warnings, hurricane preparedness, and nuclear plant disaster readiness. During his career, he also found time

to act as a consultant to NBC on early manned space flights and to teach part-time at the SUNY Maritime College. He received numerous awards from the U.S. Department of Commerce, the NWS, and the AMS. As a certified consulting meteorologist, his counsel was sought and he brought credit to the profession. He also served as chair of the NYC Chapter of the AMS and the Atmospheric Science Section of the New York Academy of Science.

Stan was too energetic to retire to a life of leisure, and so he became a real estate broker after retirement. He had many Chinese clients and came to understand their culture of feng shui in searching for a home. He also was one of the first to express apprehension about subprime mortgages, which would later lead to the great recession.

Stan is survived by his wife, Muriel, a daughter, two sons, and six grandchildren.

—FRED ZUCKERBERG,
WITH THE AID OF MARK KRAMER

STANLEY WASSERMAN
1934–2011

[Editor's Note: The following post is excerpted from William Hooke's blog, *Living on the Real World* (www.livingontherealworld.org/). Hooke is director of the AMS Policy Program.]

Demography's Role in Sustainable Development

(Originally posted on 21 March 2012)

From time to time, readers post comments here citing humanity's sheer numbers . . . 7 billion and climbing, on its way to what looks to be 9 billion at a minimum . . . as the biggest challenge to sustainable development. So many people means a big global appetite for food, water, and energy. Per capita, those appetites are increasing, in response to economic growth and globalization. It's hard for this many people, however well-intended, to avoid degrading the environment, destroying natural habitat, threatening endangered species, and the like. And the numbers imply crowding higher populations and greater economic activity into locations vulnerable to natural hazards . . . coastal zones, unstable slopes, and seismically active areas.

But how to carry the discussion further? Those who are so inclined and looking for a suitable starting point might take note of a multi-authored letter posted in the February 24, 2012 issue of *Science*.

Here are their five bits of advice:

1. Recognize that the numbers, characteristics, and behaviors of people are at the heart of sustainable development challenges and of their solutions.
2. Identify subpopulations that contribute most to environmental degradation and those that are most vulnerable to its consequences. In poor countries especially, these subpopulations are readily identifiable according to age, gender, level of education, place of residence, and standard of living.
3. Devise sustainable development policies to treat these subpopulations differently and appropriately, according to their demographic and behavioral characteristics.
4. Facilitate the inevitable trend of increasing urbanization in ways that ensure that environmental hazards and vulnerabilities are under control.
5. Invest in human capital—people's education and health, including reproductive health—to slow population growth, accelerate the transition to green technologies, and improve people's adaptive capacity to environmental change.

Maybe you can improve upon this list. Perhaps the authors have omitted some dimension or issue, or

framed what they've considered in an awkward way. In several if not all of the five instances, the statements fall short of specifics—actionable steps. But however you look at it, these observations are food for thought, worth keeping in mind, improving, building upon, as the world lugubriously lumbers along toward the RIO+20 Earth summit.

And what's the provenance of the list? Well, the writers had participated in a meeting convened by the International Institute for Applied Systems Analysis (IIASA) specifically considering how demographic factors foster or hinder sustainability. A fuller discussion of conclusions and recommendations from their full report, "Demographic Challenges for Sustainable Development," is available at www.iiasa.ac.at/Research/POP/Laxenburg%20Declaration%20on%20Population%20%20Development_final_logos%20.pdf.

**A NEW DIRECTION FOR
Earth Interactions**

CALL FOR PAPERS

AMS and the American Geophysical Union (AGU) are working together to revitalize *Earth Interactions* and establish the journal as a first-class publication venue for interdisciplinary Earth and environmental sciences.

Earth Interactions is seeking papers that explore the interactions among the biological, physical, and human components of the Earth system. EI will consider the following kinds of papers:

- original research article
- review articles
- brief "data reports" and "model reports"
- special collections of papers from conferences and workshops

There are currently no page charges or color charges for the journal. Manuscripts can be submitted online at earthinteractions-submit.agu.org.

For more information, please contact the editor, Rezaul Mahmood, Dept. of Geography and Geology, Western Kentucky University, Bowling Green, KY 42101; e-mail: rezaul.mahmood@wku.edu.