

45 BEACON

LETTER FROM HEADQUARTERS

A LEGACY OF HISTORIC SIGNIFICANCE

I am guessing that many reading this column may not realize that a delegation from the AMS was one of the first scientific groups to visit China after relations between that country and the United States were normalized in the early 1970s. The AMS delegation trip took place in 1974, and it is an example of the sort of international relations that have been a hallmark of

the meteorological community. (Another example of these long-standing international relations will occur at the upcoming Annual Meeting in New Orleans, in which scientists from several Asian countries will participate in the First Joint AMS-Asia Satellite Meteorology Conference.)

While I was aware of that first AMS trip to China and its significance, I learned quite recently from longtime AMS member John Beckman that the trip was actually funded by donations from AMS members (including John). A fund was

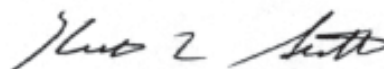
established by generous AMS members to recognize the 50th anniversary of the Society, and when the opportunity arose for a delegation to visit China, the decision was made to use the fund for that trip. In my mind, this makes this historic trip all the more extraordinary—what a meaningful legacy for those donors to have made to our community!

It comes as no surprise that AMS members have always been generous in their support to the Society. I realized in my conversation with John that the

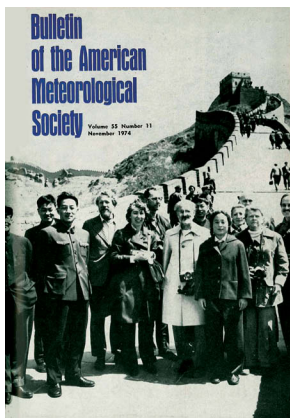
“Founders” list published in *BAMS* (which recognizes members whose cumulative donations total more than \$10,000) only includes donors who have given since the Society’s 75th anniversary. I am not sure we could construct a list that fairly recognized donations of comparable value from members going back to 1919, but it is clear that member donations have played a critical role in the special activities of the Society throughout its history.

That critical role is perhaps more true now than ever, because we presently have several ongoing programs that fully depend on generous support from our members. These include a number of programs that help students be more successful in their pursuit of careers in the atmospheric and related sciences—from scholarships to the annual Student Conference—as well as support for K–12 teachers, young scientists, policy research, and activities that preserve the history of our science for future generations.

If you made a donation to the Society with your dues renewal this year, thank you. If you have not, I encourage you to give some thought to making a donation now (which can be done easily online through the AMS Web site). Your support now can leave a legacy just as important as those member donations that funded the first AMS delegation to China. In this issue of *BAMS*, we are pleased to recognize all of the donors that generously contributed in 2010, and look forward to recognizing, in a future issue, all of the 2011 donors.



KEITH L. SEITTER, CCM
EXECUTIVE DIRECTOR



The cover of the November 1974 Bulletin shows the AMS delegation with some of their Chinese hosts at the Great Wall.

ON SAFARI IN POLICY-LAND

BY MICHAEL KIPARSKY

Scientists and policy makers alike increasingly recognize the need for engagement between their communities, but bridging the perceived gap between science and policy can be difficult in practice. In particular, there is a clear need and increasing demand for people with scientific expertise who understand enough about the policy world to engage with policy- and decision makers. However, opportunities to develop depth in both science and policy are rarely offered in graduate degree programs, and acquiring basic understanding of the policy landscape, let alone deep knowledge of the inner workings of its myriad processes, is a challenge for a working scientist.

Programs such as the American Association for the Advancement of Science (AAAS) Science and Technology Policy Fellowships teach scientists how to swim in a policy pond, but they are highly time-intensive. How-to articles exist, but are limited by their medium and may be difficult for the uninitiated to digest without guidance. If you are a “policy-curious” scientist of any stripe, and want to contribute without a yearlong investment, the American Meteorological Society Summer Policy Colloquium deserves consideration.

For me, the Colloquium felt like a first African safari. It provided a guided look at an ecosystem (federal policy making) I had read about in books, including clear views of animals in their natural habitat (purveyors of science policy) otherwise normally observed in captivity. The Colloquium provided an immediately useful introduction to policy for scientists and agency staff, and did so in a safe and low-commitment context.

WHAT CAN YOU ACTUALLY LEARN ABOUT POLICY IN 10 DAYS? Quite a lot. The value of this program lies largely in the immersive,

experiential flavor. That does not diminish the information content, which is substantial and well thought out—we read a broad selection of relevant books and heard talks from several academics—but this is not at all a class of the ivory tower persuasion. Hearing *how* people who have been steeped in the policy world talk about their work has a less tangible, but equally important learning value than a summary of *what* they actually said, and is more difficult to obtain—for someone peering into this world for the first time. Consider the difference between seeing a picture of a cheetah and witnessing one tearing across the Serengeti in front of your eyes—the latter is more impactful even if witnessed in passing. While meeting a White House official may not be quite as dramatic, the intangibles are comparable.

Some observations for the policy-curious scientist follow, based on a synthesis of my own limited experience working in state and regional policy settings and complimentary observations from the Colloquium.

First, it may be useful for many scientists to conceptualize “policy” in broad terms and focus on the area most relevant to their research or interests. While policy is synonymous with legislation in many people’s minds, that is but one element. One very general way to think about policy is as a decision coupled with authority. This definition expands the way a scientist might consider entry points to having an impact as a scientist, including through the activities of agencies. It also enables inclusion of other critical elements in the recipe for changing the way government actually gets things done, notably budget and implementation.

Second, there is a useful distinction at the science-policy interface between “science for policy” and “policy for science.” Both are important, and can be envisioned as flows of information and influence going in opposite directions between policy and science communities.

Third, to say that policy making is not a linear or rational process is to understate its chaotic nature. This point is critical, but sometimes seemingly difficult, for scientists to understand. A key corollary is that the policy impact of even the best science is often very limited without substantial effort, targeted in the correct context, to bring the scientific message to

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those who can hear and act on it. And such communication can only be the first step. While that correctly implies that a lot of learning is necessary for scientists who aspire to policy fluency and effectiveness at the interface between science and policy, it also true that with some basic understanding and tools it is possible to find a way to start contributing.

SOME KEY MESSAGES. The most important message may be that in spite of the challenges, there are **innumerable opportunities** for a motivated scientist to get directly involved, and furthermore there is **tremendous demand** for scientific expertise at all levels of policy making. Starting simply by offering oneself as a resource to local policy staff can lead quickly to making a substantial contribution. But there are many functions within the policy world that are explicitly designed as conduits for scientific information, and others that welcome it. Finding such entry points can understandably seem daunting; knowing where to start, and what matters to your audience, can give you direction and a leg up. For example, congressional staffers and policy fellows do much of the work of translation and integration, but are very often working on tight time lines outside of their areas of expertise. Many are eager to develop trusted expert sources to consult when the need arises.

Politics trumps policy in Washington, D.C. Learning what that really means, why it matters, and how it can affect scientists is a valuable lesson. One way to get a taste of this is through hands-on exercises in policy design that mix in a political element. Many Colloquium participants found these exercises eye-opening, as rational policy proposals were altered beyond recognition in the scrum of a simulated political negotiation.

Money talks. Budgets are usually the key gating function for policy enactment, but lots of work is required to get to the point where funding can be addressed. Understanding the importance of budgets and how budgets work can give key context for what kind of input can be used, and what might be irrelevant. In legislation, it is a truism that anything that can be framed in terms of the number of jobs created can have a leg up. More generally, a focus on benefits will generate a more receptive response than “doom and gloom” arguments, as fear can paralyze decision making.

Even for topics inherently driven by science, **science is but one input** into policy decisions, and often has less influence than it deserves. Scientists need to be at peace with this fact.

The value of **soft skills** is inestimable. In particular, the communication skills exhibited by the speakers at the Colloquium spoke volumes about the importance of articulating scientific and policy narratives that are both concise and compelling. In writing, formal presentations, and informal conversation, scientists need to learn to communicate in a different way. **Learn to speak their language, not yours.** But do not pretend to be a native.

Language and cultural learning of this sort in a scientist is a rare and valued commodity. There are **too few “amphibians”** whose role is addressing barriers to the transfer of information between science producers and policy consumers, and vice versa. Learning how to tailor information to consumer needs requires developing trust and fostering relationships across cultural boundaries.

Intensity is high in the policy world. Turnaround for science-policy products is orders of magnitude faster than most scientists are used to. Robustness and defensibility are expected to be high, but the level of detail is much lower and conciseness is more critical. However rapid-fire it seems, policy as a whole is not uniformly hurried. There can be a punctuated equilibrium, with long periods of perceived stasis on particular issues. It's not all about rapid-fire memos slapped on a mahogany desk just in time for the crucial decision—there can be substantial time spent laying groundwork—but it does move fast when conditions are right. In this, policy is a bit like research.

Closely related to communication, **interpersonal elements are crucial.** Relationships, credibility, and trust matter in science. They are the bread-and-butter of the policy world. Similarly, scientists can realize that leadership is a skill, not just a trait. Moving policy can require a large lever arm, and learning how to effectively work with a team can increase one's impact.

WHAT HAPPENED DURING THE COLLOQUIUM. To develop the lessons described above and much more, the Colloquium allowed participants to take a long look over the shoulders of science-policy practitioners, who ranged from staffers to director-level administrators from every branch of government, NGOs, media, and academia. We engaged in frank discussions with congressional staffers and AAAS science-policy fellows, who do the heavy lifting of bringing science into the legislative fray from the “bottom up.” We heard a remarkably riveting overview of congressional procedure from the person

responsible for briefing freshman members of Congress. We discussed strategic thinking with people responsible for pushing scientific agendas onto the policy stage.

Daily visits to Capitol Hill, shared meals, group projects, and social and networking events kept things lively. Speakers engaged informally with our small group for one to two hours each, with prepared remarks and plenty of interaction. For the many participants contemplating career transitions or greater roles in science policy, long-format career narratives from each speaker were enlightening. Instead of brief, polished bios, we heard less-varnished versions of each series of “inspired choices and happy accidents,” which drove home the message that nonlinearity in

career choice may be the rule rather than the exception for those engaging with science policy.

The content dove deeply beyond a civics class into what really happens in the policy world, as told by those who engage in it. An informal poll of participants suggested that most found the time to be highly valuable, and in some cases it was even life-changing. In spite of a substantial reading list, academics such as myself who have interest in the social science of policy processes will find the Colloquium a bit light on theory. That is by design—the point was to give scientists an unvarnished sense of the nuts and bolts of policy making, opening doors to further inquiry and practical application—but more options could be provided from the rich and growing scholarly

REAL-WORLD METEOROLOGY

A series of profiles celebrating a half-century of Certified Consulting Meteorologists



Who: John F. Henz

What: Consulting hydrometeorologist

When: CCM since 1980

Where: Denver, Colorado

How: John Henz became a CCM based

on sound advice from Loren Crow, one of the deans of the CCM program, as John was preparing to leave the U.S. Air Force after four years of active duty. John received his undergraduate degree in meteorology from the University of Wisconsin and served the four years in the Air Weather Service in Colorado, Texas, and Georgia. As he was transitioning from military life, a career in Denver television

broadcasting was offered to him. He asked Crow for advice, who suggested he go to Colorado State University (CSU), get his masters in atmospheric science, and after five years or so of experience then apply for a CCM. John followed Crow's advice to the letter, and he has been in private meteorology for almost four decades. During that time he started Geophysical R&D Corp (a.k.a. GRD Weather Center); Henz, Kelly and Associates; and Henz Meteorological Services (HMS Weather), three very successful private meteorological businesses. HMS was purchased by HDR Engineering, Inc., in 2000 and John became a senior project manager and atmospheric science practice leader for HDR, where he served 10 years. In late 2010, John joined Dewberry & Davis in their Denver office as a senior meteorologist and technical leader.

John's interest in hydrometeorology was spurred by early research work at CSU on severe storms, including the Rapid City flash flood in 1972. While doing GRD radio work in 1976 with Vince Scheetz (also a CCM), they recognized similar weather patterns to the Rapid City flood developing along the Colorado foothills. Their early radio weathercasts of flash flood potential 36 hours before and during the event earned them a Special Award from AMS, “for the use of radio and meteorological knowledge in support of public safety during the Big Thompson Flash Flood of 31 July and 1 August 1976.”

Over the next three decades, John labored on several hydrometeorological endeavors. He has developed flash flood prediction programs in Colorado and Arizona that have served their flood-control districts for more than two decades. He has developed flood-response plans in Colorado, Arizona, California, Texas, North Carolina, and Virginia. In 1993, John developed a GIS-based hail-damage/radar reflectivity algorithm called HailTrak that supported most of the major insurance companies for 10 years. He developed a convective quantitative precipitation forecast tool based on depth of warm layer and updraft speeds. Recently, at HDR, he codeveloped with Robert Rahrs and Bill Badini the



literatures on the topic. Such minor quibbles do not detract from the value of the program, which I would unhesitatingly recommend to scientists with policy interests. The Colloquium was organized and run impeccably. The AMS staff who served as our guides delivered a great program. Beyond setting up and contextualizing a strong agenda of great speakers, they effectively motivated the broad and diverse members of the class, who included scientists and administrators from academia, agencies, and industry. Common interests and diverse backgrounds among the participants, who ranged from agency division directors to students attending on National Science Foundation-funded scholarships, led to informal learning among the class.

While sponsored by the AMS and drawing many scientists studying weather- and climate-related subjects, the material in the Colloquium has broader relevance, both topically and in terms of other policy arenas; much of what we learned applies just as well to state and local policy. Other organizations would do well to consider if their membership could benefit from similar exercises.

CONCLUSION. For some scientists, working in the policy world could require a substantial frame shift and an investment in learning outside one's comfort zone. But, like research, the policy world is a nut that is possible to crack with effort and genuine interest, and many scientists report that the rewards

Extreme Precipitation Analysis Tool (EPAT) that is used as a standard of practice in Colorado for determining Probable Maximum Precipitation (PMP) for dam design.

While John specializes in hydrometeorology, his interests in solving meteorological prediction problems have led to other interesting projects. In 1974 and 1975, he did research on terrestrial dust storms as part of a project for the Jet Propulsion Laboratory that was used in part by the Mars *Viking* lander team. In 1981, he was cochief meteorologist for the successful coast-to-coast balloon flight of *Super Chicken* across America and the successful trans-Pacific flight of Ben Abruzzo's *Double Eagle V* balloon. He served as a special consultant to the inspector generals of the Departments of Commerce and Transportation on evaluations of the NWS's flash-flood warning program and the selection of the WSR-88D for a national radar network.

In His Own Words: "Ever since I was a young child I was fascinated by the weather and its impact on people's activities. While attending meteorology classes at Wisconsin we were taught to 'sift and winnow' the weather observations and theory for the best answers science could provide. Knowledge was constantly evolving then, as it is today. While in the air force, pilot weather briefings demanded you do your best all the time. The more experience you had, the better you became. Finally, my CSU colleagues helped me over time to fine tune the character needed to be successful. Knowledge, experience, and character are the three hallmarks of being a CCM. They embody the characteristics of someone committed to excellence in the field of meteorology.

"As the outgoing chair of the CCM Board, I had the great honor of learning almost daily about the contributions being made by CCMs in business, academics, government service, and the private sector in the past year. If you look through the organization of the AMS, many federal labs, university faculties, and Fortune 500 companies, you will find CCMs in positions of importance. CCMs are also small-business owners, and directly represent the profession in the business community while applying cutting-edge science and technology in solving client's weather-related problems. Unfortunately, however, fewer CCMs are practicing now than our profession needs. We need you.

"The CCM program endeavors to continue and expand the recognition of CCMs by setting a high standard of excellence and commitment to professionalism. In this era of pseudoprofessionalism marked by the easy access of Internet 'knowledge,' it seems that everyone is now a 'meteorologist.' CCMs are committed to the application of the scientific method in solving problems while using a balance between academic training and experience. The CCM program provides a basis on which a client seeking assistance on problems of a meteorological nature may be confident of mature, competent, and ethical professional counsel by a CCM. Simply put, you can trust a CCM, and that CCM can be you."

For more information on the Certified Consulting Meteorologist (CCM) Program, please visit the AMS Web site at www.ametsoc.org/amscert/index.html.

of connecting one's field of research to its use for improving relevant efforts at the policy level can be great.

To conclude, I will risk stretching the safari metaphor a bit further. The safari experience of the Colloquium provides a compressed version of a wilderness experience, with excitement around every corner and a dense concentration of charismatic megafauna revealed by skilled guides. The lessons related above are illustrative, but cannot capture the immersive experience of the Colloquium. The whole of the perspective was much greater than the sum of the parts. Just like returning from a safari, the Colloquium left many of the participants dreaming and scheming about how we might return to that ecosystem again, next time as self-guided explorers.

ACKNOWLEDGMENTS. Bill Hooke and Paul Higgins of the AMS provided guidance and inspiration at the 2010 Colloquium, along with the many speakers who shared their wisdom and ideas. Many Colloquium participants provided valuable input, in particular Erika Bickford, Doug Hildebrand, and Zachary Sugg.

FOR FURTHER READING

Pielke, R., Jr., 2007: *The Honest Broker: Making Sense of Science in Policy and Politics*. Cambridge University

Press, 188 pp. [This book is a concise and readable introduction to science policy that draws from the social science literature without overwhelming the reader with theoretical details. One useful goal of the volume is to expose to scientists the possibility that their own biases may make them less objective than they believe they are. Given this knowledge, Pielke proposes a typology of idealized but instructive modes for scientists' interaction with policy makers.]

Jasanoff, S., 2008: Speaking honestly to power. *Amer. Sci.*, **96**, 240–243. [Jasanoff's brief review is worth reading alongside Pielke's book, as it criticizes some of his interpretations of the scholarly literature on the topic.]

Sarewitz, D., 2004: How science makes environmental controversies worse. *Environ. Sci. Policy*, **7**, 385–403. [This article explores the political dimensions inherent to the resolution of technical controversies, touching on the interaction of values and scientific views, competing disciplinary perspectives, and uncertainty.]

Neal, H. A., T. L. Smith, and J. B. McCormick, 2008: *Beyond Sputnik: U.S. Science Policy in the Twenty-First Century*. University of Michigan Press, 386 pp. ["Policy" as a whole is composed of layers of nested and interrelated decisions and actions across the branches of government and beyond. While it's not exactly a page-turner, *Beyond Sputnik* provides a useful reference to institutional details of U.S. science policy.]

STUDENT AWARDS

2011 ARAM BEST STUDENT PAPER AWARD

The AMS Committee on Aviation, Range and Aerospace Meteorology (ARAM) conducted its second ARAM Best Student Paper Award competition at the 15th ARAM Conference in Los Angeles, California. This award recognizes outstanding student contributions based on an evaluation of both the submitted written paper and corresponding oral or poster presentation. Contenders for the award will have to be enrolled at a university (either at the undergraduate or graduate level), be the lead author, and personally make the presentation of their work.

This year's ARAM Best Student Paper Award winner was Jung-Hoon Kim of Yonsei University in Seoul, South Korea, for his contribution titled "A Numerical Study on Convectively Induced Turbulence (CIT) Encounter Above a Dissipating Deep Convection" (paper 1.2). Jung-Hoon received a certificate and prize of \$200 for placing first in this competition.

Jung-Hoon is currently completing a Ph.D. degree in atmospheric sciences at Yonsei University under the guidance of Professor Hye-Yeong Chun. Jung-Hoon is broadly interested in dynamic phenomena of the atmosphere, especially as they relate to terrain and convective storms. As part of his Masters thesis, Jung-Hoon investigated severe downslope windstorms over the Yeongdong Region, and with his Ph.D. work he is elucidating the mechanisms of turbulence generation in clear air as well as induced by convective storms. Jung-Hoon embraces both observational analyses and numerical experimentation to gather new insights that ultimately may lead to safer air travel.

The AMS and ARAM committee members congratulate Jung-Hoon Kim for his great work thus far and wish him success with his future career.

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