From the Director

Is There a Future for Public Weather Services?

by Jeff Lazo*

Fifteen years ago I was a brand new assistant professor at Penn State when some grad students asked me what I knew about this thing called the “World Wide Web.” Some of the things it could do sounded pretty cool, so we arranged for Computing Services to demonstrate the new technology for us.

At the time I never imagined that today I could be sitting in Heathrow airport outside London after checking in online the day before, reading e-mails from work over a wireless Internet connection, listening to John Mayer on an iPod, and using the cell phone in my pocket to call home. And even then I’m nowhere near as technically or cognitively proficient as those of the “Millennial Generation”—those born from around 1977 to 1995—who seem able to IM, talk on a cell phone, surf the Web, and carry on a conversation at the same time.

So when we were asked at a recent World Meteorological Organization (WMO) symposium to present a view on what public weather services (PWS) will look like in 20 years, I realized I had no idea what would happen by 2028...except that things will likely be very different in ways that I cannot imagine.

As I tried to predict future challenges for sector meteorology, it occurred to me that this could be a moot question. Why, in 20 years, couldn’t a private-sector-for-profit company provide all the services, products, and activities of PWS for all the countries in the world? But when I tried to present this as a possibility, others at the symposium dismissed it saying, “It’s never going to happen because public weather services do things that are impossible for the private sector to do.”

So I asked what makes PWS stand for public—instead of private—weather services, and whether anything could change if a competitive private-sector firm wanted to enter the market. I came up with three elements that currently provide justification for “public” services:

1. The high fixed costs of observing and forecasting systems.
2. The role of public entities in generating and disseminating watches and warnings to the public.
3. The difficulty of charging prices for or obtaining revenues from the provision of weather information.

First, do weather observing and forecasting systems cost too much for a private company to develop on their own? About 42% of all current satellites are primarily for commercial use and are likely privately owned and operated (UCS Satellite Database 2007), so it wouldn’t seem that satellites are the main obstacle.

And technological advances are likely to become much cheaper over the next 20 years. Private-sector ground-based observation systems seem feasible as well (think WeatherBug). Supercomputers are no longer a barrier either, given the exponentially increasing power of computer hardware.

Second, it is well understood that it is the duty of governments to provide watches and warnings to protect the physical and economic well-being of their citizens. This doesn’t mean that the public sector is necessarily better at this than the private sector. It seems possible that in the future a government may find it more cost-effective to control these activities to a private-sector firm—perhaps especially in smaller countries where economies of scale could allow a private-sector firm to provide hydromet services across a number of small countries for less money than the countries would spend individually.

Isn’t it also conceivable that in the next 20 years or so watches and warnings could be generated efficiently, automatically, and directly to individuals in a way that would deliver these messages through advanced technologies that will supersede or combine cell phones, PDAs, and GPS devices?

Third, the types of information provided by PWS are considered to be public goods and, based on the characteristics of public goods, it is not possible to charge a price for such information. If firms can’t charge for their services, they won’t be in business long. But as technology changes, so do the characteristics of goods and what was once a nonexcludable public good may one day be an excludable private good.

The Office of the Federal Coordinator for Meteorology estimates that U.S. government spending on meteorological operations (continued on page 15)

After WAS*IS Ecstasy, the Laundry: One Atmospheric Scientist’s Experience

by Andrea Schumacher*

In July 2007, I attended the Weather and Society*Integrated Studies (WAS*IS) workshop in Boulder, Colo. Being an atmospheric scientist by training and trade, WAS*IS provided me with the exciting opportunity to learn about interdisciplinary research being done in the areas of weather, climate, societal impacts, and emergency response. WAS*IS also introduced me to a community of researchers and practitioners from various disciplines, opening the door for future collaborations.

As I returned to my job as an atmospheric researcher, though, I realized that incorporating the WAS*IS ideology into my current research on the prediction of hurricane formation and intensity change would be a slow and daunting task. I feel as though I have a dual profession—one from and one from my understanding, this is not an uncommon experience after WAS*IS.

Many atmospheric graduate programs and research facilities are not set up to accommodate interdisciplinary research. As those involved in incorporating societal impacts research must forge their own paths. So, in collaboration with two fellow WAS*IS participants, I began to work on a “side” project related to the human dimensions of hurricanes.

We generated a set of research questions related to the resource utilization and response of professional pet care providers during natural disasters. We then developed a research project proposal to address these questions that has since been approved by the Natural Hazards Center Quick Response program at the University of Colorado.

While drafting our Quick Response proposal, I encountered numerous obstacles related to working within a system not set up for interdisciplinary research. I will now share some of the lessons I’ve learned from this process with the hope that they will help the atmospheric science community navigate the realm of social science research.

Identify and recruit champions identifying individuals who supported our interdisciplinary research idea was a crucial step. I found champions within my institution, in my parent university’s sociology department, and through connections with the WAS*IS community. By identifying the colleagues most likely to support my research topic and gaining their insight and approval, I was better prepared to gain support from more reluctant colleagues and supervisors.

Know your institution’s Institutional Review Board (IRB) process, inside and out. If your project will involve human subjects in any way, you may need formal approval from your IRB office. This may, as in my case, require IRB training through an online course or onsite class before your application can be considered.

My IRB office had never worked with an atmospheric scientist. This required more diligence on my part in properly explaining my research and understanding the requirements I had to fulfill. This lack of an established relationship, which may exist at many institutions, makes the IRB approval process more time consuming. However, it also provides an opportunity for establishing a good relationship that will help you and others in your field in the future.

Understand your institution’s grants and awards policies. Funding types and sources available for social science research may differ from those you gain and awards office is used to dealing with. For example, the Quick Response grant we applied for does not compensate salary or overhead, which limited the amount of administrative support I could receive for preparing the grant proposal. As with any new project, it is especially important to work closely with your grants office to avoid possible delays.

Do not give up. Working on projects outside your area of expertise can be overwhelming at times. Procedural obstacles are discouraging, and seemingly simple matters such as finding background literature and funding from unfamiliar sources can be daunting tasks. From my own experience, those in the atmospheric research field may find it particularly difficult to get involved in societal impacts and hazards research. This difficulty stems from the obstacles I’ve outlined above as well as a general inexperience with social science research methodology. This is a shame, since many atmospheric researchers got into the field with the goal of helping society and have a great deal to contribute to this interdisciplinary research area.

It is my hope that more atmospheric scientists with the desire to contribute to societal impacts research will get involved with the ever-growing community of scientists, practitioners and students interested in interdisciplinary weather and climate research and take the initiative to develop and act on their own research ideas. 

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