



Environmental Monitoring's Image Problem

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Editorial

Earlier this year the scientific world was shocked by the revelation that the famous Keeling Curve may come to an end due to lack of funding. The curve is the result of 56 years of continuous atmospheric monitoring of carbon dioxide, initially in Hawaii by Charles David Keeling and more recently by the Scripps Institute of Oceanography at the University of California San Diego. The data provided convincing evidence of carbon dioxide's role in global warming and will be essential in assessing the success of mitigation strategies. After a heartfelt plea from Ralph Keeling, the project was saved, at least temporarily, thanks to a mixture of private and government funds and a successful crowd funding campaign. The plight of the project highlights the fragility and importance of long-term environmental monitoring. In a recent editorial, I lamented the lack of environment data for the New York City area which hampered our ability to draw concrete conclusions from data obtained following Hurricane Sandy. I contrasted this to the recent completion of a forty year project by the British Geological Survey which resulted in a comprehensive map of several elements in the United Kingdom. Why are similar initiatives not occurring in the United States? The difficulty appears to be in securing necessary funds for monitoring projects which do not appear to offer a useful product or exciting innovations.

I currently serve on the management team of a monitoring program for the Hudson River known as HRECOS (the Hudson River Environmental Conditions Observing System). The HRECOS network of stations provides near real-time data on chemical and physical properties of the river. The data is useful to educators, river pilots, recreational users, and emergency responders. The vast amount of collected data can also be mined by researchers to answer scientific questions. In addition the pump station on our campus can be utilized by researchers for collection of timed or triggered water samples. The

long-term data will provide information on environmental changes including climate change. In the short term, it could be a valuable resource in the response to a chemical spill or other incidents impacting the river. This is just one of countless monitoring networks around the world but we need more. Despite the obvious advantages funding remains problematic. How do we ensure funding for existing monitoring networks and expand to monitor new locations? To my mind the answer in part is to be better publicists. The data obtained needs to be easily accessible and interpreted for the general public to understand. All too often scientists are content to generate data for their own purposes, leaving the politicians and general public (potential funders) confused about its usefulness and questioning the need for an expensive network of environmental sensors. Data should be presented and interpreted to a general audience regularly on websites, social media, newspapers, educational displays and public lectures. When an environmental incident occurs, the public relations wheels should immediately respond to show the world the utility of environmental monitoring data. Often monitoring programs can appear uninteresting and irrelevant compared to the latest advances in areas such as technology and health, for example, and perhaps less likely to attract funds. This is basically an image problem that can be corrected with effective publicity. Additionally funds could be stretched with the development of lower cost environmental sensors. Analytical devices that can provide reliable data at reduced cost can help grant dollars go further allowing networks to be expanded, new networks to be constructed, and existing networks to operate longer. Also networks may need to look beyond the usual funding sources, the Scripps Institute's willingness to turn to private foundations and crowd funding being a good example, and move away from a reliance on state and federal agencies.

Monitoring networks are going to become increasingly useful for understanding and responding appropriately to environmental issues. Maybe it is time that we start thinking more as business professionals and publicists in addition to being scientists. Hopefully this approach can ensure that the Keeling and other curves can continue to be drawn.