

PROFILES OF SCIENTISTS IN EDUCATION AND PUBLIC OUTREACH

*This profile is based on excerpts of an interview with **Dr. Stephen Pompea** regarding his involvement in Education and Public Outreach (E/PO), specifically his participation in the development of classroom instructional materials for the GEMS (Great Explorations in Math and Science) program. The interview questionnaire was designed by Dr. Cherilynn Morrow (Space Science Institute – SSI). The interview was conducted in November 2002 and updated in May 2003.*



Current professional position:

My title is Astronomer and Manager of Science Education in the Public Affairs and Educational Outreach Department at the National Optical Astronomy Observatory (NOAO) in Tucson. I'm also an adjunct faculty member at Steward Observatory of the University of Arizona. Currently I am director of the Teacher Leaders in Research Based Science Education program at NOAO and co-Director of Project ASTRO-Tucson.

Stephen's current involvement in E/PO:

At NOAO, we do a variety of vigorous local, regional, and national outreach programs for K-16 and informal education. We even work in an outreach capacity in Chile, through support of our observatories there and through videoconferencing with Chilean teachers.

I have particularly enjoyed working closely with the Sun-Earth Connection Education Forum and the Lawrence Hall of Science on the development of instructional materials for teachers, specifically the GEMS program. I worked with the Center for Science Education at the Space Sciences Laboratory at UC Berkeley, with Sonoma State University, and with Lawrence Hall of Science. These different NASA sponsored projects led to three GEMS books including two CD-ROMs to accompany them. The books are *The Real Reasons for the Seasons: Sun-Earth Connections*, *Invisible Universe: the Electromagnetic Spectrum from Radio Waves to Gamma Rays*, and *Living with a Star: From Sunscreen to Space Weather*. Like their titles they address exciting areas in new ways. More importantly, they have been very well received and appreciated by classroom teachers.

His time commitment to the GEMS project:

It varies. At the beginning of one of these projects there is a big push (about 50% of my time) to develop and field-test the initial materials. Once that's done there is a lull in the project, but more effort is needed later to revise the materials after various rounds of testing. Overall, the whole process of developing and testing a GEMS guide takes close to two

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years. We have come to appreciate the value of the GEMS program so much that NOAO co-founded, with the University of Arizona, a Southern Arizona GEMS Center which provides professional development on GEMS materials.

Why Stephen participates in E/PO:

I have always been extremely interested in science teaching and in improving science education. I had many terrific science teachers in school, and I have since learned that most people, even those who became scientists, were not so lucky as I was. My work in science education is an attempt to carry on the inspiring tradition of those very innovative, gifted people who taught me.

What he gets out of his participation:

I get a great deal of satisfaction from knowing that the GEMS guide I helped to develop will be used by teachers around the country and that the GEMS network will be supporting these teachers. This has also been a great opportunity to discuss key science education points with outstanding scientists and curriculum developers. I get to work with some of the best science educators in the world! It's very exciting.

Additionally, E/PO involvement allows me to move between several very interesting worlds, from international scientific congresses to inner-city schools. It really gives me a valuable perspective on the importance of science education and the challenges faced in today's schools.

The impact of his involvement in the project:

My scientific expertise and knowledge of science teaching pedagogy were very valuable in the production of the GEMS guides. I also remember what it is like to be a classroom teacher trying to teach with new instructional materials. I try to inject accurate scientific knowledge into the project that will be valuable on the surface, but also at a deeper level. I try to challenge the better teachers and students while making the material accessible to the majority. I always hope that some of the subtle approaches or ideas I incorporate will stir new ways of thinking by students and teachers.

Steve's words of wisdom about E/PO:

E/PO is enormously rewarding, but it requires patience. Ideally your efforts are very well-directed, and are designed to have a longer-term impact. In terms of that impact, I believe partnerships between scientists and curriculum developers are essential to improving science education today. Remain as idealistic as you can and remember Margaret Meade's words: "Never doubt the ability of a small group of committed, thoughtful people to change the world. Indeed, it is the only thing that ever has!"

To find out more about GEMS, visit:
<http://www.lhs.berkeley.edu/GEMS/GEMS.html>