

PROFILES OF SCIENTISTS IN EDUCATION AND PUBLIC OUTREACH

This profile is based on excerpts of an interview of Dr. Will Cantrell about his involvement in Education and Public Outreach (E/PO), specifically his participation in PUMAS. Dr. Cherilynn Morrow (Space Science Institute – SSI) designed the interview questionnaire. SSI's Christy Edwards and Preston Dyches edited the interview in January, 2003.



Current Professional position:

Assistant Professor of Physics at Michigan Technological University on Michigan's beautiful Keweenaw peninsula. My current research interests include working with thin (< 10 nm) films of water on mica and sodium chloride in attempt to understand nucleation on a fundamental level and measurement of cloud condensation nuclei in a variety of locations across the globe, as well as the statistics of aerosol particles in the atmosphere and the effect that thin films of organic compounds might have on the kinetics of droplet growth or evaporation.

Description of Will's featured E/PO role:

PUMAS - Practical Uses of Math And Science. PUMAS gathers short examples of the uses of math and science which teachers (K-12) can use in devising effective ways to present the subjects to their students. Scientists know why things like long division and algebra are important because we use them routinely to approach very interesting problems. To students, long division and algebra can seem pointless and boring. It is inefficient for scientists to go into K-12 classes to teach the mechanics of math and science, but we can provide good examples of problems and approaches that teachers in the classroom can use as motivation for their students.

I have contributed to PUMAS myself. I also assigned students in my Introduction to Atmospheric Physics to write a "PUMAS-like" example. Their examples were quite good so I encouraged them to submit, which several have.

How he got involved this E/PO project:

I attended the American Geophysical Union meeting in 1999, and was wandering down the rows of posters when I happened to pass the PUMAS poster. I struck up a conversation with the editor, Dr. Ralph Kahn, who happened to be standing there. He convinced me to submit an example.

Comments on his time commitment:

I do some volunteer E/PO, but my primary work is my research and teaching at the University. I submitted the example for PUMAS and I went through examples my students turned in. I have also volunteered as a reviewer.

Challenges to his E/PO involvement:

The biggest challenge is finding the right opportunities. It takes an enormous amount of work to start something like PUMAS. Pre-existing programs provide the opportunity to step-in and contribute right away without having to re-invent the wheel.

What he gets out of his participation:

Personal satisfaction certainly. It also gave me the idea for the assignment I gave to my students. There is a difference between knowing a subject and simply going through assigned calculations. Having to explain it to someone (in writing) really tests whether you understand a concept.

The most important positive impact he has made:

Getting the students involved.

Will's words of wisdom about E/PO:

Find the right opportunity, then do it. Don't put it off. I started writing my PUMAS example the week I got back from the meeting.

More information about PUMAS is available at:

<http://pumas.jpl.nasa.gov>