2002 Sagan Medal
Presentation to the DPS

Education & Public Outreach for Ordinary Planetary Scientists

Heidi B. Hammel
Space Science Institute
Boulder, CO & Ridgefield, CT
My Qualifications

- None (formal, that is)
- Years of experience
- Osmosis by association*

* Cheri Morrow, Larry Lebofsky, Lou Mayo, Ellis Miner, ...
NASA’s Vision

• To improve life here,
• To extend life to there,
• To find life beyond...
NASA’s Mission

• To understand and protect our home planet
• To explore the Universe and search for life
• To inspire the next generation of explorers

... as only NASA can
"The most important result of NASA's Space Science program is the sense of wonder and imagination it inspires in America's youth."

Ed Weiler
Associate Administrator
NASA Office of Space Science
Other reasons to do E/PO

Everyone has their own reasons.....

- “fun”
- “educational”
- “satisfying”
- “extra consideration for proposal”
- “recognition and/or visibility”
What E/PO is NOT

Yet Another … (EM spectrum poster, sun-spot exercise, redundant web site)

Coasters
Wall paper
Door stops
Tchotchkes
What IS E/PO?

Formal Education
- Teacher Workshops
- Project ASTRO
- Curriculum
- Textbooks
- Astro 101 courses
- classroom

Informal Education
- Museum exhibits
- Eclipse tours
- Star parties
- Field trips
- Events
- “unique”

Public Outreach
- Encyclopedia entries
- TV/radio programs
- Web chats
- Popular books
- Magazine articles
- home

Smaller audience
- More contact time
- Deeper understanding

Larger audience
- Less contact time
- Shallower understanding

Ed. Programs at museums, science fairs, scout programs

Public lectures, slide shows, IMAX/planetarium shows, performing arts
E/PO Venn Diagram

Formal Education

Informal Education

Public Outreach

Display booths, Pins, Stickers, Patches, Mugs, Bookmarks, Postcards, etc...
Press releases, Press conferences, Press kits for reporters, video clips, etc...
Roles for Scientists

• **Advocate**
  - inspires, encourages, gives permission, empowers

• **Resource**
  - helps when called upon; makes resources available

• **Partner**
  - works shoulder-to-shoulder, “in the trenches,” with E/PO specialists to create new products or opportunities
Roles Matrix examples

<table>
<thead>
<tr>
<th>Role</th>
<th>Advocate</th>
<th>Resource</th>
<th>Partner</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-12 Students</td>
<td>Join PTA</td>
<td>Science fair judge</td>
<td>Project ASTRO</td>
</tr>
<tr>
<td>Curriculum Development</td>
<td>Address the school board</td>
<td>Review materials</td>
<td>Create a new curriculum</td>
</tr>
<tr>
<td>Informal Education</td>
<td>Slide show for scouts</td>
<td>Review exhibit content</td>
<td>Coordinator for scout sci. prog.</td>
</tr>
<tr>
<td>E/PO Program Management</td>
<td>Speak out for E/PO</td>
<td>Help a scientist find a project</td>
<td>Design a project inc. scientists</td>
</tr>
</tbody>
</table>
"Science Standards"

- National Science Education Standards
  - Obvious (planets, stars, galaxies)
  - Less obvious (scale, light, processes)

Google search → NSES

- State Standards
  - Vary considerably from state to state
Students: 48,900,000
Teachers: 2,900,000
Classrooms: 1,900,000
Schools: 110,000
School districts: 15,200
Planetary Scientists: 1,300

Most numbers circa 1997
E/PO Specialists

- E/PO is a profession; has a literature
- E/PO has evolved in recent years
- We don’t have to BE E/PO specialists BUT...
  - We should know they exist
  - We can partner with them
  - They want to help us!
Solar System E/PO Forum

“work with planetary scientists to assist them in using their limited time and resources as effectively as possible in their E/PO efforts”

Leslie L. Lowes          Ellis D. Miner

sseforum.jpl.nasa.gov
NASA Broker/facilitators

- Seven regional centers
  - Northeast - Cary Sneider
  - East - Nitin Naik
  - Southeast - Cass Runyon
  - North - Lynn Narasimhan
  - Southwest - Kathleen Johnson
  - West - Cheri Morrow
  - Northwest - Julie Lutz
DPS Contacts

• Larry Lebofsky
  - DPS Education and Public Outreach Officer

• Lou Mayo
  - DPS Deputy Education and Public Outreach Officer

• Ellis Miner
  - DPS Press Officer and SSE Forum Director

http://www.aas.org/~dps/officers.html
Get Involved

• **Option 1 - Keep on doing what you already do (local volunteer work) and report it**
  - But think about leveraging (one talk to kids vs one talk to master teachers)
  - *Funding - use a few percent of your own funds.*

• **Option 2 - Volunteer on an established program (contact a Broker/Facilitator)**
  - Project ASTRO, traveling exhibits
  - *Funding - use a few percent of your own funds.*
Get Involved, cont’d

• **Option 3** - New program or extend existing program to new site
  - e.g., new Project ASTRO
  - **Funding** - up to $15K

• **Option 4** - More ambitious projects
  - Definitely require an E/PO specialist on board
  - **Funding** - up to $50K
DPS Membership

• Survey conducted in 2000
  - Over 120 responses; broad range of activities
• Meeting Activities (Larry and Lou)
  - Education sessions
  - Noon-time seminars
• DPS Speakers Bureau
  - Contact Ellis Miner
• DPS E/PO Website
The bottom line

EACH OF US CAN MAKE A DIFFERENCE

Talk to Larry or Lou or Ellis

Handouts available outside after this session