

PLANETARY SCIENCE E/PO IN 2012: THE YEAR OF THE SOLAR SYSTEM, FIFTY YEARS OF SOLAR SYSTEM EXPLORATION, AND MORE. S. H. Williams, Smithsonian Institution National Air and Space Museum, presently on detail assignment as NASA Planetary Science Division E/PO Lead (NASA Headquarters, Mail Suite 3X54, 300 E Street SW, Washington, DC 20546-0001; 202-358-0615, steven.williams@nasa.gov).

Introduction: Recent planetary science missions and discoveries are unprecedented, and education and public outreach efforts have been organized in a 23-month (one Mars year) “Year of the Solar System” (YSS) education/public outreach (E/PO) program (<http://solarsystem.nasa.gov/yss>). The YSS has proved quite successful in engaging awareness of key aspects of Solar System exploration and research.

Started in October, 2010, the YSS extends through August, 2012. Each month in that period has been assigned a theme, usually tied to an astronomical or planetary exploration event or anniversary that occurs during that month.

Each month has its own web page, where overview and background information is provided, along with information about spacecraft missions relating to the monthly theme. Learners of all ages can access classroom-based educational activities relating to the month’s theme, and information on how those particular activities align with specific standards of learning. Links to other educational opportunities and resources relating to the monthly theme are provided, to empower self-guided learning. Biographical vignettes of planetary scientists working on theme-related research are also included.

Fifty Years of Solar System Exploration: Humans have used detailed observations, prevailing technology, and inquiring minds for millennia to achieve a greater understanding of the Earth and its nearest neighbors in Space. Astonishing advances have been made with the simplest of instruments. But the greatest progress has come from the direct exploration of the moons and planets of the Solar System, either by human presence or by robotic proxy.

Planetary exploration followed closely on the heels of the development of the technologies enabling spacecraft exploration of the Moon and planets. The first successful such mission was *Mariner 2*, a Venus fly-by, which launched on August 27, 1962 and encountered Venus on December 14, 1962. Both events have their 50th anniversaries in 2012. A large number of 50th and other Solar System exploration milestones provide an unusually-good opportunity for “teachable moments” for learners of all ages and backgrounds. Toward that end, NASA PSD is planning to follow up the *Year of the Solar System* program with a “Solar System Exploration at 50” (SSE@50) series of events running well into 2013 (<http://solarsystem.nasa.gov/50th>).

Astronomical Happenstance: Public attention will be strongly attracted in 2012 to some rare and beautiful astronomical events. The last Transit of Venus in our lifetimes, on June 5/6, is an example attracting considerable attention. It may just look like a “spot on the Sun” at first glance, but a recognition of the scientific and human interest legacy that spot represents, from Galileo to *Kepler* (the spacecraft) makes, for a great story about the “things that can be learned from the study of things in front of other things.”

The 2012 transit is more favorably placed for observers in the USA than was the 2004 transit, and the 2012 transit has the advantage of “being the last one in the lifetimes of anyone now alive, barring major medical advances” in terms of generating media/public interest. Having an annular eclipse (after all, an “overgrown” transit!) occur near sunset on May 20, over much of the Southwestern USA as a “warm up act” does not hurt one bit, either! Albuquerque is on the eclipse track centerline, and will see a perfectly symmetrical “ring of fire” annulus a few degrees above the western horizon; the track also hits many major national park sites, including Chaco Culture and Canyon de Chelly. Pictures of that sunset from Sandia Peak, or over Casa Rincoñada at Chaco, will no doubt be distributed very broadly, both via the traditional and social media. What could be better publicity for the Transit of Venus a few days later?

The Power of Integrated Programming: Cross-promotion takes many forms, both within a single discipline and more broadly. For example, one could envision a SSE@50 program element built around the *Mariner 2* Venus fly-by. But how could the impact of that historical event be amplified in order to attract an audience that might otherwise view it indifferently? One potential asset is using a physical model of *Mariner 2*; another would be to “piggy-back” an additional event or two to the *Mariner 2* observance. It just so happens that the engineering test model of *Mariner 2* still exists, on prominent display in the Milestones of Flight gallery at the National Air and Space Museum. A program originating from that site would have additional engagement value that the same program conducted elsewhere might not have.

Another promotional asset is the date involved in this case. December 14, 2012 is not only the 50th anniversary of the first close-up exploration of another planet via spacecraft, it is also the 40th anniversary of the

creation of the last fresh human footprint on the Moon. That coincidence will likely attract (free) media attention and promotion, more so than the fly-by alone might command. Such coincidences and linkages, if artfully employed, can increase publicity and public engagement significantly.

Keeping in the Loop via “Nuggets”: Good E/PO opportunities require more brainpower and awareness than one person, or a few, can accomplish. We need to work together on this front, and to do that requires everyone involved keeping up to date on the most recent advancements in Solar System exploration and the most recent Solar System-related E/PO programming and opportunities.

A very valuable tool in that effort is the “Nugget,” a one-page PowerPoint summary of recent discoveries and advancements on the science front, or programming on the E/PO front. Nuggets have proved to be an increasingly-visible mechanism to keep all parties in the endeavor informed of progress and opportunities. Their use, and usefulness, will no doubt increase significantly in the coming months.

How YOU Can Help! Successful E/PO efforts require the combined talents of subject-matter, education, public outreach, and other experts. Coordination via Nuggets, modern communication, and other tools will help on that front.

But coordination alone is no longer sufficient to meet the E/PO needs of the Solar System exploration community. We need your efforts as well as your talents. Host a YSS- or SSE@50-related event. Reach out to your local schools, and your local media, on your research, your passion. We are in the science and education business, to be sure, but we are also in the human interest business. Most people, particularly the impressionable youth, think the kinds of exploration we do/support on a daily basis are pretty cool (hence the large traffic mission websites enjoy). Let’s use that to everyone’s best advantage!