

BALLOON SCIENCE: TOWARDS BUILDING A STRONG COMMUNITY OF SCIENTISTS, ADMINISTRATORS AND EDUCATORS TO PROMOTE PARTNERSHIPS FOR SUBORBITAL RESEARCH AND LEARNING. Jennifer A. Grier¹, Laurie Ruberg², and Katharine Perrow.² ¹Planetary Science Institute (PSI), Columbia, MD, jgrier@psi.edu, ²Mid-Atlantic Region Space Science Broker (MARSSB) at the Center for Education Technologies (CET), Wheeling, WV, lruberg@cet.edu.

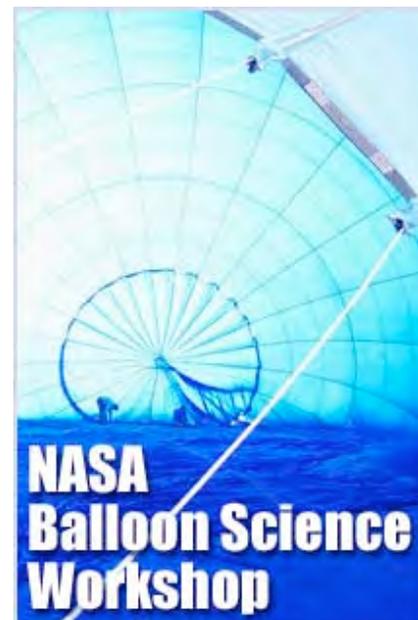
Introduction: The NASA Mid-Atlantic Region Space Science Broker (MARSSB) in partnership with several organizations (including the Balloon Science Program, New York Space Grant Consortium, Cornell University, MUSPIN, USSERPI, NESSIE and others) is facilitating new and existing collaborations in Balloon and suborbital science and learning. The Balloon science program is an ideal setting for the convergence of scientists, educators and students to produce robust scientific research and dynamic education opportunities. Excellent programs currently exist, but a strong need has been identified to connect those currently involved with those scientists and educators who would like to be, thereby growing and adding value to existing programs, and beginning new ones.

Towards this end we facilitated an initial seminar/workshop to allow participants to share information about current programs and projects and to begin forging new partnerships. The workshop allowed us to identify the needs of the community, and to solicit input from participants about how we as a group can continue to meet these needs, and grow the community.

Our poster will provide details and outcomes of this first collaborative seminar/workshop we facilitated, and plans for additional workshops and other events/resources to be developed. Planetary science has several direct connections in the field of balloon science including planetary earth analogs, general mission and instrument operation, and the possible development of balloon or sub orbital instruments and observatories to be operated on other planets. We shall solicit feedback from scientists and educators, provide information about how they can get connected and promote general awareness of this growing community. Our poster shall also provide details of the workshop as a model for educators interested in facilitating partnerships in this and other areas.

Full details of the development of the initiative, the workshops, lessons learned, and future endeavors will appear in a paper currently in preparation for the Astronomy Education Review (AER).

Details of the Balloon Science Program and Workshop: The initial Balloon Science Workshop was a two-day seminar style event, hosted by Cornell University, bringing together scientists, educators and administrators interested in the suborbital space program. The workshop was first and foremost a **science** workshop, centered around understanding the nature of the Balloon Science Program, how to propose successfully, and how to identify science niches ripe for opportunity.



Scientists familiar with the program, as well as those interested in becoming involved were invited to share their thoughts and to learn from one another. Researchers already in the program discussed some details of current efforts.

The Balloon Science Program delivers a large science return for each dollar spent. Balloon science missions are key in atmospheric, earth science, and microwave astronomy research. The program allows for low cost/high return mission support, and provides an ideal venue for instrument testing. Balloon investigations are an excellent place for scientists themselves to gain experience with the mission process

It became clear during the workshop that balloon science and balloon science education are closely interconnected. In fact they are interdependent. The same features which lend to the program being an excellent place for working scientists to gain experience also make it a natural for educating the next generation of scientists altogether. Missions launch in relatively short timescales, and mission teams are smaller. Participants can have authentic contributions to all areas of the mission including hardware, software, launch, and then data retrieval and analysis. Payloads are almost always recovered, allowing for learning through updating equipment and methods. Educators already involved with balloon science education programs discussed the details of their efforts.

Participants conferred on how science and education could move together both to benefit the program, and to continue to keep new scientists entering it. Key for everyone was networking and forging new partnerships. Everyone discussed how collaborations could be pursued for both science teams and science/educator programs. Other issues included choosing appropriate science questions for study, understanding relevant technology constraints and advances, and finding ways to bring together those in currently successful programs with those interested in entering. Of particular note were conversations centered on bringing in more minority scientists, and around current faculty training.

Everyone involved with the Balloon Science Program, or balloon science and education in general, was very enthusiastic about their participation. Scientists were excited to discuss the possible high science return for low cost and short time, and educators saw diverse opportunities for new or expanded programs.

The event ended with possible new partnerships being discussed, and an expression of interest in more events like these to heighten awareness of what the suborbital program has to offer both scientists and educators, and to continue to build the community.

Comments from workshop participants:

“The interactions and seeing the examples of the student projects was awesome! I was very inspired by the work of the students and teachers.”

“I was a bit discouraged by the significant hurdles and barriers to mount a successful collaboration, but the collaborative spirit and energy of the participants and real opportunities have encouraged me to jump in

with both feet and consider the meeting a major success.”

Moving Forward: Following up on the feedback generated from the first workshop, we will be linking with other balloon science symposia and groups to plan a similar 2006 meeting. Such an event will likely include:

- Bringing in more possible partners, and expanding ideas for research and education programs
- More clearly identifying barriers to partnerships and participation, and outlining means to alleviate them
- Identifying researcher teams and mission opportunities that can incorporate faculty /student projects
- Means for maintaining communications between science teams and science /educator programs
- Encouraging more minority scientists and fostering faculty training

Visit our poster, or contact jgrier@psi.edu or lruberg@cet.edu to see how you can become involved.