1. AIA -- The Space Public Outreach Team 2007-2008 School Year

The Space Public Outreach Team at Montana State University and the University of Montana visited over 13,500 students and 750 teachers during the 2007-2008 school year (our best year yet!), bringing the NASA presentations "Astronauts & Aliens" and "The Sun-Earth Connection" to classrooms across the state. Twelve undergraduate students from a variety of majors were selected and trained as SPOT presenters, gaining public speaking skills and NASA science knowledge. The three graduate student SPOT managers gave presentations in the South Whidbey schools in Washington state and met with the Washington Space Grant Consortium to discuss building a SPOT program at the University of Washington.

A map of all the presentations in Montana during this academic year. Each small spot represents 1 presentation; each large spot is 5 presentations. Green spots are UM, gold spots are MSU.
2. **Exploration Station at AGU**

Emilie Drobnes and Deborah Scherrer, EPO leads for SDO and HMI respectively, are organizing a new science outreach program at the joint AGU/SPD meeting to be held in Ft. Lauderdale on Monday, 26 May, at the Ft. Lauderdale Convention Center. The program takes its inspiration from two existing and successful models that provide a venue where traveling scientists and local communities can come together to share the excitement of science: WeatherFest, held prior to each of the annual meetings of the American Meteorological Society (AMS), brings in over 4,000 participants and volunteers, while AstroZone, held twice a year at each meeting of the American Astronomical Society (AAS) meetings and still in its infancy, brings in about 500 participants and volunteers.

The new program, called Exploration Station, is a four-hour open house for local families, teachers and kids to learn about the cool science currently occurring in the various AGU sections. During the event, participants have a chance to meet scientists, do hands-on astronomy or geophysics and take home lots of fun AGU science related resources collected during their visit.

3. **Space Weather Monitors Program (jointly funded by HMI, NSF/CISM, NASA/SOHO/MDI, and NASA IHY)**

By April 2008, Stanford had placed 300 SID monitors in 44 countries. Half of those are outside of the United States and represent IHY placements. Another 60 are planned for international placement during the second year of the IHY program, to complete a world-wide network. Focus has been on Developing Nations and, for the US, on schools serving under-represented students. We have placed about 60 monitors in Africa alone.

Dr. Hans Haubold, Director of the United Nations Office for Outer Space Affairs, has requested and received a SID monitor and materials to be put on permanent display at the United Nations in Vienna, Austria. An interim report on the SID and AWESOME programs is being prepared for Dr. Haubold, a copy of which will be included with next month’s report.

Dr. Sharon Murrel of Peking University (aka Beijing University), is putting together an extensive SID program for China. Dr. Murrel’s students have translated virtually all of our materials into Chinese, so they can be usable by Chinese students. She has also set up arrangements with classrooms in 3 high schools that will be receiving monitors. Dr. Junwei Zhao, of Stanford University, is currently in China and will be visiting some of those schools to present the principals with letters from Stanford and with their monitors.

The current issue of “Southern Stars,” the journal of the Royal Astronomical Society of New Zealand, includes an article on the SID project, written by Stuart Weston of the Centre for Radiophysics and Space Research, Auckland University of Technology as well as a twin article on the Radio Jove project.
4. **International Heliophysical Year** *(jointly funded by NASA/IHY and HMI)*

Deborah Scherrer, HMI EPO lead, also serves as Chair of the Space Physics and Aeronomy Education and Public Outreach Committee of the AGU, which doubly functions as the US Advisory Committee for EPO for the IHY. Upon request by Hans Haubold of the UN, mentioned above, a report has been prepared on the activities of that committee during the first half of the IHY. Because there is overlap with HMI activities, a copy of that report is appended below (*one can never have too many reports...*).
Interim Report from the IHY US Education Advisory Committee

April 2008
Deborah Scherrer

The Space Physics and Aeronomy Education and Public Outreach Committee of the American Geophysical Union (in spite of the name, a world-wide organization) is serving as the US Advisory Committee for Education and Public Outreach for the International Heliophysical Year (IHY). The committee, chaired by Deborah Scherrer of Stanford University, includes Cristina Rabello-Soares, the IHY International Coordinator for Education, plus several other individuals also directly involved in IHY activities. This report represents the Committee’s major IHY activities during the first year of the IHY.

IHY Teacher Workshop – Acapulco, Mexico 2006
The US IHY Advisory Committee for EPO hosted two science outreach events at the November 2006 American Geophysical Union (AGU) conference in Acapulco, Mexico. Working with the IHY EPO coordinator for Mexico and with AGU Education Director Ines Cifuentes, the committee presented a Geophysical Information For Teachers (GIFT) workshop to 74 very enthusiastic teachers from all over Mexico. Many teachers had to travel on buses for over 8 hours to attend this day-long workshop. Afterwards the Committee hosted a Family Science Event, providing resources and hands-on activities for both the teachers involved with the workshop and local families. The portable planetarium programs provided by Pat Reiff of Rice University and Carolyn Sumners of the Houston Museum of Natural Sciences were a big hit, as were the numerous give-aways including the Stanford Solar Center spectrographs and UV bead bookmarks, and Cherilynn Morrow’s Sun Puzzle Page, all translated into Spanish for the occasion.

Presentations and activities for the workshop were given by Mark Moldwin, Richard Schope, Blanca Mendoza, Roberta Johnson, and Pat Reiff with translation by Marina LaGrave. Lessons learned from the Acapulco event: a) Scientists are very interested in participating in EPO events. Perhaps we should initiate a "booth" for scientists to introduce them to EPO and help them become integrated into these types of activities. b) Solar telescopes should be placed at a high traffic sidewalk rather than in the back of the building. c) Wide advertised to the public and AGU attendees is critical for drawing attendees. d) Having the Family Science tables by the beer really increased the traffic of AGU attendees.
World Space Week

Committee members Laura Peticolas, of the University of California Berkeley’s Space Science Lab, and Deborah Scherrer, from the Stanford Solar Center, collaborated on producing a set of activities for World Space Week, celebrated on 4-10 October of every year. This year’s celebration marked the 50th anniversary of the launch of Sputnik and the beginning of the Space Age. Each group designed a web-based activity relating to the THEMIS mission or the SID space weather monitors, which are being distributed for the IHY. Through these activities we hoped to introduce students around the world to using real scientific data. Teachers and students were able to share their findings with each other on a message board and post questions to scientists/educators. Students who completed the SID activity were able to receive a handsome certificate verifying their participation. The primary website is/was:

http://cse.ssl.berkeley.edu/segway/WSW.html

IHY Teacher Workshop - Ethiopia 2007

The IHY recognizes that, in order to develop space science research infrastructure in Africa, space science education must also be developed to support the long-term operation and use of scientific instrumentation. In response to these needs, the Committee organized a second Geophysical Information For Teachers (GIFT) workshop for Ethiopian high school physics educators on 10 November 2007 in the Ethiopian capital of Addis Ababa. The workshop, held in conjunction with the IHY Africa Space Weather Science and Education Workshop, gathered 70 teachers from around Ethiopia for a 1-day intensive professional development program that focused on fundamental physics concepts relevant to space weather.
Our program included discussions about space physics; examples of inquiry-based lessons plans; access to hands-on activities relating to magnetism, spectroscopy, and the electromagnetic spectrum, solar viewing through an H-alpha telescope; and an overview of the IHY and why it is relevant for their students.

We also hosted an exchange of information on educational differences between the US and Ethiopia. All secondary education in Ethiopia is taught in English. The typical high school physics teacher has four classes of 60 students per day with no laboratory or demonstration equipment. Of the 70 teachers attending, only 2 were female. Although most of the teachers had access to computers through their schools, few had an internet connection. (Those who did complained bitterly about the poor bandwidth.) Starting teachers in Ethiopia earn the equivalent of $100US per month. Curiously, almost all teachers had cell phones.
Thanks to Rice University and the Houston Museum of Natural Science (HMNS), Ethiopia became only the fourth country in Africa to have its own digital planetarium. Scientists had brought to the workshop a Discovery Dome, a portable planetarium and programs developed to teach Earth and space sciences. The 5-meter Discover Dome, which can seat about 50 people, was demonstrated to the GIFT teachers and later to the IHY conference attendees and a high school class before being donated to the Ethiopian National Museum in Addis Ababa.

The teachers went away from the workshop with packets of resources including CDs and DVDS on space weather and the NASA THEMIS mission, Magnaprobess® and magnetic teaching supplies, a collection of 40 simple toys and games used to demonstrate microgravity, and class sets of spectrometers for students to build.
Geoffrey Haines-Stiles and NASA’s Passport to Knowledge team sent videographer Art Howard to the conference to film our workshops and talk with educators and scientists receiving IHY materials. They eventually hope to produce an IHY documentary and will also be following up to get still pictures of SID space weather monitors in action in Ethiopia and elsewhere in Africa. According to Haines-Stiles, “The teachers' faces clearly show their appreciation for the materials and information you brought to them.” The documentary is available at

http://sun.stanford.edu/~deborah/spa-epo/GIFTWorkshopEthiopia.mov

We also generated an article on the GIFT workshop for the AGU newsletter Eos¹.

Scherrer was also able to tour Kotobe Teacher College in Addis Ababa. Educators in Ethiopia receive 2 years of general and education training and are then sent into the field to teach elementary and secondary schools. Educators wishing to teach high school must continue with another 2 years of training. Science is not emphasized in these teacher training settings, and even the library provided access to very few science texts.

Education in Ethiopia is (now, supposedly) universal and highly valued. Children are taught English from the earliest years, and all classes from grades 7 up are taught in English. When we queried young people about their professional ambitions, they all shouted “Doctor … Chemist … Engineer … Scientist … Physicist!”

The next generation of Ethiopian space scientists?

(Photos by Deborah Scherrer)

Members of the American Geophysical Union’s Space Physics and Aeronomy Education and Public Outreach Committee, serving as the US IHY Education Advisory Committee include: Kerri Beisser, Ines Cifuentes, Emily CoBabe-Ammann (Secretary), Isidoros Doxas, Emilie Drobnes, Kathy Garvin-Doxas, Nicholas Gross, Terry Kucera, Ramon Lopez, Mark Moldwin (Vice Chair), Mark McCaffrey, Cherilynn Morrow, Sten Odenwald, Marc Pulupa, Cristina Rabello-Soares (IHY International Coordinator for Education), Pat Reiff, Laura Peticolas, Deborah Scherrer (Chair), David Stern, Tim Slater, Jim Thieman.