HMI, AIA, and EVE E/PO Report  
For period June – July 2006  

By Deborah Scherrer

1. **SPOT Program at U Montana, Bozeman (AIA)**  
The SPOT Program continues to be a success. Last year there were 57 SPOT presentations given to 2,483 students. This year, there were 151 presentations given to 6,841 students. SPOT program presenters come from a variety of majors, not just science. Evaluation of the program has shown that teachers would like materials they can use before a presentation occurs and more hands-on activities during the presentation itself. Development of a SPOT program website and a new SPOT presentation – Sun-Earth Connection – is underway.

2. **Challenge Learning Centers Program at Harvard-Smithsonian (AIA)**  
Piloting of the Space Weather Team solar module in the “Return to the Moon” mission continues at the McAuliffe Challenger Learning Center. Plans for the fall include conducting a one-day space weather workshop for teachers bringing classes to the CLC, introducing pre- and post-mission testing using the Student Response System (SRS) and continuing the formative evaluation of activities in classrooms.

In the spring of 2007, final revisions to Space Weather Team Station in the CLC simulator will be completed along with the teacher materials and student activities currently being developed. How to package these resources, available online or on a DVD, is being discussed.

In the fall of 2007, efforts will be concentrated on investigating strategies for disseminating the Space Weather Team Component to the CLC network for integration into the “Return to the Moon” mission. Then begin work on integrating the Space Weather Team Stations into a second CLC mission.

3. **EVE Space Weather Program**  
The EVE EPO team (Susan Buhr, Mark McCaffrey, Frank Eparvier, Emily Cobabe-Amman and Timothy Weston) is currently revisiting the original EVE EPO plan and exploring additional possibilities. Activities under consideration include:

- Working with local MESA schools and integrating the SID monitors and solar telescopes into the program
- Mapping EVE/SDO science to science education standards and frameworks to help in the development of EVE classroom kits for use by scientists and other ambassadors.
- Provide professional development for teachers and scientists.
- Exploring ways of engaging project scientists and engineers
- Holding journalist workshops run by LASP
- Development of Spanish language Space Weather materials
- Working with “Blue Marble” imagery to show the polar perspectives on season and diurnal cycles.
4. **Science Fellow Service Learning Program at Stanford** *(Partnership with Stanford’s Haas Center for Public Service and the Stanford Solar Center)* *(HMI)*

See attached yearly report

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

A summer student, Scott Winegarden, is working with our chief engineer, Ray Mitchell, to enhance our real-time and archival database functionalities and to coordinate their interfaces. The real-time software has not been released for use yet, but you can have a sneak-peak at the content and format of the database enhancements by going to [http://solar-center.stanford.edu/SID/data/](http://solar-center.stanford.edu/SID/data/) and clicking on the “Beta Data Browser” hotlink. This interface will change, so focus on the functionality it provides.

Another summer student, Anna Kosovicheva, is enhancing the SID website. ([http://solar-center.stanford.edu/SID](http://solar-center.stanford.edu/SID)).

We have shipped 59 SID monitors, and have 19 outstanding orders waiting for the production of more monitors. We continue to receive (unsolicited) requests for SID and AWESOME monitors but are rapidly nearing the end of our initial funding of 100 SID instruments. Alan Roche, our assembly engineer, has completed most of the initial 100 monitors. Our chief engineer is finding himself torn between burning these in rapidly enough and spending time looking for large-scale production possibilities. He has made contact with several firms who might be willing to donate supplies and/or parts.

6. **IHY Project**

NASA has put out a call for proposals to support the IHY2007, and the HMI team has responded with a Notice of Intent. Proposals are due 15 September. We intend to propose for NASA to support some of the infrastructure and some of the distribution of the SID and AWESOME monitors worldwide. To cover costs of the remainder of the project we will seek outside funding. We also intend to submit an additional proposal to put together a packet of SID-related classroom materials adapted for the blind.

The IHY site in Germany has obtained funding to purchase 3-5 AWESOME and 10 SID monitors. We are also in contact with the IHY representative for Mexico and attempting to find a way for them to obtain 5 SIDs and 1 AWESOME (all currently unfunded).

Posters about the Space Weather Monitor Project of IHY have been generated and appeared at COSPAR in Beijing (July 2006) and the IAU in Prague, Czechoslovakia (August 2006).
Science in Service Report for 2005-06
Kelly Beck

Academic year 2005-06 marked the third year of Science in Service, the program located at the Haas Center for Public Service that is one part of the Solar Observatories Group’s SDO education and public outreach efforts. Science in Service was created as a formalized service-learning course in academic year 2003-04. It evolved over the subsequent couple of years from the formalized service-learning model to a community-based science mentor model in 2005-06.

In 2005-06 (year 3) we moved to a two-tiered student-involvement model. Students could apply to be either a volunteer mentor or mentor coordinator.

In the past year we recruited 20 students, spread out over two quarters at approximately 10 per quarter, in the role of volunteer science mentors. These students had varying degrees of experience in science mentoring, although the majority was new to a formal science outreach experience. They attended a requisite short (2.5-hour) training/workshop on teaching science by inquiry and orientation to the community. They then mentored 2nd–5th grade children in the Science-in-Service’s after-school science program, SuperStar, at the Boys & Girls Club of the Peninsula. Through SuperStar they continued to learn about effective science outreach through an apprenticeship model.

We also recruited 9 students in the role of “mentor coordinators.” Mentor coordinators are students who have deep interest in the intersection of science and community service, particularly in the area of science mentoring or teaching of youth. Most of the mentor coordinators had significant previous experience in science teaching, mentoring, or tutoring. A few did not have that previous experience but demonstrated exceptional commitment, interest, and intuitive sense of science outreach issues. Mentor coordinators had responsibility for the coordination of the program’s volunteer science mentors, management and direction at the community sites, monitoring the progress of children who are being mentored, and contribution to the design of lessons and activities. They received an hourly stipend to compensate for their additional responsibilities, time...
commitment and experience as compared to the requirements of the volunteer mentors. They also received advanced training.
The total 29 Science in Service students represented freshman through graduate students across the engineering and science disciplines as well as a graduate student in education. This number represents another doubling of the students participating in the program compared to 2004-05 (year 2), which was a doubling of the students that participated in 2003-04 (year 1). A primary reason for the shift to two-tiered participant model was to increase the number of students who are able to participate while maintaining the program integrity. The volunteer mentors were allowed to participate for just one quarter while a year-long commitment was required to be eligible to be a mentor coordinator. In Science-in-Service’s first two years the number of students who could participate was limited by the year-long commitment of all participants.

The training model also shifted in 2005-06 from a required quarter long course or series of workshops to an in-depth 3-day training for mentor coordinators and targeted short workshop for volunteer mentors. Training continued in an apprenticeship model on site at the Boys & Girls Club throughout the year.

We reached approximately 100 2nd-5th graders at the Boys & Girls Club of the Peninsula through the program’s SuperStar science class. With the increased number of total mentors we were able to provide a better mentor-to-child ratio with the result of greater attention on each child attending the SuperStar classes.
One very important outcome was the identification of a student at the Menlo Park clubhouse who had high interest in geology. The young man, a 5th grade student, was enabled and encouraged by the weekly SuperStar class to express his interest to the mentors and to ask advanced questions. Unfortunately we did not have a geology mentor in the Science in Service program. We provided mentoring from our basic understanding of geology and then found a 1-on-1 geology mentor for him from Stanford’s School of Earth Sciences. This is one case, but it is a critically important case in which a young man’s opportunities and future may very well be positively changed by the presence of the SDO-funded Science in Service program.

Significant program administration was also accomplished in 2005-06. The Haas Center completed a self study of the role of science programming, including Science in Service, in the Center’s work. The self study was presented to the Center’s three advisory boards, the student board, faculty steering committee, and national advisory board. One of the reasons the study was conducted was to begin to address whether or not the program will be continued when the SDO funding ends in 2007-08 and possible future directions for science programming at the Haas Center. The study was well received by all boards; which all recommended that new funding be sought after the current SDO funding ends. One recommendation was to consider and possibly develop an NSF GK12 project proposal. It was also determined that the current Science in Service director’s job responsibilities in 2006-07 should include developing options for the sustainability of the Science in Service program.

The Science in Service director became a member of NASA’s SMD Community Based Organizations Working Group (CBOWG) following participation in the CBOWG’s workshop at the Astronomical Society of the Pacific conference in Tucson, AZ in September 2005. As a new committee member she is becoming oriented to the work of the committee and the other committee members. She will attend a CBOWG Planning Retreat, sponsored by NASA, in Seattle in August 2005.

Science in Service coordinator applications for next fall went out in May/June. Seven coordinators have been selected, two of whom will be away in the fall quarter for junior quarter abroad. All of the 2006-07 coordinators were either coordinators or volunteer mentors in 2005-06. The Science in Service director is currently planning in-depth training for the mentor coordinators to happen at the beginning of fall quarter and the scope and content of the SuperStar class at the Boys & Girls Club. She is also continuing the process of identifying a school-based partner.