

Introduction

The Solar Physics Division (SPD) of the American Astronomical Society (AAS) is currently exploring the possibility of establishing an Education and Public Outreach (E/PO) committee. An exploratory committee composed of various SPD members, was established and was charged with the task of writing a proposal for such a committee including a charter and mission statement to help guide the founding E/PO committee members in the implementation of an SPD E/PO program.

Within the worldwide science community there is a growing emphasis on the incorporation of E/PO activities with scientific research. The benefits of this are obvious as we push for a more scientifically literate populace, an increased awareness of science and the scientific method, and for more science and engineering college graduates. Solar science has led the way in E/PO within the various funding agencies, primarily NASA and NSF, with solar data, images and science appearing in curriculum development, web-based programs, textbooks, and the popular media. The organizational structure of SPD can significantly enhance the E/PO efforts of its members by providing a larger platform for sharing ideas, collaboration, event and program promotion, and, more importantly, the development of integrated efforts in order to reach a broader and more diverse audience. In particular, the stand-alone SPD meetings provide an ideal opportunity to develop, test and evaluate pilot programs with more freedom than is available in joint meetings with AAS and AGU.

Committee members: Emilie Drobnes (chair), David Alexander, Craig DeForest, Dave Dooling, Zoe Frank, Cheri Morrow, and Thomas Zurbuchen.

SPD E/PO Charter

- Support SPD members in becoming involved in effective EPO efforts (through professional development, sessions, workshops, talks, coaching, ask an EPO specialist booths, etc.).
- Provide a place for dialogue and action among key professionals about EPO issues as they pertain to the solar physics community (advocate particular policies with the funding agencies, create an SPD policy supporting the science education standards, design and online community/network for dialoging, etc.).
- Promote the role of Solar Physics in the presentation of astronomy, earth Science, and physical science settings (this might mean supporting textbook authors, providing images to textbook publishers, providing a clearinghouse for K-12 resources, increasing the presence of solar physics in Astro 101 courses, etc.).
- Enable student access to careers in solar physics (create a support network, provide networking opportunities, provide resources and support for new and existing solar physics departments across the country, etc.).

SPD E/PO Mission statement

The Solar Physics Division is committed to enhancing how students, teachers and the general public experience science and to fueling their desire for learning and deeper understanding. A multi-disciplinary approach with an emphasis on Solar and Heliospheric Physics will enable the active participation of the SPD and its members in improving science literacy levels throughout our society and create a wide range of opportunities for student access to careers in science.

E/PO Committee structure

The E/PO Committee should be composed of 9 members representing, when feasible: industry, universities, research scientists, E/PO, government agencies, and graduate students. Following the AAS model, committee members will serve in rotation for terms of 3 years. Members will be appointed by the SPD Chair after consultation with the SPD Committee. Suggestions from the E/PO Committee and the general SPD membership are appropriate and welcomed.

A Chair of the E/PO Committee will be appointed to a 3-year term by the SPD Chair following a similar process. It is anticipated that the E/PO Chair will have already served as a regular member. The outgoing Chair will serve an additional 1-year term as an ex officio member, in order to provide continuity.

In order to implement such a structure, we recommend that the initial committee be composed of 5 members, a number sufficient to begin the basic E/PO effort. An additional 2 members should be added to the committee in each of the second and third years to help ramp up activity and solidify current efforts bringing the total number of committee members to 9 by the third year. This will also allow for ease in implementing the process of rotating terms wherein 3 new committee members are appointed every year to replace the 3 outgoing members.

It is recommended that the E/PO committee should be reviewed and evaluated after three and six years from inception to determine if the current model is working and/or needs to be revised. Items to be evaluated include: the overall effectiveness of the committee, the committee structure (number of committee members, terms, and rotation), the appointment process, and the focus of the SPD E/PO efforts to evolve with changing policies, science, and conditions.

Reporting to SPD and AAS

The E/PO committee chair will report directly to the SPD committee during the annual committee meeting. The chair may also be asked to present a brief report to the SPD community at the annual “business meeting.” The E/PO committee will keep the SPD community informed through regular articles in Solar News.

The relationship between the SPD E/PO committee and the AAS Astronomy Education Board is still being discussed but direct interaction, perhaps via a liaison, is strongly encouraged.

Initial SPD E/PO Efforts

Initial SPD E/PO committee efforts should concentrate on a few small-scale and focused programs, which can grow into larger scale efforts. The exploratory committee has identified three main areas around which to focus our initial efforts.

Undergraduate and Graduate Students: There seems to be consensus, not only among the committee members but the science community as whole, that there should be greater emphasis on reaching out to the undergraduate and graduate student population. There is a shortage of young scientists coming into the field and it is therefore imperative to encourage students to choose careers in science, attract them to Solar and Heliospheric physics, and provide the resources and support necessary to ensure they stay in the field once they are part of the scientific community.

As a professional society, the SPD is especially poised to provide students a stepping-stone to careers in science. Members of the SPD work for a wide variety of institutions: universities, government, industry, etc. As such, the SPD meeting is the perfect venue for bringing students and the various institutions closer together and for creating more opportunities for students.

The first step to achieving these goals is to more directly and aggressively advertise meetings to students around the country to increase the numbers of students attending SPD meetings. This should include a focus on undergraduates who have not yet chosen a research career yet. An enhancement of the student fund may facilitate this by providing a number of travel grants to worthy students. In addition, SPD could sponsor visits by member scientists to undergraduate and graduate colleges for two-day visits and lectures.

It is crucial to provide a support network at the meetings where students can meet with each other and with SPD scientists. An initial small-scale effort would be to host special events for students attending an SPD meeting. For undergraduates, this could take the form of an orientation before all SPD meetings (based on the AAS education model) where students are educated on how to get the most out of an SPD meeting. In addition, an informal happy hour could be organized, where students could network among themselves and with potential research advisors.

There are, however, some fundamental problems relating to Solar and Heliospheric education. Most universities involved in Solar and Heliospheric physics only have 1-2 professors in this broader research area. It is therefore imperative that universities support each other to provide support in teaching. The SPD should explore and coordinate the development of modern teaching tools, such as videoconferencing, that allow teaching of

small numbers of students in multiple places. This will allow a broad and sufficient education for students independent of their specific university affiliation.

Exhibitor Space: There are two scenarios where exhibitor space is concerned (1) joint SPD meetings (ex: AAS/SPD, AGU/SPD) and (2) stand alone SPD meetings (ex: Durham, NH in June 2006).

Various professional organizations such as the American Geophysical Union (AGU) and the American Meteorological Society (AMS) have invited the SPD to participate in the exhibitor booth area at their meetings. The SPD has not always been able to support such an effort yet these provide a great opportunity for the solar physics community to present their science to the rest of the scientific community. In order to take advantage of these opportunities, a system could be set up so that various institutions (Lockheed Martin, NASA, NOAA, NSF, etc.) could sponsor the SPD booth on a rotating basis. The committee will formulate the content and provide the administration of the booth to promote the dissemination of information about solar physics and the space environment. Although an SPD booth is not necessary during a stand-alone SPD meeting, these meetings could be an opportunity to have an exhibit area with representatives from various institutions and groups associated with the SPD. Such an exhibit area will provide students attending the meeting the opportunity to explore the various institutions involved in solar physics research and give them a better idea of the variety of ways they can be involved in the Solar Physics community.

Other opportunities for use of the display booth will be considered on a case by case basis.

Website: An E/PO website can be easily implemented with very little cost and effort yet can be a great resource to the community. In the beginning, it can host a variety of links and documents of use to scientists and others participating or wanting to participate in E/PO efforts as well as providing resources for student members. In the future, it can be used to fill an identified need among those in the E/PO profession such as a one-stop shop for meetings and workshops dedicated to E/PO professional development.

Future

As the SPD E/PO committee grows and evolves over time so will its education and outreach efforts. There is no shortage of good models, ideas and ongoing efforts from which to choose and learn. The actual direction the committee takes will evolve and will be greatly influenced by the committee members at the time. However, there are a few ideas which should be explored from the beginning. Following are a few brief explorations of possible future efforts.

- Developing a strong relationship with the SPD press office and the editor of the AAS/SPD newsletter would significantly benefit the activity of the E/PO

committee. It is important to disseminate ongoing E/PO committee news (current activities, accomplishments, etc.) on a regular basis to the larger SPD community. Only through regular communication will the committee gain accountability and credibility and have the true support of the community as a whole.

- The AAS education board is already working on improving the teaching of Astronomy and especially Astronomy 101 classes. The SPD E/PO committee is perfectly poised to work closely with the AAS education board and help promote the advancement of solar physics in Astronomy 101 courses and to encourage the creation of more undergraduate solar physics classes. The SPD E/PO committee will also develop methods to gauge public understanding of solar science and its impact on humanity.
- Convening conference sessions, talks, and workshops related to EPO and scientists' participation in EPO at the various meetings can also help spread the word among the community. These are ideal ways of demonstrating the activities and accomplishments of E/PO community and of encouraging the general SPD membership to become more familiar and more comfortable with E/PO as a whole.
- There are a number of E/PO committees, working groups, etc. around. It is important to coordinate & collaborate with like-minded committees and working groups (e.g. AGU Space Physics & Aeronomy EPO committee, NASA Scientists in Education Working Group, AAS, etc) to minimize the duplication of effort and to build stronger and increasingly effective programs.
- Implementing a moderated community forum & archived mailing list for EPO activities in solar physics can be a tremendous tool for the community and those involved in education and outreach. Such a forum can be a great complement to the SPD E/PO website with its resource links, FAQs, etc. Such a combination can make E/PO more accessible to the Solar Physics community and help build not only support but a growing number of active participants in education and outreach efforts.

Summary

The SPD E/PO exploratory committee recognizes the increasing importance of education and public outreach in our science and strongly recommends the formation of a standing SPD committee on E/PO to consider how to integrate and facilitate the science and outreach efforts of its membership. The guidelines and ideas discussed above provide a useful starting point from which to build a meaningful and long-lasting effort which encourages active participation of scientists in E/PO, encourages more young scientists into the field, and enhances the science of its members.