

Solar Physics Division of the American Astronomical Society

Annual Report: 2008-2009

J. Todd Hoeksema, SPD Chair

May, 2009

The Solar Physics Division of the American Astronomical Society works to advance the study of the Sun and to promote the coordination of solar research with other branches of science. Our 550+ members span the full range of solar physics research. This year the Sun was extremely quiet. We witnessed the deepest solar minima in the last century with the greatest number of spotless days. Solar Cycle 23, just completed, lasted at least a year longer than average and much longer than recent cycles. Why remains a mystery. The discipline continues to be dynamic and productive with major progress in understanding the solar interior, the mechanisms of solar activity and variability, solar flares, the dynamic corona, and the heliosphere. The joint meeting of the SPD with the American Geophysical Union in Ft. Lauderdale, Florida in May, 2008 was very well attended and featured a Union session celebrating the 50<sup>th</sup> anniversary of Gene Parker's seminal paper describing the solar wind. In June, 2009 the SPD will meet independently in Boulder, CO. Members look forward to the launch of the Solar Dynamics Observatory, SDO, later in 2009. Welcome news came in late spring that ARRA 2009 stimulus package funds will allow construction to begin on the Advanced Technology Solar Telescope (ATST), a major research equipment and facilities construction (MREFC) project administered by the National Science Foundation.

The SPD was led in 2008-2009 by J. Todd Hoeksema, chair, and a new vice-chair Shadia Habbal. The other officers were Neal Hurlburt, secretary, and Joan Schmelz, treasurer. The SPD committee members included Douglas A. Biesecker, Holly Gilbert, Jim Klimchuk, Scott McIntosh, and Amy R. Winebarger. The committee met in person at the SPD meeting in Ft. Lauderdale in May 2008 and conducted other business via email throughout the year. After the June, 2009 meeting Shadia Habbal, becomes chair, Yuhong Fan takes over as division secretary, and two new committee members, Bill Abbett and Alex Pevtsov, take office. Neal Hurlburt, Doug Biesecker, and Amy Winebarger retire. The Nominating Committee that selected candidates for the elected leadership positions included K.D. Leka (chair), Joe Gurman, and David Webb.

Much of the work of the division is accomplished by committees and the SPD is very grateful for their efforts. More detailed information about committees, activities, and history of the division can be found at the division web site, <http://spd.aas.org>.

The Prize committee selects the recipients of the Hale and Harvey Prizes. The SPD Prize Committee members were Adriaan Van Ballegooijen (chair), Gary

Chapman, Holly Gilbert, Steve Keil, and Phil Scherrer.

The Hale Prize is awarded to a scientist for outstanding contributions to the field of solar astronomy. The 2009 George Ellery Hale Prize winner was Neil R. Sheeley, Jr. of the Naval Research Laboratory (NRL). Dr. Sheeley was cited for his continuing outstanding contributions to our understanding of the solar magnetic field, coronal holes, and coronal mass ejections. His wide-ranging observational and theoretical work has laid the foundation for much current research in solar and heliospheric physics, and continues to have important applications in space weather prediction. The Hale Prize lecture was presented at 2009 spring meeting of the AAS in Pasadena and again at the SPD meeting in Boulder.

The Karen Harvey Prize recognizes a significant contribution to the study of the Sun early in a person's professional career. The 2009 Karen Harvey Prize was awarded to Laurent Gizon of the Max Planck Institute for Solar System Research (MPS) for his significant contributions and leadership in the development of local helioseismology techniques for the study of the Sun's internal dynamics.

Popular writing awards are presented to authors of popular or semi-popular articles on the Sun or the effects of the Sun on the Earth's environment. One award is made to a scientist author and the other is made to a science writer/journalist. The 2009 awards will be presented to scientists Sten F. Odenwald and James L. Green for their article "Bracing for a Solar Superstorm" that appeared in the August 2008 issue of Scientific American and to journalist Joe Rao for "Shades of Glory – My whirlwind tour to the North Pole and back for 175 seconds of totality" that appeared in the October 2008 issue of Natural History magazine. The Popular Writing Awards Committee members were Brian Welsch (chair), Manolis Georgoulis, Gordon Holman, C. Renee James, and Noe Lugaz.

The SPD Student Committee serves as an advocate for student-related issues and provides advice to the SPD community with the goal of fostering a healthy growth in student participation in Solar Physics and the development of these students into solar scientists. In 2008 the SPD Student Committee selected four students to receive stipends to attend the annual SPD meeting in Ft. Lauderdale. The inaugural "SPD Best Student Poster of the Year" award went to Laurel Rachmeler from Boulder for her paper "Modeling Coronal Jets with FLUX." The SPD Student Committee members were Gordon Emslie (chair), K.S. Balasubramaniam, and Jiong Qiu.

The Thomas Metcalf SPD Travel Fund was established in 2007 to help support travel costs of recent PhDs and advanced graduate students in order to enable them to participate in a meeting relevant to solar physics. Awardees will be selected based on their potential for future contributions to the field of solar physics. Recipients will be expected to present results relevant to their thesis or current work in solar physics. A method for administering the awards through selected meeting organizers has been established and the first awards (approximately \$7000 annually) will be made next year.

The Summer School Steering Committee represents the SPD in helping to promote and coordinate graduate student summer schools and will provide assistance and advice to local organizers. There are several SPD-science related summer schools planned for 2009 and 2010. The committee members are Terry Forbes (chair) John Leibacher, David Alexander, Sarbani Basu, Haimin Wang, Amy Winebarger, Jiong Qiu, Iliia Roussev, and Gordon Emslie.

The Education and Public Outreach (EPO) committee develops and implements education and outreach efforts on behalf of the SPD. The committee works closely with the AAS's Astronomy Education Board (AEB). The SPD, in partnership with the Space Physics and Aeronomy (SPA) section of the AGU and with strong support from the AGU education office sponsors an outreach program for the local community at SPD and AGU meetings; the Exploration Station is based on the NASA/RIT and AAS program AstroZone. Begun in fall 2007, this endeavor is increasingly successful. The committee continues to enhance the education section of the SPD website. The committee has sponsored well attended student receptions at meetings is working to find additional ways to enhance undergraduate and graduate student experiences at professional meetings. They are also engaging the SPD community and supporting its involvement in IYA activities. Emilie Drobnes has chaired the committee that also includes Dave Dooling, Zoe Frank, Spiros Patsourakos, Pete Riley, Ignacio Ugarte-Urra, Trae Winter, Rich Wolfson, Jie Zhang, and several ex officio members. Zoe Frank assumes the chair in June, 2009.

The SPD's electronic newsletter, SolarNews is distributed semimonthly to the worldwide solar physics community and provides the discipline's premier global means for communicating news and information. Archives are available at <http://solarnews.nso.edu>.

Several members serve as liaisons with other scientific communities: Tom Ayres (Stellar Astrophysics), Jim Chen (Plasma Physics), Merav Opher (AGU and Solar-Terrestrial Physics) and Vahe Petrosian (High Energy Astrophysics). The SPD Press Officer was Craig DeForest and the committee responsible for the SPD web site was chaired by Joe Gurman with assistance from Rick Bogart, Steven Cranmer, David McKenzie and Angelos Vourlidas.

The SPD chair participated in the AAS executive committee meeting in October, 2008 and productive discussions were held with the committee and with the chairs of other AAS divisions. The SPD appreciates the support provided by the Society and the Executive Officer. One common theme was the need to develop closer ties between members of the divisions and the society as a whole.

The division has some concern about U.S. national strategic planning for Solar Physics. The Astro2010 Decadal Survey includes ground-based Solar Physics supported by the Astronomy Division of NSF, but does not address projects supported by NASA Heliophysics or the NSF Atmospheric Sciences. In terms of scientific topics this split is awkward, though programmatically there are practical

reasons for the division.

Along with much of the world, the financial problems of the last year took a significant toll on the resources of the division. While painful, the overall financial condition of the SPD remains sound.