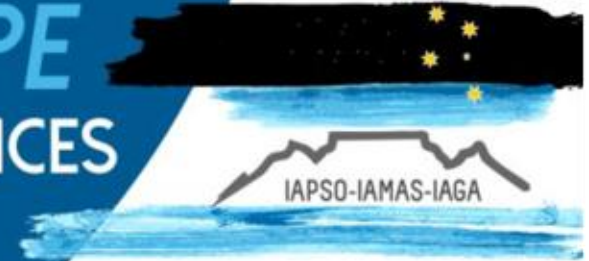


GOOD HOPE FOR EARTH SCIENCES

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A BRIEF HISTORY OF THE AMERICAN GEOPHYSICAL UNION SPACE PHYSICS AND AERONOMY SECTION EDUCATION AND PUBLIC OUTREACH COMMITTEE

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Outline

- Goals of Talk
- Committee Mission
 - Original
 - Today
- Programs
 - Owned
 - Cooperating
- Conclusions

In case I don't finish

Goals of Talk



Goals of Talk

- Introduce the US AGU SPA-EPO Committee
- Discuss Changing Role of this Committee
- Present Program Successes
- Relate Lessons Learned to Challenges

Why does the Committee
Exist?

Committee Mission



Who are We?

- The American Geophysical Union is Divided into Sections, by Discipline
 - One of them is Space Physics and Aeronomy (formerly Solar Planetary Relationships)
- Sections have extensive section programs. For SPA, Education and Public Outreach is one of them.
- Self-perpetuating body, with elected officers.
- Membership (~15-20) defined by who comes to meetings and helps run programs.

Mission (1990)

- Three Committees
 - Education
 - Charged with developing undergrad textbooks
 - Lecture slide set
 - Exhibits
 - Electric Space
 - Public Information
 - Survey Articles in EOS
 - Became one Committee two years later

Mission (2000)

The SPA Education/Public Information Committee for the Space Physics & Aeronomy Section of the American Geophysical Union provides timely and relevant information about section activities and discoveries to SPA members, the overall Union, teachers, and the general public. It serves as a focal point and clearinghouse for education projects and programs.

- Specifically the Public Information Committee will:
- Define the Strategic Themes of SPA
- Articulate the major themes to all of the AGU through publications such as EOS
- Be a focal Point & Clearinghouse for SPA Sponsored Education Projects
- Oversee the SPA Web Page and make Frequent & Timely Updates
- Provide Assistance for SPA Members in dealing with the Media and assist with press conferences when asked
- Communicate with & provide information to AGU's Education and Public Information Committees

Mission (2014)

- Institutionalize SPA involvement in Exploration Station
- Work with AGU Education and Human Resources and AGU-wide EPO committees (foster the creation of other section EPO committees or contact people) to foster collaboration/communication and to streamline GIFT workshop and Exploration Station
- Provide resources to scientists to encourage involvement in EPO (web-page, invitation to Exploration Station, teacher get-togethers, booth at beer)
- Communication/clearinghouse for SPA-related EPO activities (list of contacts, programs, projects, at individual institutions, NASA missions etc. – list of NASA EPO supplements, NSF REU/RET PIs.)
- Develop regular EPO column in EOS to describe the wide variety of activities (invitation and loop through the different sections. Short 500 word entries each month?) Can be used to advertise Ed sessions at AGU to attract a broader audience other than the EPO community.
- Have AGU revitalize Earth in Space on the web. One feature and several short articles each month.

What Do We Do, Actually?
Programs



Programs

Lead Committee (1st owner)

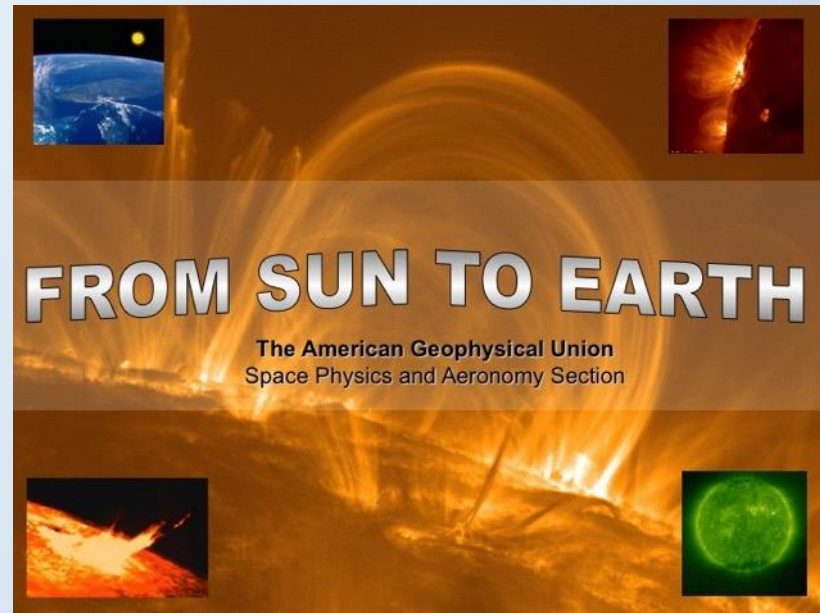
- Presentation Bank
- *Sun and Earth*
- *Electric Space*
- *Exploration Station*
- *International Heliophysical Year*
 - US Education Advisory Committee
- SPA-Planetary Student Mixer
- *Richard Carrington Award*

Associated Committee

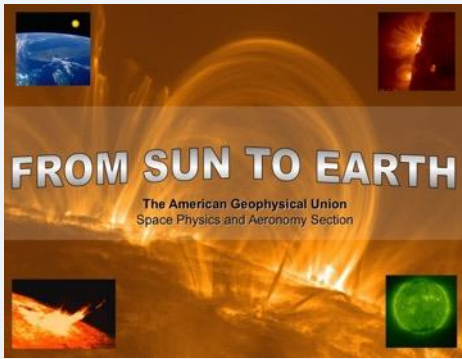
- Best Student Paper Award
- GIFT Workshops

Presentation Bank

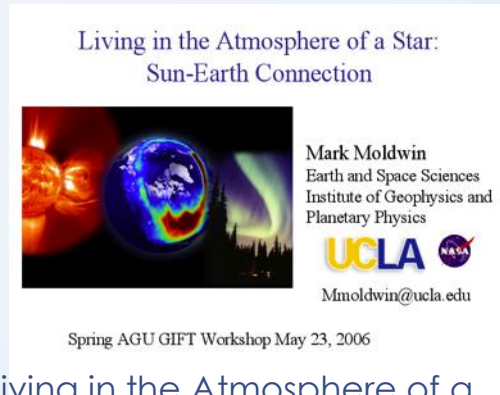
- Purpose: A collection of pre-packaged PowerPoint presentations that could be adapted & used by SPA members to introduce their fields to the general public
- Inspired by an old *photographic* slide set produced by this Committee in 1990
- Funded and produced by the Stanford Solar Center, Deborah Scherrer
- Still available, though not linked into the AGU website



Presentation Bank Includes:



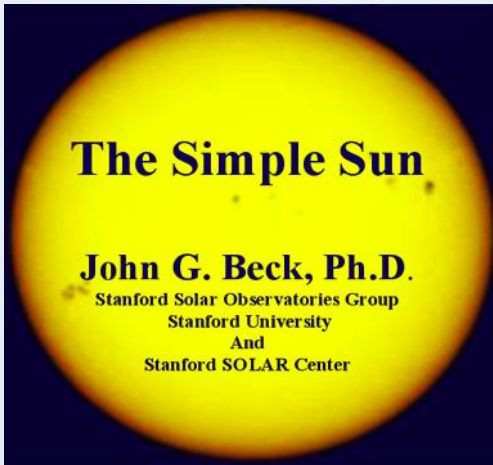
From Sun to Earth – an intro to SPA sciences; produced by Deborah Scherrer



Living in the Atmosphere of a Star: Sun-Earth Connection; produced by Mark Moldwin



Exploring Space with NASA – a kindergarten introduction



The Simple Sun, - for elementary and middle school students; produced by John Beck



Introducing the Sun – an intro to solar science for high school; produced by Deborah Scherrer



The IHY – an overview; produced by Cristina Rabello-Soares, Deborah Scherrer, Cherilynn Morrow

Exploration Station Family Science Events

- Purpose: Give children & families the opportunity to discuss science with researchers and to get involved with many hands-on activities.
- Held in conjunction with AGU meetings
- Family Science Event in Acapulco, 2007, had set the stage



1st Event

- Ft. Lauderdale, FL - May 2008
 - Held in conjunction with AGU's Joint Assembly
 - Jointly sponsored by SPA/AAS and our committee via Emily Drobnes
- 20 families (location was behind a locked gate, so almost inaccessible)
- In spite of low attendance, considered highly successful



More Events

- San Francisco, Dec 2009
 - Held in conjunction with AGU's Fall meeting
 - Jointly sponsored by us and NASA's SDO via Martha Wawro
 - Produced an Eos article



Highly successful, and set stage for our continued sponsorship

And More Events

- Future events included coordination with groups such as the Boy Scouts and the Girl Scouts
- By 2012, the events were so successful, hosting over 300 attendees, that AGU took it over





SPA-EPO IHY Involvement

United Nation's International Heliophysical Year, 2007-2008+



IHY will demonstrate the beauty, relevance, and significance of space and Earth science to the world.

- The IHY Education and Outreach Program was specifically dedicated to “inspiring the next generation of space and Earth scientists as well as spreading the knowledge, beauty, and relevance of our solar system to the people of the world.”
- Good match with the SPA-EPO goals



Involvement



- Committee member Cristina Rabello-Soares is appointed Head of Education for the IHY (2005)
- Cherilynn Morrow is appointed Chair of the US IHY Education Program (2006)
- **Our group is designated the official US IHY Education Advisory Committee (2006)**
- Deborah Scherrer leads one of most successful IHY instrument deployment projects – the Sudden Ionospheric Disturbance Monitors, designed for high school students

What did we do for IHY?

- Committee had a strong presence at the 2007 IHY kickoff at UN Headquarters in Vienna
- Produced 3 international GIFT workshops



IHY GIFT Workshop #1

Acapulco, Mexico – May 2007

- IHY rep from Mexico involved
- Done in conjunction with AGU meeting
- All done in Spanish
- 75 teachers
- Family Science Night
 - Included planetarium dome and solar telescopes
 - Well-attended and evidently much enjoyed
 - Served as a precursor to Exploration Station

Addis Ababa, Ethiopia – Dec 2007

- Organized by this committee; sponsored by NASA & the Houston Museum of Natural History; held in conjunction with IHY conference
- 1-day, 70 teachers from wide area of Ethiopia
- Included SID space weather monitors training session
- Featured a Discovery Dome (portable planetarium) which was later donated to the university. 1st portable planetarium in Africa!
- The IHY Passport to Knowledge IHY primarily from this



IHY GIFT Workshop #3

Zambia 2009

- 1-day; held in conjunction with IHY conference
- 20 teachers (teacher strike limited planned attendance of ~100)
- Discovery Dome donated to the Zambian Education Ministry by Houston Museum of Natural History – 2nd country in Africa to have a portable planetarium!
- Included visits to public schools

IHY GIFT Workshop #3 Zambia 2009



GIFT Workshops

Geophysical Information For Teachers

- Began <1992 by AGU because “Recent studies have demonstrated that secondary Earth science teachers have the weakest training in their subject, when compared with teachers from the other natural sciences.”
- Purpose: “(GIFT) Workshops allow science teachers to hear about the latest geoscience research from the scientists making the discoveries, explore new classroom resources for their students, and visit exhibits and technical sessions of the AGU meeting for free.”

What is a GIFT Workshop?

- 1-day event for science teachers, associated with an AGU meeting, that includes interaction with research scientists and training in hands-on resources for the classroom. Allows attendees to visit AGU meeting & exhibits for free
- In 2003, SPA-EPO committee discussed coordinating with AGU on workshop organization
- SPA-EPO organized one in Montreal, 2004, done completely in French
- Based on Montreal experience, AGU officially asked us to organize them

GIFT Workshops – High Points

- Montreal, Quebec – 2004
 - 2-day workshop with 45 teachers and 5 scientists
 - Theme was Sun-Earth Connections
 - Done completely in French
 - Organized in conjunction with AGU and run by Cherilynn Morrow
 - Exceptionally well received
 - Coordination much appreciated by AGU – set stage for future coordinations
- Baltimore, MD Spring 2006
 - Theme was the International Heliophysical Year
 - Completely organized by SPA-EPO; only 1st or 2nd time a GIFT workshop had been completely organized by an AGU Section
- The 3 IHY workshops:
 - Acapulco, May 2007
 - Ethiopia, December 2007
 - Zambia, 2009
- SPA involvement in organizing GIFT workshops continued until the AGU teamed up with National Earth Science Teachers Association (NESTA) in 2010, under the leadership of former SPA-EPO chair Roberta Johnson

Space Physics and Aeronomy Richard Carrington Award

- **Basic Information**

- The Space Physics and Aeronomy Richard Carrington (SPARC) Education and Public Outreach Award is given annually to one honoree in recognition of significant and outstanding impact on students' and the public's understanding of our science through their education and/or outreach activities – exhibiting an effort that goes well beyond their particular job title.
- The award is named in honor of Richard Carrington, an English amateur astronomer who, in 1859, was the first person to observe a large solar flare which caused a significant geomagnetic storm that was detected at Earth. This event was the first ever recorded space weather storm and is referred to as the “Carrington Event.”

- **CITATION/SCOPE STATEMENT**

- For significant and outstanding impact on students' and the public's understanding of our science through their education and/or outreach activities.

Space Physics and Aeronomy Richard Carrington Award

- 2017 Sigrid Close
- 2016 [Ramon Lopez](#)
- 2015 [Charles Chappell](#)
- 2014 [Deborah Scherrer](#)
- 2013 [Cherilynn Ann Morrow](#)
- 2013 [Patricia H. Reiff](#)

Quo Perigrinatur Grex,
Hodie?

Conclusions



Conclusions

- Committee Evolved From
 - Undergraduate Education Committee
 - To K-12 Outreach Committee
- First Section EPO Committee
- Many of the Programs We Initiated Have Become Union Events
- Defunding the SMD Forums Has Created Huge but Terrifying Opportunity