

COMMISSION 46

ASTRONOMY EDUCATION AND DEVELOPMENT

ÉDUCATION ASTRONOMIQUE ET DÉVELOPPEMENT

PRESIDENT
VICE-PRESIDENT
PAST PRESIDENT
ORGANIZING COMMITTEE

Magdalena G. Stavinschi
Rosa M. Ros
Jay M. Pasachoff
Johannes Andersen, Susana E. Deustua
Jean-Pierre de Greve,
Edward F. Guinan, Hans J. Haubold,
John B. Hearnshaw, Barrie W. Jones,
Rajesh K. Kochhar, Kam-Ching Leung,
Laurence A. Marschall, John R. Percy
Silvia Torres-Peimbert

COMMISSION 46 WORKING GROUPS

Div. XII / Commission 46 PG	World Wide Development of Astronomy
Div. XII / Commission 46 PG	Teaching for Astronomy Development
Div. XII / Commission 46 PG	International Schools for Young Astronomers
Div. XII / Commission 46 PG	Collaborative Programs
Div. XII / Commission 46 PG	Exchange of Astronomers
Div. XII / Commission 46 PG	National Liaison on Astronomy Education
Div. XII / Commission 46 PG	Newsletters
Div. XII / Commission 46 PG	Public Education on the Occasions of Solar Eclipses
Div. XII / Commission 46 PG	Exchange of Books and Journals

TRIENNIAL REPORT 2006 - 2009

1. Introduction

Commission 46 continues its task in the triennium, which started in September 2006. It seeks to further contribute to the development and improvement of astronomical education at all levels all over the world through various projects initiated, maintained and to be developed by the Commission, and by disseminating information concerning astronomy education.

All members of the Commission contributed to the success of the Commission, as well as many others national liaisons. A new web site is kept at the Paris Observatory with the help of Chantal Balkowski and her team. The *Newsletters* continue to be posted twice

per year: in March and October, thanks to Barrie Jones. Commission 46 is working under Division XII *Union-Wide Activities*. The Commission Program Groups are listed above. Each Program Group has its own report. Here we mention only some generic aspects.

2. PG World Wide Development of Astronomy

John B. Hearnshaw, chair

PG-WWDA has as task to visit countries with some astronomy expertise at tertiary (i.e., post high school) level, which welcome further development of their capabilities in teaching and/or research in astronomy. One key target is to foster astronomy development in the 19 nations which currently have individual IAU members but which do not adhere to IAU. From time to time, PG-WWDA it organizes conferences or meetings on astronomy in developing countries. A longer term goal for PG-WWDA, in partnership with TAD, is to explore the possibilities of setting up a third-world institute for astronomy in a developing country, or to have a number of nodes to such an institute distributed through several geographical locations.

3. PG Teaching Astronomy for Development

Edward F. Guinan, Laurence A. Marschall, co-chairs

PG-TAD intends to enhance the astronomy in a country with currently underdeveloped astronomy: education or its astronomy research infrastructure in support of education. PG-TAD operates on the basis of proposals from national professional astronomy organizations or on the basis of a contract between the IAU and an academic or governmental institution, usually a university. In the triennium, countries benefiting from PG-TAD contributions were Kenya, D.P.R. Korea, Mongolia, Morocco, Nicaragua, Philippines, Trinidad & Tobago, and Vietnam.

4. PG for International Schools for Young Astronomers

Jean-Pierre de Greve, chair, Kam-Ching Leung, vice-chair

Initiated in the 1960s, ISYAs are intended to support astronomy in developing countries. They consist of three-weeks schools for ~30 students at academic levels (BSc to PhD). They seeks to broaden the participants' perspective on astronomy through lectures from an international faculty on selected astronomical topics, seminars, practical exercises and observations, and exchange of experiences. There is a wide regional (multi-country) representation of both lecturers and students. In the triennium, ISYAs were organized in Malaysia, Kuala Lumpur and Langkawi Island, 6-27 March 2007, and in Turkey, Istanbul, 1-22 July 2008.

5. PG Collaborative Programs

Hans J. Haubold, chair

PG-CP is working on activities co-sponsored by UN, ESA, NASA, JAXA, UNESCO, COSPAR, IAU and others for the world-wide development of basic space science. In 2007, a number of major anniversaries occurred, among them the 50th anniversary of the *International Geophysical Year*, the launch of Sputnik 1, and the 50th session of the United Nations *Committee on the Peaceful Uses of Outer Space* (UNCOPUOS). Particularly, the International Heliophysical Year IHY 2007 was an opportunity: (i) to

advance the understanding of the fundamental heliophysical processes that govern the Sun, Earth, and heliosphere; (ii) to continue the tradition of international research and advancing the legacy of IGY1957, and (iii) to demonstrate the beauty, relevance and significance of space and Earth science to the world. See <ihy2007.org>.

In preparation of IHY2007, UNOOSA in cooperation with ESA, NASA, JAXA, COSPAR, IAU, and the IHY Secretariat, held international workshops in the United Arab Emirates in 2005, in India in 2006, in Japan in 2007, and in Bulgaria in 2008.

On the starting date of IHY2007, 19 February 2007, during the session of the *Scientific and Technical Subcommittee of UNCOPUOS*, the IHY kick-off included an IHY exhibit, press briefing, and an opening ceremony in the United Nations Office Vienna. IHY Regional Coordinators, Steering Committee members, and Advisory Committee members participated in the IHY kick-off event. The Austrian Academy of Sciences hosted a one-day symposium on IHY2007 in Vienna on 20 February 2007. The IHY workshop for 2009 will be hosted by South Korea. This workshop will also cover thematic areas as pursued by the *International Year of Astronomy 2009*.

6. PG Exchange of Astronomers

John R. Percy, chair, Kam-Ching Leung, co-chair

PG-EA is meant to provide travel grants, primarily for astronomers and advanced students from the developing countries, for research or study trips, of at least three months duration, to other institutes. A major goal is to enhance the opportunities for exchanges between developing countries and established astronomy centers elsewhere in the world. Guidelines and application procedures can be found on the web site <physics.open.ac.uk/IAU46/travel.html>.

7. PG National Liaisons on Astronomy Education

Barrie W. Jones, chair

In 2008 Barrie Jones has put considerable effort into updating the list and contact details of National Liaisons. See: <physics.open.ac.uk/~bwjones/IAU46>.

8. PG Newsletter

Barrie W. Jones, chair

Barrie Jones receives solicited and unsolicited material, edits it and constructs the *Newsletter*. He has been editor since late 1998 (*Newsletter* 49), since when the *Newsletter* has appeared in March and October every year. It is available in PDF form at <physics.open.ac.uk/~bwjones/IAU46> where there is every issue from Number 50 (March 1999) to Number 68 (March 2008). Jones notifies people via several email lists, including the Commission 46 Organising Committee, members of Program Groups, National Liaisons, and others. This amounts to about 110 people. The Newsletter would benefit from more and clearer links from elsewhere in the IAU.

9. PG Public Education at the Times of Solar Eclipses and Transit Phenomena

Jay M. Pasachoff, chair

The PG offers timely advice to countries that will experience a solar eclipse. It also offers advice about transits of the Sun by Venus and Mercury. It consults with local astronomers and newspapers. It has its own web page <www.eclipses.info>.

The PG takes advantage of solar eclipses to provide a variety of astronomy education to countries from which the eclipse is visible. The work is coordinated with that of the WG *Eclipses* of Division II (<www.totalsolareclipse.net>). One of the PG members, Ralph Chou, professor of optometry, is expert on eye safety during eclipses and on the safety of materials used as solar filters. The third PG member, Julieta Fierro, is experienced on using the occasions of eclipses to bring widespread public education.

A distinction between the PG and the WG *Eclipses* is that the former largely deals with the general public and the latter largely deals with professional astronomers making scientific observations. The PG works toward providing a wide variety of public education in astronomy, not limited to the sun and eclipses, when the general public's attention is primed toward astronomy by an approaching eclipse.

Among our past successes, jointly with the WG *Eclipses*, is the distribution of material for tens of thousands of eye-protection filters after online consultation. A review article on eclipses will be published in *Nature* during 2009 as part of the *International Year of Astronomy* and a knol on 'eclipse' is on-line at <knol.google.com>

In spite of efforts on the part of many, most people do not understand that the so-called 'solar filters' or 'eclipse glasses' are only for the partial phases of total eclipses or for any part of annular eclipses of those eclipses that are never more than partial. It would be good if these objects could be titled 'partial-eclipse glasses'. It seems that many people miss the glory of the total solar eclipse because, even though they are in the zone of totality, they leave the glasses on. The PG prefers cards that have filters in them to glasses that fit over eyes and ears, in part because people are then not tempted to leave the cards on for the duration of the eclipse. Too many people worldwide mistakenly believe that there are additional radiations that come out of the sun during eclipses.

10. Commission 46 web site

After being hosted by Barrie W. Jones at The Open University (UK) for about 10 years, it was transferred to the Observatoire de Paris in the summer of 2007. It is now in the charge of <chantal.balkowski@obspm.fr> and the URL is <iau46.obspm.fr/>.

11. Astronomy for the Developing World. Strategic Plan 2010 - 2020

An informal brainstorm was held in Paris, 27-29 January 2008, chaired by IAU Vice-President George K. Miley, aimed to an IAU strategic decadal plan for astronomy development. Topics were achievements and visions for the future of relevant Commission 46 Program Groups, and coordination with complementary non-IAU programs.

12. Meetings

Two Special Sessions, proposed by members of Commission 46, were held at the XXVI IAU General Assembly in Prague, August 2006: SpS2 on *Innovation in teaching/learning astronomy methods*, chaired by Rosa M. Ros and Jay M. Pasachoff; and SpS5 on *Astronomy for the developing world*, chaired by John B. Hearnshaw.

Cosmos in the Classroom 2007, a hands-on symposium on teaching astronomy to non-science majors, was held 3-5 August 2007 at Pomona College, southern California, USA.

The meeting was sponsored by the Astronomical Society of the Pacific (ASP), with co-sponsorship by a range of astronomical and educational organizations.

JENAM-2007 was held in Yerevan, Armenia, 20–25 August 2007. Its SpS5 was devoted to *Astronomy Education in Europe*. The conveners were: Hayk Harutyunyan (Armenia), Areg Mickaelian (Armenia), and Magda Stavinschi (Romania). The main topics discussed were the international astronomy education and development, effective teaching and learning at the university level, development of astronomy curriculum for schools, education research, planetariums and science; amateur astronomers and astronomy education; and multicultural astronomy.

JENAM-2008 was held in Vienna, Austria, 8–11 September 2008. Its SpS on *Education and Communicating Astronomy in Europe*, in preparation for IYA2009, was co-chaired by Magda Stavinschi (chair IAU Commission 46) and Ian Robson (chair IAU Commission 55).

13. Astronomy Olympiads

Astronomy Olympiads are a new topic for Commission 46. Many national and some international Astronomy Olympiads are being organized in different countries at high school level. The interest for such contests is increasing and tries replacing the lack of the systematic astronomy education in high schools. Examples are:

- 12th *International Astronomy Olympiad*, 29 September – 7 October 2007, Simeiz, Crimea.
- 3rd *Asian-Pacific Astronomy Olympiad*, 21–29 November 2007, Xiamen, South China
- 1st *International Olympiad on Astronomy and Astrophysics* was held in Chiang Mai, Thailand, 30 November - 9 December 2007.

14. Closing remarks

As all scientific bodies of the IAU, Commission 46 is deeply involved in preparations for the International Year of Astronomy 2009, as well as in preparations for scientific meetings to be held during the IAU XXVII General Assembly, 3–14 August 2009, Rio de Janeiro, Brazil.

Magdalena G. Stavinschi
president of the Commission