COMMISSION 46
ASTRONOMY EDUCATION AND DEVELOPMENT
Education et Développement de l'Astronomie

Newsletter 64 – March 2006

Commission 46 seeks to further the development and improvement of astronomical education at all levels throughout the world.

Contributions to this newsletter are gratefully received at any time.

PLEASE WOULD NATIONAL LIAISONS
DISTRIBUTE THIS NEWSLETTER
IN THEIR COUNTRIES

Triennal reports from National Liaisons have been edited, collated, and placed on the C46 website (see below).
Would those NLs who have not yet sent me their triennial reports, please do so.

This newsletter is also available at the following websites
http://astronomyeducation.org
http://physics.open.ac.uk/IAU46

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EDITORIAL

Thanks to everyone who has made a contribution to this edition of the Newsletter. For the October 2006 issue the copy date is **Friday 13 October**. If you can include photos or illustrations with any material, please do so.

Here is general guidance for the **submission of material for the Newsletter**.

IAU C46 NEWSLETTER - GUIDANCE FOR CONTRIBUTORS

> The editor is happy to accept articles on any aspect of astronomy education and development, including obituaries and other articles on people. 500-2000 words are the approximate upper and lower limits. Send contributions to me by email, at b.w.jones@open.ac.uk, copied to t.j.moore@open.ac.uk
>
> You can either send a Word attachment (preferred) or include the text in the body of the email. Illustrations should be sent as separate, individual files, preferably as JPEGS up to about 1 Mbyte.
>
> Shorter contributions, up to a few hundred words, such as meeting announcements, meeting reports, and other news items, are also welcome.

I try to edit as lightly as possible, and I certainly don't care whether US English or British English is used. I also leave local turns of phrase untouched unless the meaning is obscure. Clarity, conciseness, and being interesting or informative are what I like. Only in a few cases is heavier editing necessary.

The **triennial reports** that I have received from National Liaisons (NLs) are currentlybeing placed on the IAU C46 website http://www.astronomyeducation.org. I have received just 32 (with that from Canada expected soon, a delay which is not due to the NL). Three years ago I received 36. Some NLs have sent a report on both occasions, whereas others did so last time but not this time, and vice versa. Given that I have a list of 78 NLs, and that a report every three years is not a lot to ask, to have a 41% response rate this time, and not much more last time, is disappointing. I'm sure that in some cases active NLs have been too busy to prepare their reports, but this might not be so in other cases. At the IAU General Assembly in Prague in August I think we must address this problem.

I will accept triennial reports that I will publish as a supplement in June.

The General Assembly will provide an opportunity for many of us to meet again, or for the first time. It will provide an opportunity for C46 participants to celebrate successes over the past three years, and to discuss the way forward. There will also be two special sessions devoted to education, and young astronomers' events. Details were published in the last Newsletter, and are reproduced in this one. I look forward to these and other events in Prague.

Finally, I have declined the Presidency of Commission 46, even though the natural succession is Vice-President to President. I was very sorry to have to do this, but I have an unpredictable medical condition that could result in me being unable to fill the President's role in the way I believe is required. I think it is important that the President in particular foresees no bar to their fulfilling their role with the energy and continuity that Jay and predecessors have brought to it. I will be happy to continue as Editor of this Newsletter, should the Commission wish me to do so, and we in the Physics & Astronomy Department of the Open University will be happy to host, maintain, and improve the C46 website.

Now, off to the total solar eclipse, at Waw an Namus, Libya ……

Barrie W Jones
(for contact details see Officers & Organizing Committee of Commission 46)

MESSAGE FROM THE PRESIDENT

The most exciting time for a Commission president is now, with schedules being firmed up for our sessions at the Prague General Assembly of the International Astronomical Union. We are very fortunate to have two Special Sessions scheduled, and we hope that we can see most of you at them. Special Session 2, on Thursday and Friday, August 17 and 18, arranged by Rosa Maria Ros (Spain) and me, Innovation in Teaching/Learning Astronomy, will deal with education (http://www.communicatingastronomy.org/innovation2006). Special Session 5, Astronomy for the Developing World, on Monday and Tuesday, August 21 and 22, arranged by John Hearnshaw (New Zealand), will deal with development (http://sps5.saao.ac.za/).

Of course, these Special Sessions are linked to our Commission's main homepage at http://www.astronomyeducation.org, which is ably maintained by our Vice-President, Barrie W. Jones (UK) of the Open University, where he is aided by Tracey J Moore.

Barrie and I are both about to go off to the 29 March 2006 total solar eclipse, as I write. Barrie will try to observe shadow bands from the Sahara in Libya and I, joined by a half dozen of my students and several colleagues, will try to observe the corona from the Greek island of Kastellorizo. Our Commission's Program Group on Public Education at the Times of Eclipses maintains eclipse-related information and links at http://www.eclipses.info. When we return, my group will post sample results at our Website at http://www.williams.edu/astronomy/eclipse. To assist in lecturing about eclipses, Margarita Metaxa (Greece), who will join me on Kastellorizo for the eclipse, has arranged for some of my PowerPoint slides to be posted at http://www.euhou.net/.

In Prague, please also come to our business meetings at the General Assembly in the mornings of Wednesday, August 16, and Thursday, August 24. Among other things, we need voters for the election of officers. Our able vice-president, Barrie Jones, is unable to accept the presidency, for medical reasons, so the succession is more unpredictable than usual.

Further, on the afternoon of Wednesday, August 16, George Greenstein and Bruce Partridge (US) will have a pair of sessions on The Training of Astronomers.

It was wonderful a few weeks ago when I received the first copies of the book that resulted from our Special Sessions in Sydney in 2003: Jay M Pasachoff and John R Percy 2005, Teaching and Learning of Astronomy: Effective Strategies for Educators Worldwide. These are the proceedings of a Special Session at the IAU XXV General Assembly, published by Cambridge University Press. 0-521-842-62-X http://www.cambridge.org/catalogue/catalogue.asp?isbn=052184262X.

Our Commission member Magda Stavinschi (Romania) was instrumental in having JENAM, the Joint European and National Astronomical Meeting, held in Spain last year, devote a session and a volume to education: Teaching and Communicating Astronomy - JENAM '04, Granada, 13-17 September 2004, edited by A Ortiz-Gil and V J Martinez, EAS publications Series, Volume 16, 2005, EDP Sciences, ISBN 2-86883-881-2; EDP Sciences Les Ulis, ISSN 1633-4760.

At our business meetings, we can discuss our success of the past and our plans for the future. For example, Michele Gerbaldi and Ed Guinan ran an International School for Young Astronomers in Mexico last summer; there are, by custom, no such schools in the summers of the General Assembly. Jay White headed our Astronomy for Development Program Group. John Hearnshaw very actively headed our Program Group for the World Wide Development of Astronomy, most recently visiting Trinidad and Tobago (see below). He is bringing not only new teachers into astronomy education but also prospectively bringing new countries into the IAU.

Hans Haubold heads our Program Group on Collaborative Programs with co-sponsored activities. Charles Tolbert and John Percy run our Exchange of Astronomers program, though the terms that require three-month stays or longer are not commonly understood by applicants. Vice-President Barrie

Jones, assisted by Tracey Moore, maintain the list of National Liaisons and make the newsletter.

Thanks to all. I look forward to seeing you in Prague!

Jay M Pasachoff
(for contact details see Officers & Organizing Committee of Commission 46)

ADOPTA UNA ESTRELLA, A CONTEST FOR SCHOOL PUPILS FROM SPANISH AND PORTUGUESE SPEAKING COUNTRIES

The Spanish Royal Society of Physics (RSEF) and the Spanish Royal Mathematical Society (RSME) in cooperation with the Spanish National Research Council (CSIC) and the Spanish Foundation for Science and Technology (FECYT) are organising an on-line competition in order to promote astronomy in primary and secondary schools.

Students are invited to organise a team of three pupils and one teacher. They will select an astronomical object (star, planet, galaxy, nebula…) or an astronomical phenomenon (eclipse, transit…) and produce a report about it. They have to collect written information and photos about the selected topic. It is also necessary to add a practical activity related to the topic (an observation or a model or a computer simulation…) and to compare their object or phenomenon with another which is more or less similar. The report must be written in Spanish or Portuguese (with an English abstract) and sent to ciaccion@mat.upc.edu before 30 August 2006.

The first prize is a trip to Spain in order to visit an observatory of CSIC. It could be the Instituto Astrofisico de Andalucia in Granada or other institutions in Santander or in Madrid depending on the topic considered by the winning team. There is a set of secondary prizes (T-shirts, poster, CDs, astronomical books and caps) for the best projects. The winning projects will be put on the website of the contest. All non-university students will be welcome.

The winners playing and learning astronomy in the final event in the Museo de la Ciencia y del Cosmos in La Laguna, Tenerife


Everybody is invited to learn astronomy in the final event in the Spanish Science Museum

For more information, contact
Rosa M Ros
ros@mat.upc.es or http://www.fecyt.es/cienciaenaccion

WORKING TOGETHER ON A NEW FEATURE FOR THE AER

To make the Astronomy Education Review (AER) even more useful for those in the astronomy and space science education and outreach community, we are thinking about an annual feature in which we list and very briefly annotate especially useful articles in other journals and magazines.

We wondered if you would like to help with this feature (credit will be given to all who contribute) by sending us your favorite astronomy related education reading published in the year 2005, together with a sentence about the significance of each.

Please include your own writings by all means, as long as they are articles and papers, rather than book reviews, or short announcements.

Here is an example of how an entry might read:

> Christensen, Thomas, Changing the Learning Environment in Large General Education Astronomy Classes, in the Journal of College Science Teaching, vol 35, no 3, pp 34 - 38 (Nov/Dec 2005). Lays out the gradual transformation of a lecture class into a somewhat more participatory one, using Just in Time Teaching techniques, group activities, and the Web.

Papers from outside the USA, and journals astronomersare unlikely to read are especially welcome.

Please don't feel you have to wait to send something until you have a perfect list together. Send what comes to mind when you have a chance; send things to the e-mail address below.

Thanks so much for your help.

Andrew Fraknoi
fraknoiandrew@fhda.edu

THE ETHIOPIAN SPACE SCIENCE SOCIETY

The Ethiopian Space Science Society (ESSS) was established on 18 June 2004 under the 1960 Ethiopian Civil Code, Article 404 and on Associations Registration, Legal Notice No. 321/1966. The main objective of the Society is the dissemination of basic space science education in Ethiopian schools and the development of scientific culture in the public sector that comes along with it. ESSS, whose head office is in Addis Ababa, has a large number of registered members some of whom go to the extent of donating large sums of money and small backyard telescopes. The one you see in the picture below is one of the small telescopes recently acquired by the society from one of its members. Enthusiastic graduate students are in the process of putting its parts together for a night time viewing session.


Members of the Ethiopian Space Science Society

The ESSS also supports local space science studies and related technological progress by way of monetary aid and prizes. Just recently the society has donated a 40 square kilometre piece of land to Addis Ababa University (AAU) for the construction of the dome for the 0.45 metre fully automated telescope it hopes to get from the Japanese Government. The application from the Astrophysics group at AAU for the small reflector under the Japanese Cultural Aid Program is pending.

Legesse W Kebede
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ASTRONOMY IN TRINIDAD AND TOBAGO

This article discusses astronomy in the Republic of Trinidad and Tobago, based on a week-long visit there by the writer in December 2005, on behalf of the International Astronomical Union. The visit was hosted by the Department of Physics at the University of the West Indies, St Augustine campus, and by CARINA, the Caribbean Institute of Astronomy.

Introduction

The Republic of Trinidad and Tobago lies in the south Caribbean Sea about 11 km (at the closest point) to the coast of eastern Venezuela. Trinidad is a fairly flat tropical island lying about 11º N of the equator.

I visited Trinidad and Tobago for a week in December 2005 to study the teaching and research of astronomy at the Trinidad campus of the University of the West Indies. My purpose was to report on astronomy in this emerging nation to the IAU. This article is a short summary of my fuller IAU report. My visit was on behalf of the Program Group for the World-Wide Development of Astronomy of IAU Commission 46.

In spite of its proximity to Latin America, very few Trinidadians speak Spanish, and relations with Spanish-speaking Latin America are minimal (a situation the government is trying to change). Most international relations are with the English-speaking Caribbean, with North America, and with the United Kingdom.

The economy of Trinidad is based on oil and petroleum products, and it is one of the strongest in the Caribbean region. Annual growth is 4.6% and GDP per capita (in 2004) was $US 10 500. The

government has announced a policy of Vision 2020, in which it sees Trinidad and Tobago becoming a developed economy within 15 years.

University of the West Indies

The University of the West Indies (UWI) is the main university in Trinidad. The spacious and tree-studded campus is at St Augustine, some 15 km east of the capital city, Port of Spain. This is one of three campuses of UWI, the other two being in Jamaica and Barbados. The Trinidad campus of the university has 13 000 students. BSc, MSc, MPhil and PhD degrees are offered. One of the departments within the Faculty of Science and Agriculture is Physics, and it is here that astronomy is a part of the program. Dr Shirin Haque, the acting head of the Department of Physics, was host for my visit.

Department of Physics, and astronomy at UWI

Dr Shirin Haque is the sole astronomer amongst the ten permanent members of the academic teaching staff in the Department of Physics. She obtained her PhD in 1997 from UWI, but spent much of her time for her doctorate at the University of Virginia in the USA, with a thesis on the large scale structure of the Universe and the distribution of galaxies. Her doctoral work was in theoretical cosmology, but since returning to Trinidad and joining the Department of Physics as a lecturer, she has diversified her interests into observational astronomy.

Dr Shirin Haque, Trinidad's only professional astronomer, with Port of Spain in the background.

Shirin Haque has initiated a collaboration with astronomers in Finland at the Tuorla Observatory of the University of Turku. In particular, Prof. Mauri Valtonen, the director of Tuorla Observatory, is interested in optical monitoring of the quasar OJ287 and he has visited UWI in Trinidad to promote this collaboration. A 0.40 metre Schmidt-Cassegrain Meade telescope with a CCD camera is mounted on the roof of the department at the St Augustine campus. This instrument is used for monitoring OJ287. The telescope is computer-controlled and the CCD images are reduced using IRAF software.

Shirin Haque is teaching one undergraduate course in astrophysics, comprising 13 lectures. This course, entitled Optics and Astronomy, also covers aspects of optics (taught by other staff). This is a level II course and the enrolment is typically about 30, but the number is growing. It is part of the major in physics. The course highlights all aspects of astronomy from the Solar System to the Sun, stars, galaxies and cosmology. The students are making use of Gettysburg College's CLEA software for practical work in astronomy.

There are currently 64 students who expect to graduate with the BSc majoring in physics in 2006. This number is increasing, and numbers for 2005-06 are a record. This is in contrast to the other campuses of UWI in Jamaica and Barbados, where physics is not so strong and astronomy is not taught at all.

There are three students doing MPhil degrees in astronomy. Two of these are interested in quasar photometry, and one recently enrolled student is working on aspects of astrobiology. I was also able to meet some of the senior undergraduate students interested in astronomy. One of these is Derick Cornwall, who is making extensive use of the roof-top telescope and astronomy laboratory at the department. Derick is one of the founders of the Caribbean Institute of Astronomy CARINA (see below). I was impressed with the calibre of all these students. Derick Cornwall went to NOT, the Nordic Optical Telescope in La Palma in January 2005. His observing run was part of the collaboration with Finland mentioned above.

Clearly the support of astronomy at UWI in Trinidad is still quite tenuous. That it is thriving is a tribute to the enthusiasm and energy of Shirin Haque. A recent departmental review in November 2005 recommended increasing staffing levels in physics from the current ten academics; hopefully any future increase would include at least one more position for an astronomer. In addition the review recommended that a postdoctoral position in astronomy be established.

The climate is not wonderful for optical astronomy, and the extended rainy season makes observing difficult between June and October. In addition there are no high altitude sites suitable for a larger telescope in the future. However, optical astronomy with small telescopes is an excellent and inexpensive way of training students in hands-on experience of doing research. Theoretical astronomy is widely perceived to be less expensive, which may be true if large computing facilities are not required. There is no radioastronomy at present in Trinidad, but a future VLBI collaboration with astronomers in the USA or Puerto Rico could be an interesting goal to pursue.

Programme of visit and lectures given

I arrived in Trinidad on Sunday 4 December, and my week-long visit included radio and television interviews with Shirin Haque, visits to the Department of Physics at UWI and meetins withg staff and astronomy students there, meeting members of CARINA, and visiting Trinidad's National Science Centre. On the Thursday evening I gave a public lecture at UWI on Time and Evolution in the Cosmos with about 200 people present, and on the Friday there was a departmental seminar on The Search for planets beyond our Solar System.

I also gave a talk on the work of IAU Commission 46 to members of CARINA on Friday and then I had the pleasure of visiting the observatory of the Trinidad and Tobago Astronomical Society that evening. The observatory with a 0.3 metre telescope was established by a UNESCO grant in 2003. I was also a guest at the society's end-of-year dinner at Mt St Benedict, a superb monastery on the hills above the Port of Spain. I gave a short talk on astronomy in New Zealand to the fifty or more members of the society who were present after dinner.

On the Saturday (10 December) I flew with Derick Cornwall to the nearby island of Tobago, and visited the SEAS (Sea Earth and Sky) Observatory. It is a privately owned observatory with a 0.3 metre Meade telescope on a superb hill-top site overlooking the Caribbean Sea; access to it is generously granted to UWI astronomers by the owner.

CARINA

CARINA is the Caribbean Institute of Astronomy. It was founded in 2002 and is described as a non-profit, educational and scientific organization dedicated to the growth and development of astronomy within the Caribbean region. CARINA does not have members in the style of an astronomical society; instead there is the Board of Directors which includes three of the founders of CARINA, namely

Shirin Haque, Derick Cornwall and Graham Rostant (the last named is a businessman who runs an advertising company in the Port of Spain).

CARINA is a collaborative effort among professional astronomers, astronomy enthusiasts, educators and members of the business community. The Department of Physics at UWI works closely with CARINA.

For the small island nations of the Caribbean, UWI-CARINA may represent one of the few centres where research astronomy has any presence at all. However, larger centres for professional astronomy in the region are to be found in Venezuela, Colombia, Cuba and of course in Mexico and the USA. Trinidadian astronomers naturally look to the USA for support for their science, or even beyond the Caribbean-North American region, as the collaboration with Finland illustrates. Political and language barriers have hampered any collaboration with other centres of astronomy in the Caribbean. In this sense, Trinidad can be seen as quite an isolated country, with barriers coming from language, politics, ethnic differences or economic differences in the case of most of its immediate neighbours.

It remains to be seen if these factors will continue to hamper the international aims of CARINA in the future. However, the aim of developing further astronomy education and research within Trinidad and Tobago would seem to be more easily realizable.

Astronomy in Jamaica and Barbados

I have no first-hand knowledge of astronomy in the neighbouring Caribbean countries of Jamaica and Barbados. The comments here are based on what I was told while in Trinidad, notably by Shirin Haque, who had recently visited the UWI campus in Jamaica.

The Department of Physics at UWI-Jamaica has a 0.53 metre telescope, which is therefore larger than any in Trinidad. Apparently there are no astronomers there at present to use it. The astronomical society in Jamaica has two telescopes, of 0.20 metre and 0.3 metre aperture.

In Barbados, the third UWI campus, has no astronomy, but physics and electronics are taught in the Physics Department there. There is an active astronomical society in Barbados with some 60 members, and it will celebrate its fiftieth anniversary in 2006.

Trinidad and the IAU: recommendations for the future support of astronomy

The single main problem facing astronomy in Trinidad is the small number of astronomers. The single permanent professional astronomer, Dr Shirin Haque, at UWI, is also the Acting Head of the Department of Physics, so much of her time is now taken up with administrative duties. She is supported by several able and enthusiastic students, but this hardly constitutes a critical mass of astronomers. This problem was recognized in a recent review of the Department of Physics (the review took place in the week prior to my visit), and the preliminary report of the review committee recommended that at least one more position be established in astronomy, as well as the appointment of a postdoctoral fellow in astronomy.

Apart from that obvious need, the way forward may well lie in international collaboration. The thriving collaboration with Tuorla Observatory in Finland is a welcome development. One of the MPhil students has spent a week in 2004 at the Sonneberg Observatory in Germany digitizing photographic plates for quasar photometry: this is another example of recent international exposure for Trinidad astronomers. In 2005, at the International School for Young Astronomers in Puebla, Mexico, there were three Trinidadian student participants from UWI. This was further welcome exposure.

In short, what Trinidad needs is more staff astronomers at UWI, more funding for astronomy research and more international contacts and collaborations, such as through participation in conferences, young astronomer schools, or exchange visits for research collaborations. All these things are already

happening to some extent, but if astronomy in Trinidad is to survive it must grow, and these types of activities need to be maintained or increased.

Until astronomy has a stronger professional presence in Trinidad, it is probably unrealistic to expect this small but strongly developing country to join the International Astronomical Union. However, that situation could change if UWI can expand its staffing complement to two or three astronomers in the future. Meanwhile, it is hoped that Shirin Haque can become an individual member of the IAU, and thereby promote some of the aims of increased international contacts that would be so beneficial for her small group.

My overall impression of astronomy in Trinidad, both at UWI and the closely associated CARINA organization, is that here is a small but very enthusiastic group of people with some very able students under their wing. With encouragement and support from the IAU, astronomy could grow here and have an excellent future.

Acknowledgement

I am grateful to the Erskine Fund of the University of Canterbury, New Zealand, for a grant which supported my travel and stay in Trinidad. I thank Shirin Haque for all the detailed arrangements she made for my visit.

John Hearnshaw
Chairperson of the C46 Program Group for the World-wide Development of Astronomy
John.hearnshaw@canterbury.ac.nz

NEWS OF MEETINGS AND OF PEOPLE

TENTH EAAE SUMMER SCHOOL FOR TEACHERS INTERESTED IN ASTRONOMY

The European Association for Astronomy Education (EAAE) is organising its annual summer school for European teachers. On this occasion we are celebrating our 10th anniversary at a special site in order to get good observations i.e. La Palma, Canary Islands (Spain). The gathering will be for a week 3-8 July 2006. The course offers a set of workshops, working groups, a poster session, general lectures, and includes a visit to the Instituto Astrofísica de Canarias (IAC) observatory (on El Roque de los Muchachos) for all the teachers in attendance. It is not usual to have this opportunity for a large group of visitors.

As in previous editions this summer school was accepted as a Socrates course of the European Union and all the European teachers can apply for financial support. It is traditional in these courses to accept some teachers from outside of Europe, if they are interested in participating. Jay Pasachoff (Current president of IAU Commission 46) and Claus Madsen (the European Southern Observatory Educational Department) will be speakers in the general lectures.

This summer school is the last one being organised by the EAAE alone. In the future it will be co-organised by ESO and EAAE in order to increase the level of cooperation amongst teachers and professional astronomers in Europe. The summer school in 2007 will take place at ESO headquarters in Garching.


Teachers at a practical workshop


Learning by doing

For more information, contact
Rosa M Ros
ros@mat.upc.es or http://www.eaae-astro.org

YOUNG ASTRONOMERS' EVENTS AT THE IAU GENERAL ASSEMBLY, AUGUST 2006, PRAGUE, CZECH REPUBLIC

A 'young astronomer' is someone either with a PhD for less than 3 years, or has been accepted in a PhD programme.

Two specific events will take place during the General Assembly at Prague, August 2006. The first one, a Young Astronomer Lunch-Debate, will be organized on 15 August, just before the Opening Ceremony of the GA. For this event a pre-registration will be required through the IAU GA website http://www.astronomy2006.com/

The second initiative is to have a Young Astronomer Consulting Service during the whole GA. The purpose is to have a clearly identified office where young astronomers may, by arranged appointments, meet with senior astronomers to seek advices on their CV, thesis, jobs, etc. during one-to-one discussions.

More information will be given in due time on the Commission 46 website
http://astronomyeducation.org

Michèle Gerbaldi, Chair of the ISYA, gerbaldi@iap.fr

SPECIAL SESSION SPS2 AT THE IAU GENERAL ASSEMBLY, 17-18 AUGUST 2006, PRAGUE, CZECH REPUBLIC

SpS2 Innovation in Teaching/Learning Astronomy Methods

Astronomy educates people, and gives very important opportunities to young people. In astronomy, science and technology have a relationship, both the technology used in obtaining observations and the technology used in teaching. Both topics are essential to maintain the quality of life in various countries. Astronomy also leads to an understanding of the history and the nature of science, distinguishing science from pseudoscience.

Since astronomy attracts young people to education in science and technology, we should struggle to make the maximum advantage of the situation. But in many countries, astronomy is not in the standard curricula and teachers do not receive adequate education and support. Still, many scientific and educational societies as well as government agencies have produced materials and educational resources in astronomy for all educational levels.

In the IAU resolution on the Value of Astronomy Education, passed by the General Assembly in 2003, it was recommended:
a) to include astronomy in school curricula
b) to assist schoolteachers in their training
c) to inform teachers about available resources
d) to contribute to the training of teachers.

The aims of this Special Session will be to contribute to the implementation of these recommendations, introducing some innovative points of view in teaching/learning methods. Astronomers from all countries – developed or developing – will be equally interested.

List of Topics to be considered at SpS2

Some of these topics were considered in the Special Session at the 25th General Assembly in Sydney, but it is necessary to continue and extend the work started then in order to increase the quality and quantity of astronomy in schools.

THEME 1: General strategies for effective teaching
- Connecting astronomy with the environment
- Availability of new designs in planetariums, digital and opto-mechanical
- Presenting classic topics by means of more simplified methods
- Using interdisciplinary presentations
- Mixing with cultural background or/and history of astronomy
- Astronomy knowledge borders teaching at the school

THEME 2: Effective Use of Instruction and Information Technology
- Information on newly implemented facilities, including remote observing that allows school students to use telescopes in other time zones and in good observing locations
- Modern technology as a tool for current teaching/learning
- Availabilities on new technologies in different schools.

THEME 3: Learning Science by Doing Science
- Introducing new results from astronomy education research
- Interaction with 2006 as the International Year of Physics
- Mixing with cultural background or/and history of astronomy
- Future education and public information projects from astronomical institutions – such as NASA, ESA, and major ground-based observatories – involving schools

THEME 4: Astronomy Communication
- Role of Public Information offices of observatories and space missions
- Planetarium attendance and astronomical content
- Television and radio media
- Role of light pollution in liaison with the public
- Interaction with 2006 as the International Year of Physics
- 2009 International Year of Astronomy

THEME 5: Practical issues connected with the implementation of the 2003 IAU Resolution
- What is the situation in different countries three years later for implementing

– the inclusion of astronomy in school curricula
– assisting schoolteachers in their training
– informing teachers about available resources
– contributing to the training of teachers
- New suggestions after three years of experience

Also
- Astrobiology
- Astronomy Knowledge borders

All IAU members are invited to participate. There will be oral contributions and poster presentations. Please submit your abstracts to the web site of the General Assembly http://www.astronomy2006.com/ The deadline for this is under discussion, but we would prefer the papers as soon as possible, with our internal deadline set at 01 April 2006 even if the formal IAU deadline is later.

The organizers have asked the IAU GA secretariat for financial support; we do not have a formal reply with an amount, but we expect at least some.

For more details visit the website of our meeting
http://www.communicatingastronomy.org/innovation2006/
or contact the chairs:
Rosa M Ros (ros@mat.upc.es) and Jay Pasachoff (jay.m.pasachoff@williams.edu)

SPECIAL SESSION SPS5 AT THE IAU GENERAL ASSEMBLY, 21-22 AUGUST 2006, PRAGUE, CZECH REPUBLIC

SpS5 Astronomy for the Developing World

You are warmly invited to participate in SpS5. There will be invited speakers, contributed oral sessions and posters. If you wish to participate, to present a paper or if you require further information, contact John Hearnshaw: john.hearnshaw@canterbury.ac.nz fax: +64 3 3642469

The website gives additional information http://sps5.saao.ac.za/

The list of topics to be covered at SpS5 is as follows.
- The training of astronomers in developing countries (John Percy, Julieta Fierro, Jay Pasachoff)
- Distance learning in astronomy as an option for developing countries (Barrie Jones)
- Public outreach programs in astronomy for developing countries (Lars Christensen)
- The proposal for a Third World Institute of Astronomy, or for a Third World Astronomical Network (TWAN) (Jayant Narlikar, John Hearnshaw)
- Developing countries and the virtual observatory (including remote telescope access via the internet for students (Ajit Kembhavi))
- Developing countries and the work of UNOOSA (Hans Haubold)
- Developing countries and the work of COSPAR (Peter Willmore)
- Developing countries and the International Heliophysical Year 2007 (David Webb)
- The development of astronomy in specific regions of the third world: Astronomy in Iraq (Athem Alsabti, UK and Iraq); Astronomy in Africa (Peter Martinez, South Africa); Astronomy in Latin America (Hugo Levato, Argentina; Julieta Fierro, Mexico); Astronomy in Asia (Boonrucksar Soonthornthum, Thailand); Astronomy in Iran (Yousef Sobouti, Iran; Ed Guinan, USA)
- Progress and future prospects for the Japanese ODA (Official Development Assistance) program (Masatoshi Kitamura)
- Progress and future work of IAU Comm. 46 Program Groups relevant to the developing world: PGWWDA, World-wide development of astronomy (John Hearnshaw, NZ); TAD,

Teaching for astronomy development (Jay White, USA); ISYA, International School for Young Astronomers (Michèle Gerbaldi, France)

Scientific organizing committee
John Hearnshaw (New Zealand, chair); Athem Alsabti (UK/Iraq); Julieta Fierro (Mexico); Michele Gerbaldi (France); Hans Haubold (Germany, UNOOSA); Barrie Jones (UK); Ajit Kembhavi (India); Hugo Levato (Argentina); Peter Martinez (South Africa); Jayant Narlikar (India); Jay Pasachoff (USA); John Percy (Canada); Boonrucksar Soonthornthum (Thailand); Peter Willmore (UK, COSPAR); Jay White (USA).

Supporting IAU Commissions and Divisions
- Commission 46 Astronomy Education and Development (President, Jay Pasachoff).
- Division XII Union-wide Activities (President, Virginia Trimble)
- Division II Sun and Heliosphere (President, David Webb)

Editors of the proceedings
The special session will publish its proceedings. The editors will be John Hearnshaw (New Zealand) and Peter Martinez (South Africa).

John Hearnshaw, john.hearnshaw@canterbury.ac.nz

USEFUL WEBSITES FOR INFORMATION ON ASTRONOMY EDUCATION AND OUTREACH MEETINGS

The following websites contain information on future (and recent) meetings and conferences on, or very relevant to, astronomy education and development. In compiling this short list I am well aware of a strong European bias. **Please email me URLs for relevant websites in other areas of the world.**

UK
The Association for Astronomy Education http://www.aae.org.uk
The British Association of Planetaria http://www.bap.redthreat.co.uk
The National Schools Observatory http://www.schoolsobservatory.org.uk

Europe
The European Association for Astronomy Education http://www.eaae-astro.org
The European Astronomical Society http://www.iap.fr/eas
The European Southern Observatory http://www.eso.org/outreach/eduoff

USA
(among several other good sites)
The Astronomical Society of the Pacific http://www.astrosociety.org

Barrie W Jones
(for contact details see Officers & Organizing Committee of Commission 46)

INFORMATION TO BE FOUND ON THE IAU C46 WEBSITE

The IAU C46 website http://astronomyeducation.org (or http://physics.open.ac.uk/IAU46) contains the following information.
- Overview (of C46, in English, French, and Spanish)
- Offices and Organising Committee
- Program Groups

- National Liaisons (directory)
- Online Newsletters
- Presidents and Current Vice-President
- Resolution on the Value of Astronomy Education (passed by the IAU General Assembly 2003)
- IAU Working Group on Communicating Astronomy
- External links
- Announcements/News
- Minutes from the last IAU General Assembly
- Commission 46 Terms of Reference, Rules & Guidelines

OFFICERS & ORGANIZING COMMITTEE OF COMMISSION 46

President **Jay Pasachoff** jmp@williams.edu
Astronomy Department, Williams College, Williamstown, MA 01267, USA

Vice-President **Barrie W Jones** b.w.jones@open.ac.uk
Department of Physics and Astronomy, The Open University, Milton Keynes, MK7 6AA,
United Kingdom fax +44 (0)1908 654192

Retiring President **Syuzo Isobe** isobesz@cc.nao.ac.jp
National Astronomy Observatory, 2-21-1, Osawa, Mitaka, Tokyo 181, Japan

Newsletter PG Chair **Barrie W Jones** b.w.jones@open.ac.uk
Department of Physics and Astronomy, The Open University, Milton Keynes, MK7 6AA,
United Kingdom fax +44 (0)1908 654192

Organizing Committee (OC)
The officers 2003-2006 are: the President, the Vice-President, the Retiring President, and three former Presidents in active liaison – Julieta Fierro, Derek McNally, and John Percy. For details of the Organizing Committee, and for the other members of the Program Groups, see the website http://astronomyeducation.org (and http://physics.open.ac.uk/IAU46)

National Liaisons **Barrie W Jones (PG Chairperson)**
These are listed on the website http://astronomyeducation.org
(and http://physics.open.ac.uk/IAU46)