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

Newsletter 58 – March 2003

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.

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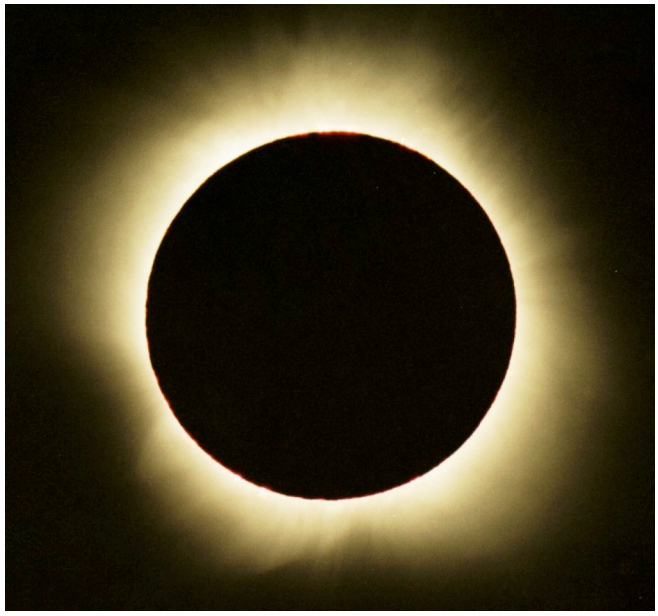
EDITORIAL

The IAU General Assembly is not far off, and for those of you attending I wish you a good journey and a stimulating time. You will know that Special Session SPS4, 'Effective Teaching and Learning of Astronomy', will take place on Thursday 24 July and Friday 25 July 2003. This session has been organized by Commission 46 under the leadership of John Percy. The programme is given towards the end of this Newsletter. It looks very good.



The total eclipse 4 December 2002, from Ceduna, Australia (Jay Pasachoff) (see the article on solar eclipse 2002)

I recently attended a 'scenario workshop' at my University, in which we were faced by four scenarios of the world over the next 10 years, and had to consider how the University could best adapt to each scenario in its research and in its teaching. With respect to teaching, our considerations were relevant to astronomy, certainly at university level. The four scenarios were characterised by

- strong globalism with
  - weak student influence on the curriculum and style of learning
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- strong regionalism with
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Strong globalism (in the scenarios) would be associated with transnational consortia of higher education establishments (HEIs), and by electronic media delivering to their apparent potential. Distance education would be a major component of the educational scene. Global curricula and global systems of accreditation would emerge. Strong regionalism would be associated with the fairly obvious opposites. Other factors determine student influence, such as the extent to which commercial and industrial organizations control HEIs to meet their needs.

Though the scenarios were not predictions of the future, and though they were somewhat simplistic descriptions of the possibilities, I did find the workshop a useful reminder that there is a whole world in which I pursue my day by day job, and that this world in which we teach astronomy is changing fast, and in unpredictable ways that might require fast responses by educators. An article on 'astronomy education in a handful of possible but contrasting worlds' would be an interesting one for this Newsletter – if only one could find time to write it!

The next edition of the Newsletter will be in October 2003. The deadline for the receipt of material is Friday 10 October 2003. Contributions can be sent as emails to me, either in the body of the email or as editable attachments e.g. Word, LaTeX. Illustrations should be in a common format –

JPEG, GIF, TIFF – but individual emails with attachments should not exceed two megabytes. Material can also be sent to me by mail or fax.

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

MESSAGE FROM THE PRESIDENT

The time has come when I write my final message as Commission 46 President. However, before I hand over the Presidency to Prof Jay Pasachoff during the 24th IAU General Assembly, there are several important remaining tasks.

Our Organizing Committee (OC) has to nominate new officers and recommend them to the Executive Committee of the IAU. At the 23rd IAU General Assembly in Manchester, 2000, our commission was merged with Commission 38, Exchange of Astronomers, and with the working group on World-wide Development of Astronomy. The new Commission 46, Astronomy Education and Development, was thus set up. To enhance and make effective our activities, we have built nine Program Groups (PGs). Each chairperson, who is an OC member, has worked nicely with his PG members, and consulted much with the OC in the timely manner, and therefore our activities have become better and better. However, all the chairpersons cannot work continuously for ever, and our commission always needs fresh OC members. This is one of the most important tasks for me to manage; I need and request your opinion on the candidates.

Another important task is to obtain good financial support for our commission from the IAU budget. We have asked the EC to provide us with a budget for 2004-2006 that is higher than that of the present three years in consideration of our efficient activities and the importance of astronomy education itself.

I will do my best to complete these tasks well, and I would like to establish good conditions for the period of Jay's presidency.

Our Commission should try to get many active members, because our activities are based on their efforts, and most of our work is carried out on a voluntary basis. I have to apologize to you in that I have not had enough time to do as much as I wanted. Although I shall step down from the Presidency, I will continue to be an OC member, and therefore I will try to help the next President in his work. I will also request you (Commission 46 members and IAU members in general) to help with the important work of Commission 46 development.

In February, I attended the United Nations Committee for the Peaceful Usage of Outer Space (UNCOPUOS) as a delegate of the IAU because I am chairman of our PG Collaborative Programs. Sessions of Action Team 17 'Capacity Building' were held. There was much interest in how to bring capacity building into the real world, especially in developing countries. I introduced our system of PGs, the basic idea of which is building up processes from one PG to another. I am proud that our Commission has this very good system, and I hope the Action Team will take serious account of our system.

Although it may be too early to write, I would like to express my sincere thanks to the Vice-president Jay Pasachoff for his critical advice, to the OC members for their extensive work, and all the Commission 46 members for their help. I will meet you in Sydney this July if you come to the 24th IAU General Assembly. I will also promise you contributions to the Newsletter as well as to our Commission after my retirement from the presidency.

Syuzo Isobe
(for contact details see 'Officers & Organizing Committee of Commission 46')

AWARDS TO MEMBERS OF COMMISSION 46

I am very pleased to be able to inform you that Donat Wenzel and Jay Pasachoff have each received awards for services to astronomy education.

Donat Wenzel has been awarded the George Van Biesbroeck prize, which honours a living individual for long-term extraordinary or unselfish service to astronomy, often beyond the requirements of her or his paid position. The citation for the 2003 George Van Biesbroeck Prize reads: "The American Astronomical Society awards its Van Biesbroeck Prize for 2003 to Dr Donat G Wentzel for outstanding and sustained contributions during three decades to astronomy education in this country [USA – ed] by stimulating the American Astronomical Society to become and remain engaged in education, and internationally, through the International Astronomical Union, by guiding the Commission on the Teaching of Astronomy and by working for the growth of astronomy programs in developing countries."

The American Astronomical Society has award its 2003 Education Prize to Jay Pasachoff. This award is for outstanding contributions to the education of the public, of students, and/or of the next generation of professional astronomers. The citation reads: "For his eloquent and informative writing of textbooks from junior high through college, For his devotion to teaching generations of students, For sharing with the world the joys of observing eclipses, For his many popular books and articles on astronomy, For his intense advocacy on behalf of science education in various forums, For his willingness to go into educational nooks where no astronomer has gone before, the AAS Education Prize is awarded to Jay M Pasachoff."

On behalf of Commission 46, I send congratulations.

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

A TRIP TO LAPLAND

In my work in astronomy education, I enjoy finding out how education and outreach are done in other countries. Last summer, I got to broaden my understanding of astronomy education in Europe, and the excellent work which is done by the European Association for Astronomy Education (EAAE). I was Keynote Speaker at the Sixth Annual Summer School of the EAAE. It was held in the second week of July, in Enontekio, in northern Finland – the land of reindeer, mosquitoes, and the Midnight Sun. Despite the numerous warnings, the mosquitoes failed to materialize, apparently because the weather had been so dry. But a hundred teachers and teacher educators did materialize, from all over Europe. The Organizing Committees were headed by Rosa Maria Ros (Spain) and Irma Hannula (Finland). The School consisted of a dozen intensive workshops, all of them related in some way to the Sun. As much hands-on activity as possible was scheduled, though the Sun did not always conform to the schedule. A complete set of workshop notes (some in two or three languages) was provided to each participant. There was a poster session, and a 'swap shop', at which teachers could share their ideas and resources in a formal way. There were interesting outings to the prehistoric rock paintings at the northern tip of Norway, to the local museum for a sampling of Sami (aboriginal) culture plus a stunning presentation on The Northern Lights, and to a local reindeer farm. (Based on this one experience, I got the impression that reindeer farmers are a lot like North American cowboys.) There was lots more socializing, and sharing of experiences, over mountains of excellent Lapland food. I commend the EAAE, and especially Rosa Maria Ros, for organizing these schools that spread astronomy, and astronomy teaching, into the countries of Europe so effectively. They lead the world, in this respect. And thank you to Irma Hannula and our Finnish hosts for their friendly and excellent hospitality.

John Percy
Erindale College, University of Toronto, Mississauga, Canada L5L 1C6
Tel +1 905 828 5351, fax +1 905 828 5425, jpercy@erin.utoronto.ca

NEW BOOKS ON ASTRONOMY

The Prentice Hall Series in Educational Innovation has recently published two excellent books which support the teaching of 'Astro 100' – the generic 'introductory astronomy for non-science students' course which is the core of post-secondary astronomy teaching in North America. These are: 'Learner-Centered Astronomy Teaching: Strategies for ASTRO 101' by Timothy F Slater and Jeffrey P Adams, and 'Peer Instruction for Astronomy', by Paul J Green. There is also a related student workbook: 'Lecture-Tutorials for Introductory Astronomy', by Adams, Edward E Prather, and the Conceptual Astronomy and Physics Education Research Team.

The emphasis in these books is on effective learning. Instructors often forget that teaching does not necessarily result in learning; numerous surveys demonstrate this clearly. Students have deeply-rooted misconceptions, which are often amplified by traditional teaching. Three-dimensional, geometrical, mathematical, and 'frame of reference' topics are a special problem. Astro 101 classes are often so large that the lecture and the textbook are the only practical tools for content delivery, and multiple-choice tests are the only practical means for assessment. Slater and Adams, and Green show that there are ways of engaging students' minds – even in large lecture courses – and there are ways of writing and using multiple-choice questions in a way that promotes thinking and learning, as well as being effective assessment. Slater and Adams' book covers several other topics which are of interest to new instructors (and old), all within an inexpensive, 167-page paperback. Green's book is centered on ConcepTests – simple multiple-choice questions which can be used, every few minutes, within large lecture classes to promote thinking, discussion, and learning. Although not every question is ideal or useful, there is more than enough description and discussion of peer instruction, and ConcepTests, to implement this powerful technique in almost any class.

In North America, university instructors receive little or no pre-service or in-service training in teaching; they are the ultimate amateurs. When questioned about this, some say that teaching is an innate talent which one is born with (and there is consequently no point in being trained). Others justify the lecture approach by saying that "it worked for them, when they were students". But non-science students are very different from us! In our research work, we expect to keep up-to-date by reading the literature, and attending conferences. We expect that our research will be subjected to quality control by the grant review process, and by the refereeing process in journals. The same should be true of our teaching, and of any educational work that we do. Adams, Slater, and Green, through their books, provide an excellent introduction to current research on effective teaching, and to practical ways of implementing this research in our classes.

John Percy
Erindale College, University of Toronto, Mississauga, Canada L5L 1C6
Tel +1 905 828 5351, fax +1 905 828 5425, jpercy@erin.utoronto.ca

A NEW ASTRONOMY EDUCATION JOURNAL

The first volume of 'Astronomy Education Review', the new on-line journal for astronomy and space science education, is now available at http://aer.noao.edu. The editors (Sidney Wolff and Andrew Fraknoi) are ready to receive contributions for the first issue of Volume 2. Guidelines for intending contributors are on the website.

The Review aims to serve a broad audience of those involved in education. It includes

- research papers on teaching and learning
- short reports on innovative techniques and approaches
- annotated lists of educational resources
- news and opinion pieces
- announcements of opportunities.

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

A REQUEST FOR HELP

I request assistance in the form of telescopes, photometers, etc, to enable us begin some astronomical work here in the Department of Physics, University of Nairobi, Kenya. I had a chance to visit the Inter-University Centre for Astronomy and Astrophysics, IUCAA, Pune, India, where I borrowed an SSP Photometer which we are currently using for some undergraduate projects. Our department is just mounting a programme in astronomy, although we still lack the basic facilities. I would therefore appreciate very much whatever assistance you may give us to enable us get started. We would not mind old equipment since we are badly in need. I am in the field of general relativity, but I am shifting to astronomy/astrophysics and so I really need your help.

P Baki, Dept of Physics, University of Nairobi, Box 30197, Nairobi, Kenya
Fax +254 02 4449616

EXPERIENCE AND A REQUEST ON ASTRONOMY EDUCATION

I have been working part-time at the Gunma Astronomical Observatory, which is 150 km north of Tokyo and is open to the public. Many visitors come from not only the Gunma prefecture but also other areas including Tokyo to see the facilities and exhibitions, and to observe stars visually by using the 1.5 m optical-infrared telescope and the 65 cm optical telescope, which have CCDs and spectrometers. Also, the observatory has smaller telescopes for qualified persons and a 30 cm solar telescope which produces 1 m diameter white images and spectra. The staff consists of about ten astronomers who are engaged in technical work, and there is also administrative staff.

In the past four years the observatory has invited about ten astronomers from Asian countries to stay at the Observatory for two weeks to eight months. Some of them were established astronomers, but most of them started their astronomical training there. After I talked with them, I discovered what they did not know and what they should have learned. Observatory staff members taught them basic astronomy, astrophysics, structure of telescopes, CCD techniques, and so on, and they practiced the operation of small telescopes with CCDs, photometers and spectrometers. However, I am afraid that their experiences at the Observatory were not enough to enable them to conduct independent scientific research.

Turning to another issue, when I heard that the 40 cm telescope at Hanoi, which I brought and set up there a few years ago, could not produce any good images, the Gunma Observatory sent a staff member to repair it. The observatory floor, which formerly contacted the pier of the telescope, has now been rebuilt, so I hope that the telescope can now produce good images. I intend to invite some of the Vietnamese to come again to the Observatory for further training so that they can make scientific observations with their telescopes, particularly as new telescopes were made available recently in Ho Chi Minh City and Quezon City. I know that the staff there should be astronomers with some technical knowledge, but they cannot expect any technical support at their home institutions.

I understand that several of the telescopes in Asia are not in good condition. Therefore, I intend to send some astronomers with technical experience regularly so that these telescopes become useful. If anybody will participate in this program and/or the IAU supports it, it would be very much appreciated. Of course, it is very hard for me to find enough funds to send people. Therefore, if the IAU can provide some funds it would be very helpful for us. In fact already three Vietnamese people used IAU TAG grants to come to Japan.

Yoshihide Kozai
Gunma Astronomical Observatory, Takayama, Gunma 6860-86, Japan, kozai@wave.plala.or.jp

ACTIVITIES OF PG TEACHING FOR ASTRONOMY DEVELOPMENT

Here is a report covering TAD activities in the period October 1999 to September 2002. Little has changed since September, though the Philippines observing program is getting started with a three-week visit in March 2003 by Armando Arellano Ferro, Mexico.

VIETNAM

A new bilingual text 'Astrophysics' (authors Donat G Wentzel, Nguyen Quang Rieu, Pham Viet Trinh, Nguyen Dinh Noan, and Nguyen Dinh Huan) was published in December 2000 by Educational Publishing House of Vietnam, with partial financial support from TAD. It is aimed at the astronomy course taught at ten pedagogical universities. In 1999, TAD supported the last of the preparatory conferences, with Nguyen Quang Rieu and Jay White as foreign faculty. The university teachers now using the text received teaching support at conferences in March 2001 and (TAD-supported) in December 2001.

TAD supported the first issue (December 2000) of the new quarterly Vietnamese journal 'Popular Astronomy', published by the Astronomical Society of Vietnam. In order to make the 45 cm telescope at Hanoi Pedagogical University into a more useful educational tool, TAD supported the travel of Nguyen Anh Vinh to the UN/ESA workshop in Toulouse (with an opportunity to receive some training under the auspices of the Societe Populaire Astronomique de Toulouse), and his travel for four months of observational training at Gunma Astronomical Observatory, Japan. TAD also helped pay for the rebuilding of the telescope pedestal. The Pedagogical University in Ho Chi Minh City has received a 20 cm telescope and CCD through the support of Prof Y Kozai and Gunma Observatory. TAD has supported the travel of Tran Quoc Ha and her astronomy teaching assistant Cao Anh Tuan to Gunma Observatory for observational training so as to make the telescope an effective teaching tool.

The only Vietnamese planetarium, in Vinh City, obtained two shows (one donated) from Davis Planetarium (Baltimore, USA), translated and culturally adapted them with help from Vinh University astronomers, and started showing them in January 2001 to Vinh City public and schools.

To better plan TAD activities in Vietnam, TAD supported the travel of Prof Nguyen Dinh Huan (Vice-president, Astronomical Society of Vietnam, rector, Vinh University) to the IAU General Assembly in 2000.

CENTRAL AMERICA

TAD supported the travel costs for national delegates and one foreign faculty member to the sixth and seventh Central American Course on Astronomy and Astrophysics, held in 2001 at the University of Costa Rica, San Jose, and in 2002 at the National University of Honduras, Tegucigalpa (and also provided some meeting expenses).

In Nicaragua, astronomy is developing as a teaching subject within the School of Physics at the National University of Nicaragua, Managua. TAD supported Dr Nidia Morrell (Argentina) to visit and advise, and thereupon provided a CCD and set of filters for the new 20 cm telescope.

In Costa Rica, the School of Physics of the University of Costa Rica, San Jose, is developing an observatory at altitude 3442 meters. TAD is supporting development of a students' solar observing program, at first by sending Lela Taliashvili to Meudon, France, both to update her experience and to progress her towards her solar-oriented doctorate. Jay White (assistant chairperson for TAD) briefly visited Prof Jorge Paez (Costa Rica), president of the Central American Astronomical Assembly (the organization adhering to the IAU), in order to discuss the most useful way TAD could support future astronomy development in Central America.

In 2001, TAD provided three student travel grants. First. for Maria Quiroz, student in the Central American MSc program, to travel from Honduras for MSc thesis research with Dr Silvia Fernandez, Cordoba, Argentina. Local living costs were provided by the National University of Cordoba under an agreement with the Central American Suyapa Observatory, Honduras. The MSc degree has been awarded. Second, for Eduardo Rubio to travel from Guatemala for BSc thesis research with Dr Armando Arellano, Mexico. Additional support was provided by a fellowship from the Guatemalan CONCYT and SENACYT and an assistantship from the National University of

Mexico. The BSc has been awarded. Third, for Alfredo Gomez, student in the Central American MSc program, to travel from Nicaragua for MSc thesis research with Dr Nidia Morrell, La Plata, Argentina.

MOROCCO

The TAD program is centered in the Faculty of Sciences of University Hassan II in Casablanca. The major initial initiative, which led to a significant change in the attitude of the faculty toward astronomy, was the acquisition of the IAU traveling telescope and the CCD. The students learned with Dr David Clarke (Glasgow) how to use the CCD and could then operate the telescope without any assistance.

Travel has been supported for students going to Munich (to study CCDs and electronics), to Lecce, Italy (a one-year masters' course, Space Systems on Earth Observation), and to the Pic du Midi observatory in France (for ten days to study with Dr Michele Gerbaldi, and to take data and data-reduction software back to Casablanca).

TAD aided the computational capability of Prof Chamcham's academic program, by supporting in part an interdisciplinary collaboration with the University of Pisa, and by supporting participation in an Italian-sponsored interdisciplinary workshop in Casablanca on data and image analysis. TAD also provided travel expenses for Stuart Keir (UK) to visit and advise on computing, and made a contribution to a laptop computer needed for the IAU-provided telescope and the educational capabilities of the astronomy program

TAD supported the travel of John Danziger from Trieste to Casablanca for a short course, discussions with students, and advice on developing astronomy. It also supported the travel of Michele Gerbaldi from Paris to Casablanca for professional planning of astronomy teaching at several schools in Casablanca (expecting to be using a privately donated small telescope). TAD supported six students to attend the Second International School of Plasma Physics held in Casablanca in 2002.

A second university is about to join the TAD program in Morocco. It is Alakhawayn University in the town of Ifrane, with astronomy interests in its engineering and other programs. Several TAD-supported visiting lecturers are expected to visit both Casablanca and Ifrane.

GENERAL

Books, journals, and teaching aids have been provided to several TAD-supported institutions.

PHILIPPINES

A new TAD program is expected to support astronomical training of the staff of the Astronomy Research and Development Section (which includes public outreach) of PAGASA, the Philippine national weather agency, including a program to use the new 45 cm telescope (with CCD etc) donated by the Government of Japan.

Donat G Wentzel
Chairperson for Teaching for Astronomy Development (TAD), wentzel@astro.umd.edu

SPANISH RESOURCES – TOTAL LUNAR ECLIPSES 2003

We have just finished our new web page on the lunar eclipses this year (15 May and 8 November) for use in the Western Hemisphere. The first eclipse will have 53 minutes of totality! You might be able to distribute this information among Spanish speakers in your community.
http://cientec.or.cr/astronomia/eclipses2003.html
At the end there are links to experiments with light and color, refraction and perception. Information in English on these Eclipses is at
http://sunearth.gsfc.nasa.gov/eclipse/OH/OH2003.html
We hope this is useful in

- promoting interest in understanding our Sun-Earth-Moon system
- developing meaningful educational connections
- supporting schools and families in their preparation of a science activity – the observation of the phenomenon.

In our teacher workshops we are also stressing the importance of addressing **myths**. Many believe pregnant women and others should not watch eclipses. So they keep them indoors and often under beds and furniture. It sounds prehistoric, but the myth is strong. We stress that there is **no danger** whatsoever in viewing lunar eclipses. In contrast to solar eclipses, where we might harm our retina from viewing the Sun directly, in this case we are watching the sunlight reflected from the Moon, as in any full Moon.

I hope you find this useful and prepare your own viewing of this unusual event.

Alejandra Leon Castella, Fundacion CIENTEC, San Jose, Costa Rica, leonale@racsa.co.cr

SOLAR ECLIPSE 2002: PUBLIC INFORMATION IN AUSTRALIA

South Australian Government preparations for the 2002 eclipse began almost as an afterthought. An unrelated worldwide tourism campaign for '2002 – Year Of The Outback' had begun early in 2001, but early publicity made no mention of the 2002 eclipse. Many of the communities along the eclipse path first became aware of it from the mysteriously intense demand for tourist accommodation during eclipse week. The Astronomical Society of South Australia (ASSA) had been sending eclipse advisory letters to the state government, offering assistance and advice, since early 2000. These letters were apparently ignored at the time.

Then, for reasons that are still unclear to me, the eclipse was suddenly part of the 'Year Of The Outback' after the October 2001 state elections. An entirely new state government had taken office, including a new Minister for Tourism who was known to be interested in astronomy. I speculate that she may have finally read ASSA's letters.

The District Council of Ceduna, whose office was only a few hundred metres from eclipse centre-line, had been receiving an ever-increasing number of eclipse-related enquiries since early 1999. By late 2001 it was clear to the Council that their town of about 3 000 people might be hosting 50 000+ eclipse tourists. Therefore the Council appointed a full time Event Coordinator (Rob Curkpatrick) at the beginning of 2002 to manage the town's eclipse preparations.

Meanwhile, by late 2001 I had fallen into the role of ASSA's eclipse specialist. Many ASSA members had seen total eclipses before, most members knew how to observe the Sun safely, and a few members (including me) could also perform eclipse-related calculations. But I was the only member who had also lived and worked in the regions to be affected by this eclipse. And a large percentage of eclipse enquiries to ASSA asked about the terrain, the climate, the roads, and similar logistical matters. These were simply being forwarded to me for reply.

To forestall some of these enquiries I established a new website of my own (http://astronomy.trilobytes.com.au/2002/eclipse.htm). This began as little more than a list of eclipse times and notes for various South Australian (SA) locations, and a general map of the eclipse path. From June 2002 I expanded it to include detailed descriptions, many photographs taken on location, and annotated topographic maps. All of these reconnaissance trips, excepting the one to Ceduna, were undertaken at my expense. I'm leaving my website online for historical purposes. ASSA adapted some of this material with my permission for its own eclipse website. I am also aware of many other places which copied information, sometimes without attribution.

Eclipse publicity from the South Australian Tourism Commission (SATC) in late 2001/early 2002 encouraged the world to come and watch the eclipse, but there was no mention of **eye safety**. In mid-2002, in response to an increasing deluge of enquiries from tourists and Outback communities, SATC assigned a small team of their own staff to the eclipse preparations. At the same time Rob Curkpatrick's job was expanded to include the entire path of totality – about 900 km long, and practically all of it through uninhabited deserts in early summer.

Rob and the SATC team quickly realized that the eye safety issue was one of their lesser problems. They discovered that millions of people had safely watched the eclipses of 2001 and 1999 using readily available solar filter materials. Some of these filters were already being sold in Australia. SATC were far more concerned about the logistics of handling a large number of tourists in a desert. As we all knew, tourists had died out there before, or got themselves into avoidable perils or bodily harm. So the decision was made to confine official eclipse viewing activities to the Ceduna region, and

to the few good Outback roads that intersected totality. It was understood by all that many people would still head off into the wilderness, but it was hoped that the majority would take advantage of the 'safety net' of the official sites and stay by the roads.

Even with these constraints, logistical planning proved difficult. As Rob often said, an eclipse was unlike any other major event he had run because "We can't put a fence around an eclipse and sell tickets, so we're not sure how many people are going to each of the locations". For example, the tiny town of Lyndhurst (official population 28) was invaded by about 15 000 visitors – mostly in cars – for eclipse day. Previous predictions had ranged from 5000 to 25 000. And cloud cover was going to play a major role in this event.

ASSA reminded SATC that extensive public education campaigns in SA, prior to the 1976 total eclipse and the 1959 annular eclipse, had both been very successful in preventing eye injury in this state. One case of eye damage is known to have occurred in SA during the 1976 eclipse, but the victim was drunk at the time and stared at the partly eclipsed Sun for several minutes. None of the approximately 170 cases from the 1959 eclipse occurred in SA.

With this historical lesson in mind, a few ASSA members (including me) produced a double-sided page in mid-2002 for public distribution. This brochure explained what an eclipse was, included basic details for this eclipse including a road map, and how to view an eclipse safely. It can be downloaded from my eclipse website or from ASSA (http://www.assa.org.au).

Several thousand printed copies of the ASSA brochure were distributed throughout SA before eclipse day – and further copying was encouraged. I recall seeing copies of it pinned to the walls of Outback pubs! The brochure has also been downloaded several thousand times from our websites. It was also inserted into the SATC's own eclipse information packs, which were handed out free at all tourism offices and major travel agents within SA.

All of the TV and radio networks, newspapers, and press agencies were invited to a major press conference in Adelaide in November 2002. This was an embarrassing affair because numerous technical problems in the SATC auditorium dogged all of our presentations. Fortunately most of my presentation could be done on a whiteboard instead, and I have a loud voice.

SATC also sponsored public meetings in Ceduna and other places near the eclipse path during September and October 2002, where I spoke about what to expect on eclipse day, how to view the event safely – and how to cope with swarms of astronomers. At these meetings Rob Curkpatrick, aided by local officials, also described local plans and logistical arrangements for the eclipse. These meetings were well received and I got much correspondence and local media attention from them.

But the risk of someone going blind from watching the eclipse terrified the state government's lawyers. The worry was justified: a local government in eastern Australia had recently been ordered to pay about $4 million dollars to a tourist, after he broke his neck diving into shallow surf at their most famous beach. Consequently all of SATC's written publicity and press releases included a legal disclaimer about not viewing the eclipse.

The experts the government's lawyers had turned to for advice were the Royal Australian & New Zealand College of Ophthalmology (RANZCO), who promptly issued the same advice they had given for the 1976 eclipse: **there is no safe way to watch an eclipse**, except on television. The problem of how to safely aim a TV camera at the eclipse was ignored by RANZCO, a point I emphasized to TV crews during interviews. RANZCO also seemed unaware that many of their overseas counterparts were recommending the use of solar filter materials, after clinical studies and epidemiological surveys during the last decade had demonstrated their effectiveness in preventing eye injury. I directed many news reporters to these studies, some of which had been published in full on the Internet. But I think what finally ended RANZCO's credibility on this issue was their dogged insistence that even looking at totality was dangerous. When I pointed out to their spokesman, during a radio interview, that you were standing in a big shadow during totality, he was lost for words. Some ophthalmologists have commented to me, in private email, that the RANZCO leadership need to learn some basic astronomy!

About a week before totality, the South Australian Department of Health conceded – finally – that looking at totality wasn't dangerous after all. This was in response to my (slightly sarcastic) comment to them that 3500km of rock is an excellent Sun-block. Or perhaps they had read my satirical version (http://astronomy.trilobytes.com.au/2002/satire.htm) of their eclipse warnings.

Fortunately, the Department's admission was made live-to-air on a popular breakfast radio show, and widely reported. Coincidentally (or was it?), on that same day Channel 7, the most tabloid of our major TV networks, suddenly axed their 'eclipse blindness' horror stories, and started showing their audience how to view the event safely. The other TV networks, and the national daily newspaper (The Australian), had already been showing their audiences safe viewing information alongside their eclipse stories for several months.

By contrast the Western Australian (WA) Department of Health apparently didn't even know about this eclipse – which was going to be a deep partial in Perth and southern WA – until mid-November. Their official reaction is most kindly described as hysteria. An immediate ban on the sale or use of *any* solar filter in WA was imposed – with fines of up to $100 000 for offenders – and as far as I know this ban is still in force at time of writing. I do wonder what has happened to the Learmonth Solar Observatory.

'The Advertiser' – SA's only major daily newspaper – has been printing a monthly astronomy article (written by an ASSA member) for many years. This article had already discussed eclipse viewing many times, including the use of eclipse shades. But on Saturday 30 November The Advertiser finally published their first major story on the eclipse. They had just learned of the WA ban, so the front page headline screamed 'DONT LOOK' in 10 cm high type, and stated that eclipse shades were unsafe to use.

A newspaper headline in Australia
just before last December's eclipse

This provoked an instant reaction from the press and the general public, resulting in a flood of phone calls and emails to me. My response is summarized on my website, as follows.

> *Update November 30* – Many of you have been needlessly alarmed by the front page story in The Advertiser (SA's daily newspaper) today concerning the alleged dangers of using eclipse shades. In my opinion this article is misleading and defamatory – if you want to know the real facts about safe viewing of eclipses, read the Astronomical Society of South Australia's eclipse brochure [link to brochure]. Or read the eclipse safety information from the Professor of Optometry who is the undisputed world expert on this issue [link to Ralph Chou's eclipse eye safety pages].
>
> I also note that The Advertiser story includes a photo of 3 children using these 'dangerous' products to look directly at the sun. If the 'facts' of this story were true, then the photographer has just ruined these kids' eyes. Under Australian law this is reckless endangerment of minors, which is

a criminal offence! Either the Advertiser doesn't really believe its own story, or its reporters should be kept away from children...

The reported ban on the sale of eclipse shades by the WA government is, in my opinion, a hysterical knee-jerk reaction based on their inadequate research. As recently as three weeks ago they apparently knew nothing about this event; according to several WA doctors who contacted me recently for safety advice! The WA government's reaction is also a complete contrast to the various southern African countries which saw a total eclipse less than 2 years ago, and which will also see this eclipse. Their governments have once again purchased huge quantities of eclipse shades for their citizens to use on December 4. Ask yourself; would they have done this twice in 2 years if they thought eclipse shades were dangerous?

As with most other products, eclipse shades are safe when used in accordance with the manufacturer's directions. Which are printed on every single pair; in accordance with British Standard EN169 and European Community Directive ('CE') 89/686/EEC. And in accordance with those standards, include warnings to inspect them before each use, not to use them if damaged, etc etc....

My children and I will be using our eclipse shades on December 4. Enough said.

Or more succinctly, as I said on countless occasions: "Like most products and services, eclipse shades are safe IF used in accordance with the manufacturer's directions printed on every pair. If you're too stupid to obey these directions, then by all means hide under your bed away from sunlight on December 4."

Meanwhile tens of thousands of people used eclipse shades on December 4, and (so far) there are no confirmed cases of eclipse-related eye damage in Australia. The various Australian distributors of eclipse filters are currently considering legal action against The Advertiser and the Western Australian state government.

Fraser Farrell
PO Box 434, Christies Beach, SA 5165, Australia, info@trilobytes.com.au

NEWS OF MEETINGS

EDUCATION SESSION AT THE UK NATIONAL ASTRONOMY MEETING, APRIL 2003

This year's UK National Astronomy Meeting will be held in Dublin, from Monday 7 April to Friday 11 April. (OK, Dublin is not in the UK, but there are very close associations between British and Irish astronomy). On Thursday 10 April, 0900-1030, there is a session on astronomy education, organized by Margaret Penston. Further information is at http://star.arm.ac.uk/nam2003/ A report on this meeting is intended for the October 2003 issue of this Newsletter.

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

EDUCATION SESSION AT THE IAU GENERAL ASSEMBLY, JULY 2003

A Special Session, SPS4 'Effective Teaching and Learning of Astronomy' will take place on Thursday 24 July and Friday 25 July 2003 during the IAU General Assembly in Sydney. It is being organized by Commission 46. Here is the programme as it presently stands.

Thursday 24 July, morning

09:00 Opening Review (S Isobe, Japan)
09:30 Why Astronomy Should Be Part of the School Curriculum (J Percy, Canada)
09:50 Panel Discussion: Astronomy in the Curriculum – Where and What?
10:10 Astronomy and the Math Curriculum (R M Ros, Spain)
10:30: Break
11:00 Science Education Research (J Broadfoot and I Ginns, Australia)
11:30 Astronomy Education Research (J Bailey, USA)
12:00 Implementing this Research (L Fucili, Italy)
12:30: Lunch

Friday 25 July, morning

09:00 Distance/Internet Astronomy Education (D McKinnon, Australia)
09:30 Panel Discussion and Poster Highlights: Robotic Telescopes, etc
09:50 Engaging Gifted Students through Astronomy (R Hollow, Australia)
10:10 Poster Highlights: Astronomy Education Research
10:30: Break
11:00 Pre-Service Astronomy Education of Teachers (M K Hemenway, USA)
11:20 In-Service Astronomy Education of Teachers (M Gerbaldi, France)
11:40 Textbooks for K-12 Astronomy (J Pasachoff, USA)
12:00 Astronomy Education Infrastructure (S Wolff, USA)
12:20 Poster Highlights: Teacher Education
12:30: Lunch

Friday 25 July, afternoon

14:00 Astronomy and Rational Thinking (J Narlikar, India)
14:30 Multicultural Astronomy (J Fierro, Mexico)
14:50 Curriculum for Developing Countries (C Rijsdijk, South Africa)
15:10 Textbooks and Resources for Developing Countries (J White, USA)
15:30: Break
16:00 Success in Informal Astronomy Education (N Craig, USA)
16:20 The Role of Science Centres and Planetariums (N Lomb, Australia)
16:40 National/Multinational Initiatives and Partnerships (R West, Denmark)
17:00 Panel Discussion: What Next? – The IAU Resolution

At this IAU General Assembly, a resolution will be proposed with regard to the importance of astronomy education in the schools, and the importance of providing appropriate curriculum and

support for teachers. The purpose of this discussion will be to propose ways in which the IAU and its Commission 46 could support the implementation of this resolution.

John Percy
Erindale College, University of Toronto, Mississauga, Canada L5L 1C6
Tel +1 905 828 5351, fax +1 905 828 5425, jpercy@erin.utoronto.ca

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OFFICERS & ORGANIZING COMMITTEE OF COMMISSION 46

President	**Syuzo Isobe** National Astronomy Observatory, 2-21-1, Osawa, Mitaka, Tokyo 181, Japan	isobesz@cc.nao.ac.jp
Vice-president	**Jay Pasachoff** Astronomy Department, Williams College, Williamstown, MA 01267, USA	jmp@williams.edu
Past-president	**Julieta Fierro** Instituto de Astronomia UNAM, AP 70-264, CP 04510 DF, Mexico	fierroju@servidor.unam.mx
Newsletter PG Chair	**Barrie W Jones** Department of Physics, The Open University, Milton Keynes, MK7 6AA, United Kingdom	b.w.jones@open.ac.uk fax +44 (0)1908 654192

Organizing Committee

This presently consists of the President, Vice-president, Past-president, a representative from the IAU Executive Committee, the chairs of the program groups, and the vice-chair of the program group Exchange of Astronomers. For details of the OC, and for the other members of the program groups, see the website below, and also Newsletter 53, under Section B of the item, The Business Meeting of C46 2000.

National liaisons

These are listed on the website **http://physics.open.ac.uk/IAU46**
