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INFORMATION BULLETIN No. 86

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PREFACE

On behalf of the IAU Officers and Secretariat, I wish all members and other colleagues a happy and prosperous Year 2000. I am instructed by our experts in Division I to remind everybody that this is the *last* year of the old millennium, *not* the first year in the new one! Still, I suspect you have noticed that the first digit in the year on the cover of this Information Bulletin is different from what it has been the past 1000 years...

This year's big event is our 24th General Assembly in Manchester, UK, August 7-18. The special IB85 was mailed in October with comprehensive information on the main scientific events of GA24 as well as much practical information concerning your participation. [IB85 is available on-line](#) at our web site, and additional paper copies can be obtained from our Secretariat, where Monique Léger-Orine put a huge amount of time and care into its preparation. I am sure you all share my appreciation of her contribution. Jodi Greenberg shouldered the main burden in preparing the present IB.

Please note that the [additions and corrections](#) to IB 85 are provided in this IB as well as another complete set of Registration and other forms. The full information will be maintained and updated at the IAU and GA web sites and will be printed again in the Final Programme at the GA itself. Here, I just recall that the deadline for submission of *Abstracts to Symposia and Joint Discussions*, and of all *Travel Grant applications*, is *February 15, 2000*. Also, the deadline for submitting *Resolutions* (of [Type B](#)) to be placed on the agenda of the GA is *May 7, 2000*. The [Working Rules](#) (in IB81 and on the web) contain full instructions for the preparation of resolutions.

In addition to a lot of exciting science, the GA will feature much scientific and administrative business related to the future development of our Union. I am pleased to note that, in addition to Morocco, Jordan and the Philippines have now applied for (associate) membership. I look forward to welcoming them, and many new Individual Members, at the Manchester GA.

However, our scientific life continues both before the GA and after the year 2000. This IB brings you up to date on a number of issues. I especially remind everybody that the deadline for proposals for IAU sponsored meetings in 2001 is *March 15, 2000*; I trust that the new Executive Committee in office after the GA will have an equally exciting slate of proposals as we have been privileged to receive during the past three years. As we prepare to submit the "Reports on Astronomy 1996-1999" to the printers, I am struck

again by the vitality shown in all fields of our ancient science.

Johannes Andersen
General Secretary

1. FAITS DIVERS

The summer of 1999 was busy, starting in June with the 72nd meeting of the Executive Committee. The main scientific events of the 24th General Assembly were selected and a number of other significant decisions taken (see [4.1](#)).

In early June, the IAU co-sponsored the "*IMPACT*" workshop in Torino, Italy, on strategies for future research on *Near Earth Objects* (NEOs). As one result, the IAU Working Group on NEOs will in the future offer public peer review of all discoveries claimed to present a significant risk. Another result, the *Torino Impact Hazard Scale* characterising such risks, has generated some confusion. The scale is intended to convey to the public both the range of consequences of a potential impact and the dull, but comforting fact that *no significant risk is posed by any known NEO*. The old name "Potentially Hazardous" Asteroid for objects now known to be "Perfectly Harmless" is clearly misleading to the public. At the same time, a scale that assigns all known objects to "*Class 0*" is obviously of limited use in describing the great wealth of detailed scientific information on NEOs. No doubt, as orbital and physical information on NEOs improves, scientific classification schemes will evolve too.

Following this meeting were the UNESCO/ICSU *World Conference on Science* and the associated conference on *Capacity Building in Science* in Budapest, Hungary in late June and *UNISPACE III* and its two related IAU meetings in Vienna in July (see [7](#)). From the IAU side, the focus was on UNISPACE III and IAU Symposium 196 (see [7.3](#)) and related media coverage. Since then, we have undertaken a number of follow-up activities on the environmental problems for astronomy, e.g. a "Policy Forum" in "*Science*" in late 1999.

Education was also in focus. Our *Special Educational Workshop* at UNISPACE III resulted in useful lessons for our long-term planning (see [7.3](#)). Just after, the 24th of IAU *International Schools for Young Astronomers*, of which we are justly proud, was held in Bucharest, Romania (see [8.2](#)).

The autumn has seen the arrival of the contributions to the *Reports on Astronomy 1996-1999* (IAU Transactions XXIVA). Thanks to the many individual contributors, and to Jodi Greenberg in our Paris Secretariat, that volume is in press as you read this and should be out well before the GA.

Unfortunately, as the Holiday season and New Year 2000 approach, the enterprises "selling" star names are ramping up their advertising again. We receive many requests to "stop this scam". However, apart from informing the public (see

www.iau.org/starnames.html at our web site), we can only intervene (and do!) if our name or logo are abused to mislead potential customers. Otherwise, we must advise furious customers to pursue the matter through their appropriate national consumer protection authorities.

2. MAIN DEADLINES 2000-2001

Date	Action Item	By
2000		
15 Feb	Submit Abstracts to Symposium/JD SOCs	Participants
07 Mar	Proposals by Adhering Organizations for new Members	AO
07 Mar	Propose Items for Agenda of GA XXIV	AO
15 Mar	Proposals due for Meetings in 2001 (Symp & Coll)	SOC chairs
01 Apr	Contributions due to Inf. Bull. 87 (June 2000)	All interested
07 May	Submit Type B Resolutions (no financial implications)	AO, Div, Comm
15 May	Deadline for Early Registration at GA	Participants
15 Jun	Deadline, Abstracts and items for Final Programme	All interested
07 Aug	73rd Meeting of the Executive Committee	EC, DP
07 Aug	Beginning of first GA Symposia	SOC chairs
08 Aug	73rd Meeting of the Executive Committee	EC, DP
09 Aug	73rd Meeting of the Executive Committee	EC, DP
09 Aug	Opening Session of GA XXIV	All Members
15 Aug	73rd Meeting of the Executive Committee	EC, DP
16 Aug	Closing Session of GA XXIV	All Members
17 Aug	74th Meeting of the Executive Committee 1st Session	EC, CP
17 Aug	74th Meeting of the Executive Committee	EC, DP
18 Aug	End of last GA Symposia	SOC chairs
01 Oct	Deadline for contributions to IB 88 (January 2001)	All interested
31 Oct	Manuscripts due for GA Symp., Highlights, & Trans 24B	All authors
2001: (subject to revision by the new EC)		
15 Mar	Proposals due for Meetings in 2002 (Symp & Coll)	SOC chairs
01 Apr	Contributions due to Inf. Bull. 89 (June 2001)	All interested
xx Jul	75th Meeting of the Executive Committee	EC
01 Oct	Contributions due to Inf. Bull. 90 (January 2002)	All interested

3. GENERAL ASSEMBLIES

3.1 The XXIVth General Assembly

Information Bulletin 85 contains the full scientific programme along with practical information concerning registration, accommodation, etc. in Manchester. In this issue, a reminder of the scientific programme is given in [3.1.2](#) along with the schedule of the main scientific events (see [3.1.3](#)), whereas a summary of practical information is given in [3.1.5](#) and *corrections or additions to information in IB 85* are given in [3.1.6](#).

Information on local arrangements for the General Assembly can be found at the special website <http://www.iau-ga2000.org>, which will be kept constantly updated. This site and the permanent IAU Web site www.iau.org are linked together with other web sites giving the updated scientific programmes of the individual events listed in this IB. Mirror web sites are being set up in the USA and Japan to facilitate access from those regions of the world.

3.1.1 Message from the Local Organizing Committee

Preparations for the General Assembly and all its associated activities are proceeding apace.

A series of public lectures is being organized by Dr. Patrick Moore on four evenings during the GA. There is a wide interest in astronomy among schools, amateur astronomical societies and the general public in the Northwest of England. Much of this interest in recent years has been generated by the Jodrell Bank Visitor Centre with its 140,000 visitors per year. Many participants will be interested in the important activity of the public understanding of science where astronomy plays an important role. The speakers and their provisional lecture titles are:

Professor Jocelyn Bell Burnell	Pulsars
Dr. David Hughes	Planetary Exploration
Sir Martin Rees	Cosmology
Dr. Jill Tarter	SETI

A major contribution to the cultural activities of the GA will be a concert given by the *Royal Liverpool Philharmonic Orchestra* in the internationally acclaimed Bridgewater Hall on the evening of Friday, August 11. The programme will comprise music by well-known British composers, including Elgar's Cello Concerto as the major work.

An evening reception for participants is planned in the first week of the General Assembly.

Rodney Davies
Dennis Walsh

Co-Chairmen of the LOC

3.1.2 Overview of Scientific Programme

An updated **overview of the Scientific Programme** of IAU 24th GA can be found at <http://www.iau.org/ga24.html>.

3.1.3 Schedule of Main Events

An updated **Schedule** of IAU 24th GA can be found at <http://www.iau.org/ib85/schedule.html>.

3.1.4 Important Dates and Addresses for GA XXIV

Submission of Abstracts (oral and poster papers) to Symposium & JD SOCs	February 15
Deadline for Early Registration	May 15
Submission of Abstracts of Accepted Papers (NB: Registration required!)	June 15
Closing Date for Pre-Registration	July 14
Deadline for Registration Refunds	July 21
On-site Registration Open from	Saturday August 5

For inquiries concerning the scientific programme of the Symposia and Joint Discussions at the XXIVth General Assembly, please see the contact addresses given in [IB 85](#) (pp. 10-39), or consult the IAU web site at <http://www.iau.org>.

For inquiries concerning administrative matters and the general programme of scientific and other meetings held at the XXIVth General Assembly, please contact:

Johannes Andersen, General Secretary Tel: +33 1 43 25 8358
 International Astronomical Union (IAU) Fax: +33 1 43 25 2616
 98bis, Bd Arago Email: iau@iap.fr
 F 75014 Paris, France WWW: <http://www.iau.org/>

For all inquiries concerning registration and local arrangements in Manchester, please contact:

World Event Management (GA 24) Telephone: +44 1274 854116
 Network House Fax: +44 1274 854110
 West 26 Email: enquiries@iau-ga2000.org
 Cleckheaton WWW: <http://www.iau-ga2000.org>
 West Yorkshire, BD19 4TT

United Kingdom

3.1.5 What to do to Attend The XXIVth IAU General Assembly: A Quick Guide

Invitation

In principle, attendance at an IAU General Assembly is by invitation of the President. Members of the IAU are automatically invited (see [IB 85, p. 1](#)). Authorization to extend this invitation to non-Members is given to the national Adhering Organizations, Presidents of IAU Divisions and Commissions, and Chairpersons of the Scientific Organizing Committees of the Symposia, Joint Discussions, and Special Session at the GA. Persons unable to use these channels should contact the IAU Secretariat in Paris (address on back cover). It should be noted that an invitation to attend the General Assembly does not by itself imply any financial commitment towards the participant by the IAU or the Local Organizing Committee.

Visas

If you need a visa to travel to the United Kingdom to attend the GA (see list of relevant countries in [IB 85, p. 5](#)), please apply as early as possible in order to avoid last-minute problems.

Registration

Registration is handled by the appointed Conference Organizer, *World Event Management Ltd. (WEM)*. *Registration* can be made using the *forms* provided in this IB, by e-mail, and through the GA Web page, www.iau-ga2000.org. See [3.1.4](#) for deadlines and relevant addresses. Note that decisions on approval of oral and poster contributions and on IAU Travel Grants will be provided in time for Early Registration to be made.

Proceedings of Main Scientific Events

The Proceedings of the GA Symposia will be published in the regular IAU *Symposium Series* and the Proceedings of the Special Session on "Astronomy for Developing Countries" will be published in a similar format. Extended summaries of the Invited Discourses and Joint Discussions will be published in the *Highlights of Astronomy, Vol. 12*. The IAU Publisher, the *Astronomical Society of the Pacific*, offers participants the option to pre-order one or more of these volumes at the lowest available rate, with the extra bonus that surface mailing of the book(s) be included in the price. See the *Registration & Proceeding Pre Order Form* for details.

Travel Grants

The IAU devotes a sizeable share of its own budget, with generous extra subventions by major astronomical organizations, to support a limited number of prospective participants

intending to contribute actively to the scientific events of the General Assembly, who are unable to obtain the necessary support from national sources. An [IAU Travel Grant Application Form](#) is included in this IB and is also available on the Web together with the [Rules for IAU Scientific Meetings](#), with guidelines for the allocation of such grants. If you wish to apply for IAU support, the form should be submitted to the SOC Chair of the appropriate Symposium (or Special Session) that you wish to attend. For all other events, your application should be submitted to the IAU General Secretary. *The deadline for all IAU Travel Grant applications is February 15, 2000.*

Prospective applicants should be aware that, despite our commitment of both our own and externally contributed funds, it is only possible to cover a small part of the total justified needs. Only truly deserving applicants can therefore expect support from the IAU. Grant recommendations from all events are checked and coordinated before award letters are sent out so that, at most, a single grant will be awarded to each individual. Grants will normally be paid to the successful applicant, in cash and in British Pounds, upon arrival and check-in at the Registration Desk.

3.1.6 Further Updated Information

Corrections to IB 85

It appears that, unfortunately, several copies of IB85 are incomplete, missing some multiple of two pages near the beginning and end of the issue. The ASP and we apologise for these errors; any readers who have received such incomplete issues are invited to contact sandrine@aspsky.org in order to receive the missing pages. The issue can be viewed in its entirety at our web site at www.iau.org/ib85.

In addition, the caption (back cover) for the cover picture of IB85 was incorrect (your GS apologises!). It should have read as follows: *The 76-m Lovell Telescope at Jodrell Bank with a 20-cm image of the radio galaxy 3C 438 made with MERLIN and the VLA.*

Institution

Following the relocation of the Department of Astronomy at the University of Manchester to Jodrell Bank, the former *Nuffield Radio Astronomy Laboratory* has been renamed the *Jodrell Bank Observatory*.

Invited Discourses

ID1 will be held on *Thursday, August 10*. Also, the time of all IDs has been adjusted to *18:30* to allow all participants to reach the Bridgewater Hall in time.

Joint Discussions

JD1 will be held on the morning of *Wednesday, August 9* and all day *Friday, August 11*.

Special Session: Astronomy for Developing Countries

Please note that this SPS will be organised along the lines of the Symposia. Thus, applications for IAU Travel Grants should be submitted (updated Travel Grant enclosed in the centre fold) to the SOC Chair, Dr. Alan Batten (see IB 85, p. 38). Moreover, full Proceedings of the SPS will be published and can be pre-ordered at a favorable rate on the same basis as the Symposia (updated Registration and Proceedings Pre-Order Form provided).

Abstract Book

Please note that, in order to produce the Abstract Book in a handy format, only one Author will be listed in the book, so only one name should be submitted with the abstract (of course with et al. added as appropriate). See IB 85 [Information on Scientific Presentations](#) for editing instructions. The deadline for the LOC to receive Abstracts from the SOC Chairmen for printing in the *Abstract Book* is *June 15, 2000*. The person named on the Abstract should therefore submit the Abstract **and** be registered by May 31, 2000 for the abstract to be accepted and poster space to be allocated.

Final Programme

The deadline for receiving the final programmes of all scientific sessions and all other information to be printed in the *Final Programme* is *June 15, 2000*.

Travel Grants

Should additional sources of funding become available later, and at short notice, such opportunities and the corresponding application procedures will be announced at the IAU and GA web sites.

Welcome Desks at Arrival

Welcome Desks will be provided at Manchester Airport and at Piccadilly Railway Station in Manchester to direct arriving participants to local transport and to help with any questions which they might have.

3.2 The XXVth AND XXVIth GENERAL ASSEMBLIES

As previously announced, the XXVth General Assembly will take place in Sydney, Australia, July 13-26, 2003. Our hosts are already well advanced with the preparations, and we expect more information to be available at the XXIVth GA in Manchester.

In order to provide equal opportunities for all countries interested in inviting the IAU for the XXVIth General Assembly in 2006, all Adhering Organisations have been asked to inform us of any such plans by the end of 1999. Preliminary indications are that we shall receive several very interesting invitations - look forward!

4. EXECUTIVE COMMITTEE MEETINGS

4.1 Summary of EC 72 Meeting

The EC met for its 72nd meeting in Santiago, Chile, at the invitation of IAU Vice-President Claudio Anguita. The meeting took place at the Headquarters of the European Southern Observatory.

A major task of the EC was the selection of Invited Discourses, Symposia, Joint Discussions, and Special Session at the 24th General Assembly as well as other IAU sponsored meetings in 2000. The resulting [programme](#) is listed in detail elsewhere in this IB and in IB85.

The EC also decided to invite letters of interest from all Adhering Bodies wishing to host the GA in 2006 by the end of the present year.

On national membership, the EC was pleased to welcome Uzbekistan, which became a member of the IAU at the beginning of 1999. The EC also welcomed the applications for Associate Membership by Morocco and Jordan (and by the Philippines, formally received just after the meeting) and will recommend their approval by the GA. The EC finally was very pleased to approve the proposal from the US National Academy of Science to raise the Category of Adherence of the USA from VIII1/2 to IX, increasing our income by another 5 Units of Contribution for the years 2000 and 2001.

On other administrative matters, the EC approved the final versions of the revised [Statutes](#) and [Bye-Laws](#) which have been submitted to the Adhering Bodies this autumn in preparation for the vote at the next GA (see [IB 81](#), p. 45). A final proposed modification to these documents and to the Working Rules ([IB 84](#), p. 18) is to allow Chairpersons of Working Groups of the EC to propose new Individual Members of the IAU, in exceptional cases, on the same basis as Division Presidents.

The proposed *Budget for 2001-2003*, prepared in close co-operation with the Finance Sub-Committee appointed at the last GA, was also approved for submission to the Adhering Bodies. It is organised in a new, somewhat more transparent way and shows increases for the educational activities of the IAU in return for of a slight reduction in support for scientific meetings. The latter had been raised temporarily in recent years to reduce the reserves of the IAU to about one year's operating expenses, as recommended earlier by the Finance Committee. Overall, the Budget is balanced over the triennium. In addition, the backlog of unpaid dues is at the lowest level seen for several years.

The EC reviewed and approved the strategies proposed by the General Secretary for the IAU participation in the *World Conference on Science* and *UNISPACE III* (see [7](#)). The EC also approved, in principle, the proposed reorganisation of the educational activities of the IAU (see [8.1](#)), subject to the presentation of a detailed proposal at the next General Assembly.

4.2 Schedule of EC 73 & EC 74 Meetings

The 73rd meeting of the (present) EC is scheduled for August 7, 8, 9, and 15, at the GA in Manchester; the present Division Presidents are invited to these meetings. Matters on the Agenda will be focused on the business of the GA: New National and Individual Members, Resolutions, changes in Commission or Working Group structure and the proposals for incoming Presidents and Chairpersons of these bodies, Finances, etc.

The 74th meeting of the (newly elected) EC will take place on August 17 and 18. Main Agenda items will be the activities and initiatives in the next triennium, in particular the selection of IAU scientific meetings in 2001. The incoming Division Presidents are invited to this meeting.

5. NEWS FROM DIVISIONS

[Division I: Fundamental Astronomy \(Ken Seidelmann\)](#)

As we approach the end of the triennium, the efforts of the many Working Groups are reaching a conclusion. This will be formalized by a process starting at Colloquium 180, "*Towards Models and Constants for Sub-microarcsecond Astrometry*", 27-31 March 2000 in Washington D.C. The Working Groups will present summaries of their activities and draft resolutions for discussion and improvement. These resolutions will be forwarded to the IAU Resolutions Committee for consideration at the IAU General Assembly. At the GA in August 2000, Joint Discussion 2 "*Models and Constants for Sub-microarcsecond Astrometry*" will be the opportunity for presentation, discussion, and adoption of these resolutions. Resolutions are expected concerning definitions of the reference system, relativity, precession and nutation, and time and constants.

With some admission of letting pride exceed modesty, I include the news that the Full-sky Astrometric Mapping Explorer (FAME) has been selected by NASA for a MIDEX mission and launch in 2004. This astrometric satellite to observe 40,000,000 stars down to 15th magnitude for position and photometry will follow in the pattern of the Hipparcos satellite. FAME is to reach 50 microarcseconds accuracy for stars brighter than 9th magnitude. This is a joint program of U.S. Naval Observatory, Naval Research Laboratory, Lockheed Martin Advanced Technology Center, and Smithsonian Astrophysical Observatory.

[Division II: Sun and Heliosphere \(Peter Foukal\)](#)

Division II activities in the next trimester will center on the continuing organization of our Symposium and JD at the GA in Manchester. Our web page will be updated with information on these two events as they evolve.

We also plan to convene a Nomenclature Committee to review solar terminology - a task of increasing importance and complexity as the angular resolution of solar imagery increases at all wavelengths, and potentially confusing terms to describe these structures proliferate. We hope to arrange for a preliminary report of this Committee at the Division meeting in Manchester.

Division XI: Space and High Energy Astrophysics (Willem Wamsteker)

The short report of Division XI on space activities of interest to the IAU membership continues. As before, any inaccuracies in the listing are the responsibility of the Division President. This report only contains changes since IB 84. The Divisional Web Page (<http://www.vilspa.esa.es/IAU-XI/>) will maintain a more complete listing in the future.

ASCA: This ISAS/NASA mission for X-ray spectroscopy is foreseen to reenter the Earth's Atmosphere in the first half of 2000. There is a special call for proposals for the last observations (<http://www.astro.isas.ac.jp/xray/mission/asca/>).

HST: The next servicing mission for the Hubble Space Telescope has been delayed to at least 19 November 1999, due to difficulties with the wiring system in the Space Shuttles (<http://sci.esa.int/hubble/>).

FUSE: Was successfully launched on 24 June 1999 from Cape Canaveral with a Delta 2 Rocket (<http://fuse.pha.jhu.edu/>).

XMM: The Ariane 5 launch remains scheduled for 8 December 1999 (<http://sci.esa.int/xmm/>).

ABRIXAS: After a successful launch of the DLR Broad-Band Imaging X-Ray All-Sky Survey on 28 April, 1999, a problem with the batteries caused the mission to fail in June 1999 (<http://wave.xray.mpe.mpg.de/abrixas>).

CHANDRA: NASA's Advanced X-Ray Astrophysics Facility (ex AXAF), was successfully launched on 23 July, 1999 (<http://chandra.harvard.edu/>).

ASTRO-E: This mission remains scheduled for Launch on 24 January, 2000 (<http://astroe.gsfc.nasa.gov/docs/astroe/astroegof.html>).

HETE II: The High Energy Transient Explorer II mission is scheduled for launch on 27 October, 1999. This NASA/CNES/RIKEN/CESR mission replaces the original HETE mission, which suffered a launch failure in 1996 (<http://space.mit.edu/HETE/>).

SWAS: Functions nominally (<http://cfa-www.harvard.edu/cfa/oir/Research/swas.html>).

Mars Climate Orbiter: This NASA mission did not reach its required orbit and crashed on Mars (<http://mpfwww.jpl.nasa.gov/msp98/>).

Mars Polar Lander: This NASA mission is expected to land on Mars on 3 December 1999, carrying the DEEP SPACE 2 Mars Microprobes (<http://mpfwww.jpl.nasa.gov>

[/msp98/](#)).

WIRE: After prime mission failure directly after launch, the spacecraft has been used for experimental stellar oscillations measurements.

STARDUST: Was launched on 7 February 1999. Its primary goal is to collect comet dust and volatile samples during a close encounter with comet Wild 2 in January 2004 (<http://stardust.jpl.nasa.gov/mission/>).

6. IAU SCIENTIFIC MEETINGS IN 2000 - 2001

6.1 Proposals for IAU Sponsored Meetings in 2001

Proposals for Symposia and Colloquia to be held in 2001 must be submitted to the President of an appropriate Proposing Division (or Commission, for proposals arising within a Commission not attached to a Division)

No later than March 15, 2000

To facilitate proper evaluation of proposals by the President of the Proposing Division, copies of the proposal should be sent to the Presidents of all supporting Divisions and/or Commissions before submission to the President of the Proposing Division, who will ascertain the degree of support for each proposal before forwarding all proposals to the Assistant General Secretary. Brief messages of support from supporting Divisions and/or Commissions should accompany the proposal.

The *Rules for IAU Sponsored Scientific Meetings* should be consulted before submitting proposals. These Rules and associated Proposal Forms are available on request from the IAU Secretariat or on-line at www.iau.org/meetings.html. Additional advice can be obtained from the Assistant General Secretary.

6.2 Future IAU Symposia

IAU SYMPOSIUM 200 THE FORMATION OF BINARY STARS

10 - 15 April 2000, Potsdam, Germany

SOC: P. Artymowicz (Sweden), A. Boss (USA), J. Bouvier (France), C. Clarke (UK), A. Dutrey (France), A. Ghez (USA), P. Kroupa (Australia), C. Leinert (Germany), R. Mathieu (USA, Co-Chair), S. Miyama (Japan), B. Reipurth (Denmark), M. Simon (USA), A. Tokovinin (Russia), A. Whitworth (UK), H. Zinnecker (Germany, Co-Chair)

Chair, Local Organising Committee: K. Fritze

Principal Topics:

- Cloud fragmentation and collapse calculations
- Protobinaries and infrared companions
- Main-sequence and pre-main sequence binary populations
- Environments of young binaries - accretion disks and jets
- Dynamical evolution of young binaries
- Binaries as tests of pre-main sequence stellar evolution models
- Planet formation in binary systems
- Frontiers of observation and theory in the study of binary formation

Contact: H. Zinnecker, AIP, An der Sternwarte 16, D 14482 Potsdam, Germany

Tel: 49 331 7499 382/347 Fax: 49 331 7499 267

Email: hzinnecker@aip.de WWW: <http://www.aip.de/IAU200>

IAU SYMPOSIUM 201 NEW COSMOLOGICAL DATA AND THE VALUES OF THE FUNDAMENTAL PARAMETERS

7 - 10 August 2000, Manchester, UK (at the 24th General Assembly)

See IB 85, p. 10-11.

IAU SYMPOSIUM 202 PLANETARY SYSTEMS IN THE UNIVERSE - OBSERVATION, FORMATION AND EVOLUTION

7 - 10 August 2000, Manchester, UK (at the 24th General Assembly)

See IB 85, p. 12-13 and <http://ast.star.rl.ac.uk/symp202>

IAU SYMPOSIUM 203 RECENT INSIGHTS INTO THE PHYSICS OF THE SUN AND HELIOSPHERE - HIGHLIGHTS FROM SOHO AND OTHER SPACE MISSIONS

7 - 10 August 2000, Manchester, UK (at the 24th General Assembly)

See IB 85, p. 14-15 and sohowww.nascom.nasa.gov/meetings/IAU_Symp203

IAU SYMPOSIUM 204 THE EXTRAGALACTIC INFRARED BACKGROUND AND ITS

COSMOLOGICAL IMPLICATIONS

15 - 18 August 2000, Manchester, UK (at the 24th General Assembly)

See IB 85, p. 16-17 and www.iau.org/symp204

IAU SYMPOSIUM 205 GALAXIES AND THEIR CONSTITUENTS AT THE HIGHEST ANGULAR RESOLUTIONS

15 - 18 August 2000, Manchester, UK (at the 24th General Assembly)

See IB 85, p. 18-19 and www.nfra.nl/jive/iausymp.htm

6.3 Future IAU Colloquia

IAU COLLOQUIUM 180 TOWARDS MODELS AND CONSTANTS FOR SUB-MICROARCSECOND ASTROMETRY

27 - 31 March 2000, Washington DC, USA **(Please Note: Changed Date!)**

SOC: V.A. Brumberg (Russia), N. Capitaine (France), V. Dehant (Belgium), T. Fukushima (Japan), W.-J. Jin (China), K.J. Johnston (USA, Chairperson), J. Kovalevsky (France), D. McCarthy (USA), F. Mignard (France), G. Petit (France), P.K. Seidelmann (USA), M. Soffel (Germany), E.M. Standish (USA), J. Vondrak (Czech R.)

Chair, Local Organising Committee: G. Kaplan

Principal Topics:

- Requirements of the celestial reference system to support present and planned observational programs on the ground and in space
- Ground based observations made by optical, IR and radio interferometers
- Space Interferometry Mission (SIM), DIVA, FAME and GAIA
- New definition of the celestial reference system, the dynamical reference frame, maintenance of the International Celestial Reference Frame
- Precession/nutation, time scales, relativity and astronomical constants
- Science associated with precision measurements
- Results of the Working Groups on Relativity, Reference Systems and Precession/Nutation

Contact: K. Johnston, U.S. Naval Observatory, 3450 Massachusetts Ave NW, Washington, DC 20392, USA

Tel: 1 202 762 1513 Fax: 1 202 762 1461;

Email: kjj@astro.usno.navy.mil

IAU COLLOQUIUM 181 DUST IN THE SOLAR SYSTEM AND OTHER PLANETARY SYSTEMS

10 - 14 April 2000, Canterbury, UK

SOC: J. Baggaley (New Zealand), E. Grün (Germany), M.S. Hanner (USA), P Lamy (France), A.C. Levasseur-Regourd (France), J.A.M. McDonnell (UK, Chairperson), T. Mukai (Japan), V. Porubcan (Slovak Republic), H. Rickman (Sweden), E. Tedesco (USA), N. Thomas (Germany), I.P. Williams (UK, Chairperson)

Chair, Local Organising Committee: J.C. Zarnecki

Principal Topics:

- The Interplanetary Dust Complex: Observations from Earth and Space
- In-situ Interplanetary Dust Measurements
- Asteroid and Cometary Mission
- Cometary Dust Modelling and Asteroidal Sources of Meteoroids
- Interstellar Dust within the Solar System and Dust in Other Planetary Systems
- Dynamics and Sources of Dust in the Solar System and Planetary Rings
- Near Earth in-situ Measurements and Collection of Interplanetary Dust and Space

Debris

- Laboratory Simulation and Measurements
- Instrumentation for Dust Detection and Analysis

Contact Address: J.A.M. McDonnell, Unit for Space Sciences and Astrophysics, School of Physical Sciences, University of Kent, Canterbury CT2 7NR, UK

Tel: 44 1227 459616 Fax: 44 1227 762616

Email: J.A.M.McDonnell@ukc.ac.uk

WWW: <http://www.ukc.ac.uk/physical-sciences/space/>

IAU COLLOQUIUM 182 SOURCES AND SCINTILLATIONS: REFRACTION AND SCATTERING IN RADIO ASTRONOMY

17 - 21 April 2000, Guiyang, China

Scientific Organising Committee: J. Baldwin (UK), J. Cordes (USA), R. Ekers (Australia), D. Frail (USA), Y. Gupta (India), R.-D. Nan (China), Yu. Parijskij (Russia), B. Rickett (USA), R. Strom (Netherlands, Chair), M. Walker (Australia, Chair), S.-G. Wang (China), A. Witzel (Germany)

Chairperson, Local Organising Committee: R.-D. Nan, C.-Y. He

Principal Topics:

- Rapid variability of (extra) galactic sources (Quasars, AGN, Gamma-ray bursts, Supernovae and Masers): implications for source structure and evolution, and the ISM
- Imaging sources through inhomogeneous media; micro-arcsecond structures; VLBI;

speckle techniques; dealing with the ionosphere

- Multiple imaging phenomena in pulsars and extragalactic sources
- Probing the turbulent media - IPS, ISS, and prospects for IGM studies
- Radio seeing vs. optical seeing. What lessons are there to learn?
- Faraday effects; mapping field structures; sources of high RM, circumstellar magnetic fields, polarisation propagation
- Instrumental requirements, implications for next generation radio telescopes

Contact: Richard Strom, Radiosterrenwacht Dwingeloo, Postbus 2, 7990 AA Dwingeloo, The Netherlands

Tel: 31 521 595252 Fax: 31 521 597332

Email: strom@nfra.nl

IAU COLLOQUIUM 183 SMALL-TELESCOPE ASTRONOMY ON GLOBAL SCALES

4 - 8 January 2001, Kenting Natl. Park, Taiwan, China

Scientific Organising Committee: C. Alcock (USA), Y.-I. Byun (Rep. Korea), H. K. Chang (Taiwan, China), W.-P. Chen (Taiwan, China, Chairperson), A. Filippenko (USA), J.-Y. Hu (P.R. China), S. Isobe (Japan), D. Kurtz (South Africa), T. Lee (Taiwan, China), B. Paczynski (USA, Chairperson), J. Percy (Canada), H.-S. Tan (P.R. China), S.N. Tandon (India), A. Udalski (Poland)

Chairperson, Local Organising Committee: W.-P. Chen

Principal Topics:

- Theories, data pipelines, archiving and communications
- Observational and other technical issues relevant to coordinated observing projects with small telescopes
- New aspects in microlensing and optical transient studies; time-varying phenomena (variable stars, stellar flares, close binary systems, asteroseismology)
- International cooperations and regional scientific exchanges on variability or wide-field monitoring projects
- Novel design concepts and possible mass-production of next-generation small telescopes and detectors

Contact Address: Wen-Ping Chen, Graduate Institute of Astronomy, National Central University, Chung-Li, 32054 Taiwan, China

Tel: 886 3 422 3424 Fax: 886 3 422 2304

Email: wchen@joule.phy.ncu.edu.tw

6.4 Other Meetings

Technical Workshop ASTRONOMICAL SITE EVALUATION IN THE VISIBLE AND RADIO RANGE

13 - 17 November 2000, Marrakesh, Morocco

Scientific Organising Committee: Z. Benkhaldoun (Morocco), M. Chun (USA), S. Giovanelli (USA), C. Munoz-Tunon (Spain), R. Racine (Canada), S. Radford, (USA), L. Rodriguez (Mexico), M. Sarazin (Germany), J. Vernin (France, Chair)

Chairperson, Local Organising Committee: Abdelkader Mokhliss

Principal Topics:

- Astronomical site testing in the visible, IR and mm/submm range
- The propagation of waves in the atmosphere; physical mechanism of atmospheric turbulence
- Evaluation of the perturbation along the beam path; remote sensing; in situ probing and atmospheric modelling
- Forecasting the seeing using meteorological models
- Sites survey: existing sites, new sites, radio and light pollution
- Interferometry and adaptive optics

Contact: Benkhaldoun Zouhair, Faculté des Sciences, Semlalia, Bd du prince My Abdellah, BP S15, Marrakesh, Morocco

Tel: 212 4 43 46 49 Fax: 212 4 43 74 10

Email: zouhair@ucam.ac.ma

WWW: http://www.eso.org/gen-fac/pubs/astclim/espas/iau_site2000/

Co-Sponsored Meeting

33RD COSPAR SCIENTIFIC ASSEMBLY AND ASSOCIATED EVENTS

16 -23 July 2000, Warsaw, Poland

Contact: COSPAR Secretariat, 51 bd de Montmorency, F 75016 Paris, France

Tel: 33 1 45 25 06 79 Fax: 33 1 40 50 98 27

Email: cospar@paris7.jussieu.fr

WWW: <http://cospar.itodys.jussieu.fr/Meetings/sciass.htm>

7. WORLD CONFERENCE ON SCIENCE & UNISPACE III

7.1 World Conference on Science

The UNESCO/ICSU World Conference on Science was held from June 26 to July 1, 1999, in Budapest, Hungary. Attracting a vast audience of science ministers, science administrators, scientists, and journalists, the WCS was convened jointly by UNESCO and ICSU to review the status of world science at the end of the second millennium, and to formulate recommendations for the future. The recommendations as agreed by the participants in the meeting were expressed in the "*Budapest Declaration on Science and the Use of Scientific Knowledge*" and "*Science Agenda - Framework for Action*", approved by all participants at the end of the conference. These documents, which contain very wide-ranging and broadly formulated, but positive and useful statements for the future of science and its relations with society, are accessible on the web at: (http://www.unesco.org/science/wcs/eng/declaration_e.htm) and

(<http://www.unesco.org/science/wcs/eng/framework.htm>)

It is noted that, subsequently, the 26th General Assembly of ICSU (Sept. 28-29, 1999, Cairo, Egypt) voiced concerns regarding the formulation of paragraph 26 of the "*Declaration*" and stressed that "empirical knowledge must be distinguished from approaches that seek to promote anti-science and pseudo-science, and which degrade the values of science as understood by the ICSU community." ICSU, at the same time, reaffirmed its support for "*the values and methods of verifiable science*".

7.2 UNISPACE III

The *Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III)* was held July 19 - 30, 1999, 17 years after its predecessor UNISPACE 82. The conference was convened at the Vienna International Centre, Austria, as a special meeting of the *UN Committee on the Peaceful Uses of Outer Space (UN-COPUOS)*, open to all Member States of the UN. Its purpose was to review the status of international activities in space, and to formulate priorities and recommendations for the development of these activities during the first decades of the new millennium. Organised by the *UN Office of Outer Space Affairs*, the conference was attended by over 100 UN Member States and numerous international organizations, including the IAU which has permanent observer status with UN-COPUOS. Total attendance was well over 2000 persons.

In conjunction with UNISPACE III the IAU, in collaboration with COSPAR and the UN Office of Outer Space Affairs, organised two meetings on subjects which are given high

priority by the IAU: **IAU Symposium 196: "Preserving the Astronomical Sky"**, and a **Special Workshop on Education in Astronomy and Basic Space Science** (see reports below on both meetings). As part of the "*Technical Forum*" of UNISPACE III, both meetings formulated "*Observations and Recommendations*" to the main Conference within their respective subjects. These recommendations were forwarded to the Conference and to a very large extent included in the Final Report of UNISPACE III and associated recommendations to the UN General Assembly. With the expected endorsement of the Report by the UN General Assembly in late 1999, they will thus become part of the recommendations of the United Nations for the next 2-3 decades.

The full *Final Report* of UNISPACE III, including the summary "*Vienna Declaration on Space and Human Development*" as well as the documents *Background and Recommendations of the Conference*, including the recommendations of all meetings held as part of the "*Technical Forum*", are now available from the web site of the UN Office of Outer Space Affairs at <http://www.un.or.at/OOSA/>.

7.3 IAU Symposium 196 "Preserving the Astronomical Sky"

A *Special IAU/COSPAR/UN Environmental Symposium* held in conjunction with UNISPACE III, 12-16 July 1999 in Vienna, Austria

Chief organizers: J. Andersen (Denmark, IAU), J. Cohen (UK), D. Crawford (USA), H. Haubold (UN), and W. Sullivan (USA, author of this report)

Organized by IAU Commission 50 (*Protection of Existing and Potential Observatory Sites*), the meeting dealt with the problems of light pollution, radio interference, and space debris that hinder astronomers' ability to study the Universe at the exquisitely sensitive levels necessary for current research. Astronomers worldwide are alarmed by the increasing "technological fog" that threatens the ability of both professional astronomers and the general public to study and appreciate the wonders of the sky. The meeting had two primary purposes: (1) sharing information on the status of the environment as it adversely affects observations, and (2) developing technical and political action plans to preserve the astronomical sky. The meeting was held at the United Nations Centre in Vienna, as part of the "Technical Forum" of UNISPACE III, a major conference on the future of global space activities of the UN *Committee on the Peaceful Uses of Outer Space* (UN-COPUOS). Other international sponsors were COSPAR, the UN *Office of Outer Space Affairs*, CIE, URSI, and the *International Dark-Sky Association*.

The meeting had 70 participants from 25 nations; three Press Officers helped to get the word out. After three days of talks and a delightful banquet at the old Vienna Observatory, the fourth day was devoted to break-out sessions for brainstorming effective strategies for dealing with the issues. On the final day, these were debated and polished further, before being approved by the entire Symposium. Primarily, a statement was prepared which was presented to the national delegations to UNISPACE III, with the intention to provide a basis for future UN discussions and international action.

The statement noted that the UN Space Treaties have defined space as "the province of all mankind", to be protected from harmful contamination and adverse changes of all kinds, and to be utilised for the benefit of all. It further noted that space is already showing inexorable symptoms of over-exploitation that today affect primarily astronomy, but tomorrow will increasingly affect other users of space and even people on Earth. We recommended that UN Member States cooperate to (1) ensure that frequency bands allocated to radio astronomy be indeed kept free from unwanted emissions, especially those originating from telecommunication satellites, (2) explore the concept of international radio quiet zones, regions for radio observatories protected by treaty from radio interference originating either on the ground or in space, (3) develop the concept of international "environmental impact assessments" that would be required for all proposed space projects that might interfere with scientific research or natural, cultural, and ethical values of any nation, and (4) control light pollution for the benefit of energy conservation, the natural environment, and nighttime safety.

On the technical front, the most interesting new results for light pollution were based on quantitative calibrations newly available from the US Defense Meteorological Satellite Program (DMSP). Qualitative images of the nighttime earth showing the glow from urban areas have been available for twenty years, but now one can do proper quantitative measurements. Based on these images, S. Isoe (Japan) presented estimates of the money wasted annually by major cities from street lighting scattered upwards: e.g., US\$3M for London and US\$14M for New York City. P. Cinzano (Italy) presented a marvellous new nighttime image of Europe based on DMSP data combined with a light-scattering model to show estimated sky brightness (limiting magnitude) at any given location. Back on Earth, M. Smith, Director of Cerro Tololo Inter-American Observatory, Chile, emphasized the challenges and successes that the Observatory has had in dealing with local authorities to preserve their telescopes' capabilities.

Radio astronomers are preparing for the next major meeting of the *International Telecommunications Union* to allocate radio frequencies, in May 2000. The millimeter-wavelength bands, in the past largely unallocated and little used by industry, will be a major focus for radio astronomers, especially because of all the molecular spectral lines in that region, which are vital to our understanding of the chemistry and physics of the interstellar medium. H. Butcher (The Netherlands) told of the strong recommendation of the Working Group of the *Global Science Forum* of the *Organization for Economic Cooperation and Development (OECD)* to seek protection for the new major radio observatories in the mm and cm bands, now in the various stages of technical development and implementation. As a result, in June 1999 the science ministers of the OECD had established a high-level task force to develop long-term solutions (such as radio quiet zones) that may safeguard humankind's radio windows on the Universe as well as allow efficient development of commercial telecommunications. R. Ekers (Australia) and R. Fisher (USA) emphasized that radio astronomers need to become better in rejecting radio interference, using techniques that are quite feasible and known in military circles but not yet developed at observatories. Furthermore, radio (and optical) observatories have been remiss in quantitatively documenting the interference they encounter over time.

W. Flury (Germany) reported on the space debris problem. Already, some 100,000 objects larger than 1 cm now circle the Earth and menace operations of all spacecraft,

including scientific missions. While this is a serious problem, our meeting did not focus specially on it because it featured prominently elsewhere on the UNISPACE agenda, and the major space agencies are themselves giving the problem high priority.

In summary, we achieved our goal not only to exchange information among ourselves and develop new strategies, but also to bring the issues of radio interference and light pollution to an entirely new forum, the UN. The 'Vienna Declaration' and Final Report of Unispace III (see above) show that our recommendations were heard and, to a gratifying extent, accepted by the ~100 UN Member States attending UNISPACE III. This forms an excellent basis for the further work, through UN-COPUOS, to improve international protection of the astronomical sky as the cultural heritage of all humankind, and to protect everyone's access to pristine and uncluttered skies. The proceedings of the Symposium will be published in 2000 in the IAU Symposium Series (eds. R. J. Cohen and W. T. Sullivan, III).

7.4 Special Educational Workshop

The *IAU-COSPAR-UN Special Workshop on Education in Astronomy and Basic Space Science* was held in conjunction with UNISPACE III, July 20, 21, and 23, 1999 at the Vienna International Centre, Austria.

SOC Chair and author of this report: D.G. Wentzel, USA.

This 2.5-day workshop, organized by the IAU and COSPAR in collaboration with the UN *Office of Outer Space Affairs*, was designed to show how basic space science and basic space science education should become an integral part of how countries build up the scientific capacity to conduct projects in space, and to outline the guidelines that might be developed by the IAU and COSPAR in order to help these activities.

Reviews of actual situations presented how basic science fares in countries with no scientific tradition (Mazlan Othman, Malaysia). They argued for the need to recognize the limited science capabilities in any one such country and to adjust international cooperation to take account of that limitation. Moreover, space activities should be viewed not only as solution for environmental problems, but also as a way to enhance the general scientific understanding and an opportunity to identify and train the most talented people needed to solve a country's problems (Bambang Hidayat, Indonesia). Other papers demonstrated the progress possible when a country had a national leader supporting science (Marcos Machado, Argentina), and identified some of the strategies that countries have used to initiate and develop the basic physical sciences (Don Wentzel, USA).

The summary of existing activities included those of the IAU (mostly but not solely [Commission 46 - Teaching of Astronomy](#)), of COSPAR, and of various regional astronomy and space physics associations (e.g. the *Working Group on Space Sciences in Africa*). Given the context of the meeting, special emphasis was given to the recently initiated *Regional Educational Centers for Space Science and Technology*, affiliated to the UN, and the Workshop was privileged to provide the first opportunity for the Directors of the four Centers (India, Brazil, Morocco, and Nigeria) to meet together. Productive

discussions were held not only among the Directors of these centers, but also with the representatives of the IAU, COSPAR and the UN and led to the decision to form an informal Contact Group for future coordination and possible joint initiatives between all parties.

A day was spent on the main ideas that should be contained in, e.g. future workshops aimed at creating guidelines and producing materials for countries wishing to improve their basic science via astronomy and space science. Julieta Fierro (Mexico) outlined the goals and opportunities to reach the public, Michéle Gerbaldi (France) discussed astronomy in the French schools with emphasis on teacher training, and Isabel Hawkins (USA) and John Percy (Canada) outlined the benefits, challenges, and limitations in bringing actual space science data to the high schools.

Most papers will be printed in the journal : "*Teaching of Astronomy in the Asian-Pacific Region*", Editor S. Isobe (e-mail: isobesz@cc.nao.ac.jp).

The workshop closed with a set of concise recommendations which were forwarded to the UNISPACE III meeting:

1. Countries should support education in astronomy and basic space science as a key element in a strategy to promote science education in general;
2. Constructive collaboration between the UN *Regional Educational Centres in Space Science and Technology* and the IAU and COSPAR should be encouraged and supported;
3. People trained in basic space science need jobs in order to usefully serve their home countries (!); and
4. The IAU and COSPAR should start collecting, in a systematic way, their experience both with long-term strategic planning in a number of different environments, and with various types of educational material that exist to teach astronomy at various levels.

The recommendations were discussed, modified and submitted to the main UNISPACE III Conference, and all essential elements of them were included in the *Final Report* and "*Vienna Declaration*" of the Conference (see above). With the expected endorsement of the Report by the UN General Assembly in late 1999, they will thus become part of the recommendations of the United Nations for the next 2-3 decades.

The IAU plans to continue to develop the themes outlined above under the aegis of Commission 46 - Teaching of Astronomy, with increased funding in the future, and in collaboration with COSPAR and the United Nations.

8. EDUCATIONAL ACTIVITIES

8.1 Proposed Changes in Organisational and Budget Structure

The IAU conducts educational activities within a wide and broadening field, both as regards to age and level of the students, geographical diversity of the activities, and in the range of partners. Prominent and highly respected examples are the long-standing ISYA and TAD programmes of [Commission 46](#) (*Teaching of Astronomy*) and the exchange programme of [Commission 38](#) (*Exchange of Astronomers*), which between them cover the range from high schools to postdocs - see the reports and descriptions below. The *Working Group on the World-Wide Development of Astronomy (WGWWDA)* of the Executive Committee has fulfilled an important function through its exploratory missions to countries which may later become candidates for one or more of the regular programmes. At the same time, there are increasing contacts and informal collaborations with such new partners as *COSPAR*, the *ICSU Programme on Capacity Building in Science*, and the *Regional Educational Centres for Space Science and Technology* affiliated to the United Nations (see the report above on the *Special Educational Workshop* last summer).

These developments are a sign of health, and a testimony to the devotion and success of our members who have given freely of their time and experience to make them possible. They must be encouraged and supported. At the same time it becomes important, on the one hand, to maintain coherent overall planning and coordination of the activities, which are all of a long-term nature, and on the other hand to preserve organisational and financial flexibility to be able to respond to changing opportunities and challenges. These goals are not facilitated at present, where projects are formally the responsibility of two Commissions and a Working Group, plus a number of new initiatives with no formal 'home' or budget allocation. The General Secretary has therefore proposed to organise all educational activities in the future - 'from cradle to grave' - under Commission 46, which would also be responsible for the allocation (and re-allocation) of all IAU funds budgeted for these purposes.

Preliminary reactions have been positive so far, and the new structure is implemented in the proposed budget for 2001-2003. In non-GA years (2001-2), it reserves a total of 100,000 Swiss Francs annually for all educational activities, including a decreasing, but still much-appreciated share from ICSU and UNESCO. Clearly, Commission 46 will need an appropriate internal structure to maintain proper planning and co-ordination of ongoing and new activities, so as to pursue past successes as well as to systematise our experience and to broaden our scope and our circle of collaborators. A proposal along these lines is in preparation. If approved by the appropriate bodies, it will be implemented at the upcoming General Assembly.

Volunteers sought : As our contacts expand with groups eager to profit from the experience represented by the IAU, we need to expand the group of members involved in these activities. Many fledgling astronomy groups in universities in developing countries need a hands-on person to visit for two weeks to a month. A typical need is help to get a telescope and CCD camera up and running, install an image processing system and/or give instructions on its use, and a person with a fresh outlook to interact with students and advise them on suitable programmes to undertake for combined educational and research purposes. However, needs differ from group to group, some of which may have a greater need for a theoretical course in some subject. Typically, travel costs would be

paid by the IAU and local expenses by the hosts. As everyone who has experienced such visits will testify that they are extremely stimulating and rewarding for visitor and locals alike. Interested persons are invited to contact the Secretariat to learn more about such opportunities.

8.2 International Schools for Young Astronomers (Commission 46)

The **24th IAU/UNESCO International School for Young Astronomers (ISYA)** was held in Bucharest, Romania, July 26 - August 14, 1999.

Author of this report: Michèle Gerbaldi, IAU Secretary for the ISYA

At the invitation of Dr. Magda Stavinschi, Director of the Astronomical Institute of the Romanian Academy, the 24th ISYA met in Bucharest on the campus of the Faculty of Physics, at Magurele.

The Local Organizing Committee was chaired by Prof. Mircea V. Rusu (Faculty of Physics, University of Bucharest). Much help was provided by a group of Professors from the Faculty of Physics during the ISYA. The travel grants provided by the IAU and UNESCO allowed the invitation of 18 foreign participants from: Algeria (2), Egypt (3), Morocco (2), Nigeria (1), Russia (3), Turkey (2), Uzbekistan (3), and Vietnam (2); 23 Romanian students attended this ISYA. Half of the participants were women, the selection being done on criteria independent of gender. Housing was provided on the Magurele Campus for the participants and the foreign faculty as well as at a downtown hotel run by the University.

Faculty members were Attilio Ferrari (Italy, active galaxies; extragalactic jets), Michèle Gerbaldi (France, stellar atmospheres; spectroscopic data reduction), Ed Guinan (USA, binary stars and their many astrophysical applications; use of small telescope), Don Wentzel (USA, MHD and related solar physics) and Jean-Paul Zahn (France, internal structure of the Sun; helioseismology). From the University of Bucharest were Tatiana Angelescu (Physics of elementary particles), Andrei Inonescu (Planetary atmospheres), Mircea Rusu (Fractals), Magda Stavinschi (Time and eclipses).

Nearly all the lectures started at a basic level, but led to a current research topic and demonstrated the frontier flavor of this science in relation with the projects, such as the large ground-based telescopes under construction or space experiments. Some of the lectures given by the Romanian faculty offered another point of view, on the links between astrophysics and the physics of elementary particles including the neutrino problem. In several lectures, the emphasis was put on the value of the data bases already existing and associated to either space experiments or new ground based telescopes. Practical exercises of "mining the data base" were done. Computers were available with dedicated software, including MIDAS which had been implemented

specifically for this School. Thus we were able, from the first day, to do practical work in computer-based data analysis, which gave a quick start for the discussions between participants and faculty. Data on stellar photometry and spectroscopy, and images of the Sun were brought by foreign faculty members.

A small telescope was lent by the Astronomical Institute for the duration of the ISYA, and Ed Guinan adapted to it a photometer he had brought for that purpose. Unfortunately, cloudy conditions prevented us from observing any variable stars, but we were fortunate to see the total Solar eclipse on August 11th very well.

Half of the participants gave short talks on their current research work. Some of them discussed their on-going Ph.D. projects at length with the faculty members, stressing the need for contacts for participants from relatively isolated institutions.

The **25th IAU-UNESCO International School for Young Astronomers** will be held at the Chiang Mai University (Thailand): January 3 - 22, 2001. The language of the school will be English. Accommodation will be supported by the Thai hosts. Some travel grants will be made available. Those interested are encouraged to apply (see below).

Among the topics to be covered are astronomical measurements, with the emphasis on stellar astrophysics.

- Observational topics: Stellar spectroscopy, photometry, high speed photometry, and space observations
- Theoretical topics: Structure and evolution of single and binary stars

Application forms are available at <http://www.iap.fr/SitesHeberges/isya/index.html> or from the persons listed below. Applications should list the achieved level of studies in physics and astronomy, and any topic of special interest. A letter of recommendation in English is required, evaluating academic standing and proficiency in English.

Applications and letters of recommendation should be sent, by air mail, fax or e-mail, by *August 20, 2000*, to *both* addresses below:

Dr. M. Gerbaldi, Secretary for ISYA *and* **Dr. Boonrucksar Soonthornthum**

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8.3 Teaching for Astronomy Development (TAD, Commission 46)

Report on the TAD programme in 1999: Donat G. Wentzel, Professor Emeritus, University of Maryland

Vietnam: Because the most recent university level astronomy textbook was out of date by over 30 years, a new textbook "*Astrophysics*" has been written, in English and Vietnamese. The IAU/TAD contribution to the publication cost provides leverage so that the press will incorporate colour photographs and use a paper quality appropriate to those photographs (both are innovations for Vietnamese textbooks). The university teachers have been brought up-to-date in two previous TAD-sponsored workshops, and two of the teachers attended the 1999 ISYA. In November 1999, a one-week workshop under the direction of N.Q. Rieu (Observatoire de Paris) and J.C. White II (Astronomical Society of the Pacific) involved the teachers in using the new text so that they can put it to actual use, starting with the following term. Meanwhile, a third Vietnamese student is now studying astronomy in Paris.

Central America: The fifth *Central American Course on Astronomy and Astrophysics (CURCAA)* was held in Nicaragua, 21-25, June 1999. With the encouragement of TAD and its representative Armando Arellano Ferro (Mexico), the meeting was organised for the first time by an international Scientific Organising Committee. Much of the meeting was aimed at the local audience, about 120 physics students and high-school teachers, with four short introductory courses including the (beginning of a) course available to any (trained) teacher who has access to the internet. *The Astronomical Society of Nicaragua* was re-founded. There were very diverse short talks, most on successful teaching experiences and on popular astronomy topics. The 14 participants from other Central American countries included the delegates to the annual meeting of the *Assembly of Central American Astronomers*. The first Central American student in part supported by TAD is now in Mexico.

Morocco: The IAU Travelling Telescope is on its way to Casablanca on long-term loan (transport paid by the *International Centre for Theoretical Physics*). Two Moroccan students attended ISYA in 1999. The first Moroccan student supported in part by TAD is now studying in Germany.

8.4 Exchange of Astronomers (Commission 38)

Within the budget approved by the Executive Committee, Commission 38 allocates grants to qualified individuals to enable them to visit institutions abroad. It is intended, in particular, that the visitor should have ample opportunity to interact with the intellectual life of the host institution so that maximum benefit is derived by both sides. Another specific objective is that astronomy in the home country should be enriched after the grantee's return.

Detailed guidelines for these grants and the application procedures to be followed can be found in IB 81 (pp. 37-39) and are available from the Commission 38 Web page (linked from the IAU home page). All correspondence related to the programme should be directed to the President of IAU Commission 38, with a copy to the Vice-President. For the current triennium, their addresses are:

President:	Vice-President:
Dr Morton S. Roberts	Dr Richard M West
NRAO	ESO
Edgemont Road	Karl Schwarzschildstr 2
Charlottesville VA 22903	D 85748 Garching München
USA	Germany
Phone: 1 804 296 0233	Phone: 49 89 320 06 276
Fax: 1 804 296 0278	Fax: 49 89 320 2362
Email: mroberts@nrao.edu	Email: rwest@eso.org

9. RELATIONS TO OTHER ORGANIZATIONS

The IAU is pleased to announce the appointment of Dr. Jan Vondrak as the IAU representative to the Directing Board of the International Earth Rotation Service (IERS) in replacement of Dr. Barbara Kolaczek whose term has expired. The IAU thanks Dr. Kolaczek for the work she has accomplished during her four year term.

10. MEMBERSHIP

10.1 National Membership

As mentioned earlier, Morocco, Jordan, and The Philippines have applied for Associate Membership in the IAU. These, as well as any further applications that might be received in time, will be submitted to the vote of the XXIVth General Assembly. Meanwhile, on the proposal of the US National Committee for Astronomy, the category of Adherence of the USA has been raised from VIII1/2 to IX. Finally, all countries whose record of payment of dues was becoming a matter of concern as a consequence of Article 15 in the Statutes have settled their accounts in time. Thus, overall, the situation with regard to the national

membership is quite gratifying.

10.2 Applications for Individual Membership

It is recalled that proposals from Adhering Organizations for new Individual Members of the Union are due in Paris by March 7, 2000. Letters describing the procedures were sent in September 1999, and the information is also available on the web. The Secretariat has also received a small number of proposals from Division Presidents for membership of persons who, for various reasons, cannot be proposed by an Adhering Body.

10.3 Deceased Members

The General Secretary regrets to announce the following names of Members whose death has been reported to, and verified by, the Secretariat since IB 84:

Atanasijevic, Ivan
Avcioglu, Kamuran
Balli, Edibe
Chau, Wai-Yin
Eichhorn, Heinrich K
Elson, Rebecca A.W.
Garfinkel, Boris
Gyldenkerne, Kjeld
Hecquet, Josette
Hoag, Arthur A.
Iwanowska, Wilhelmina
Jaakkola, Toivo S.
Kaiser, Thomas R.
Kaplan, Joseph
Locanthi, Dorothy D.
Mirzoyan, Ludwik, V.
Nandy, Kashinath
Pismis de Recillas, Paris
Popper, Daniel M.
Ringnes, Truls S.
Slettebak, Arne
Swihart, Thomas
Taffara, Salvatore
Takens, Rolf Jan
van Paradijs, Johannes
Vanysek, Vladimir

White, Richard A.
Zacharov, Igor
Zwaan, Cornelis

11. IAU PUBLICATIONS

11.1 General

The production of *IAU Symposium* volumes is now largely in the hands of the *Astronomical Society of the Pacific*^{*}, with only a couple of 1997 meetings still to appear from *Kluwer Academic Publishers*^{**}. Complete, up-to-date lists of IAU Symposia and other publications are maintained at the IAU web site under Publications. Together with other ASP products, notably the ASP Conference Series, they can be inspected and ordered at www.aspsky.org. IAU Members are entitled to purchase the IAU publications at specially discounted prices.

* Members of the IAU as well as registered participants of IAU Symposia can purchase Symposium Proceedings published by the ASP before December 31, 1999 for USD 36 plus shipping. Volumes published afterward can be obtained for the price of USD 42 plus shipping.

** Members of the IAU receive a discount of 33 1/3% off the regular price of the hardbound Symposia produced by Kluwer Academic Publishers. They may purchase paperback copies of Symposia proceedings at NLG 70.00 each. Shipping charges are added to these prices.

The IAU Colloquia are published independently, but must mention IAU sponsorship and are listed here separately. We would like to build up a complete collection of Colloquium volumes at the Secretariat and maintain a list of missing books at our web site. *Any donations of older colloquium volumes that could help fill these gaps are gratefully received* (and shipping costs refunded). We also cordially thank those members who have helped us to complete the collection of IAU Transactions in the Archives (see IB 83).

Finally, an *Erratum*: The Proceedings of *Joint Discussion 12* at the 23rd General Assembly were edited by P.B. Boyce and A.G. Davis Philip. In the printed *Highlights of Astronomy Vol. 11A*, however, the name of Dr. Davis Philip was inadvertently missed. The Editor apologises for this omission.

11.2 IAU Symposia

183 COSMOLOGICAL PARAMETERS AND THE EVOLUTION OF THE UNIVERSE

Kyoto, Japan, August 18 - 22, 1997

Ed. K. Sato

Kluwer Academic Publishers, Dordrecht, 1999

ISBN 0 7923-5959-1 (HB) \$173.00, 0 -7923-5460-5 (PB) \$89.00

191 ASYMPTOTIC GIANT BRANCH STARS

Montpellier, France, August 28 - September 1, 1998

Eds. A. Lebre, T. le Bertre & C. Waelkens

Astr. Soc. Pacific, 1999. ISBN 1-886733-90-2 (HB) \$95.00

194 ACTIVE GALACTIC NUCLEI AND RELATED PHENOMENA

Byurakan, Armenia, August 17-22, 1998

Eds. Y Terzian, D. Weedman & E. Khachikian

Astr. Soc. Pacific, 1999. ISBN 1-886733-008-0 (HB) \$95.00

11.3 IAU Colloquia

169 VARIABLE AND NON-SPHERICAL STELLAR WINDS IN LUMINOUS HOT STARS

Heidelberg, Germany, June 15-19, 1998

Eds. B. Wolf, O. Stahl & A. Fullerton

Springer, Berlin 1999; ISBN 3-540-65702-9 (HB) DM 128

171 THE LOW SURFACE BRIGHTNESS UNIVERSE

Cardiff, Wales, July 5-10, 1998

Eds. J. I. Davies, C. Impey & S. Phillips

ASP Conf. Ser. Vol. 170, 1999; ISBN 1 886733-92-9 (HB) \$52.00

12. OTHER PUBLICATIONS RECEIVED

Some publishers send copies of recent astronomy books to the Secretariat. These books are to be donated upon request, on a first come first serve basis, to astronomical groups in countries lacking the financial resources to purchase them.

ICSU: The International Council for Science:

GUIDELINES FOR SCIENTIFIC PUBLISHING

ICSU Press, Paris, 1999. ISBN 0-930357-44-2

In a very compact format (96 p), this inexpensive book gives a wealth of practical, up-to-date advice on scientific book and journal publishing.

ASP Conference Series US\$ 52.00

Vol 161	HIGH ENERGY PROCESSES IN ACCRETING BLACK HOLES
Vol 162	QUASARS AND COSMOLOGY
Vol 163	STAR FORMATION IN EARLY-TYPE GALAXIES
Vol 164	ULTRAVIOLET-OPTICAL SPACE ASTRONOMY BEYOND HST
Vol 165	THE THIRD STROMLO SYMPOSIUM
Vol 166	STROMLO WORKSHOP ON HIGH-VELOCITY CLOUDS
Vol 167	HARMONIZING COSMIC DISTANCE SCALES IN A POST-HIPPARCOS ERA
Vol 168	NEW PERSPECTIVES ON THE INTERSTELLAR MEDIUM
Vol 169	11TH EUROPEAN WORKSHOP ON WHITE DWARFS
Vol 171	LIBEB, COSMIC RAYS, AND RELATED X-AND GAMMA RAYS
Vol 172	ASTRONOMICAL DATA ANALYSIS SOFTWARE AND SYSTEMS VIII
Vol 173	THEORY AND TESTS OF CONVECTION IN STELLAR STRUCTURE
Vol 174	CATCHING THE PERFECT WAVE: ADAPTIVE OPTICS AND OPTICAL
Vol 176	OBSERVATIONAL COSMOLOGY : THE DEVELOPMENT OF GALAXY SYSTEMS
Vol 177	ASTROPHYSICS WITH INFRARED SURVEY: A PRELUDE TO SIRT
Vol 178	STELLAR DYNAMOS: NONLINEARITY AND CHAOTIC FLOWS
Vol 179	ETA CARINAE AT THE MILLENNIUM
Vol 180	SYNTHESIS IMAGING IN RADIO ASTRONOMY II
Vol 181	MICROWAVE FOREGROUNDS
Vol 182	GALAXY DYNAMICS, A RUTGERS SYMPOSIUM

(For further details on these books, see any recent IAU Symposium or ASP Conference volume, or the ASP web site at www.aspsky.org)
Cambridge University Press

INTERSTELLAR TURBULENCE

Eds. J. Franc & A. Carramiñana, 1999
ISBN 0-521-65131 X (HB) US\$ 69.95

INTERNET RESOURCES FOR PROFESSIONAL ASTRONOMY:

Proceedings of the IX Canary Islands Winter School of Astrophysics
Eds. M. Kidger, I. Pérez-Fournon & F. Sanchez, 1999
ISBN 0 521 66308 30 (HB) USD 74.95
HANDBOOK OF INFRARED ASTRONOMY
Ed. I.S. Glass, 1999. ISBN 0 521 63385 0 (PB) USD 24.95

ADAPTIVE OPTICS IN ASTRONOMY

Ed. F. Roddier, 1999. ISBN 0-521-55375 X (HB)

INTRODUCTION TO STELLAR WINDS

Eds. H. Lamers & J. Cassinelli, 1999. ISBN 0-521-59565 7 (PB) US\$ 29.95

AN INTRODUCTION TO RELATIVISTIC GRAVITATION

Ed. R. Hamkim, 1999. ISBN 0-521-45930-3 (PB)

Other Books Received

SYSTEMES DE RÉFÉRENCE SPATIO-TEMPORELS

Observatoire de Paris, DÉpartement d'Astronomie Fondamentale
Paris, 21 - 23 September, 1998. UMR 8630/CNRS

13. OTHER MEETINGS ON ASTRONOMICAL TOPICS

- ICGC-00: International Conference on Gravitation And Cosmology
January 4 - 7, 1999, Kharagpur, India
Contact: Indian Institute of Technology, Dept. of Physics and Meteorology,
Centre for Theoretical Studies, Kharagpur, West Bengal, 721 302 India
Fax: 91 3222 55303 Email: icgc@cts.iitkgp.ernet.in
- [Physics of Accretion and Associated Outflows](#)
January 5-8 2000, Theoretical Astrophysics Center, Copenhagen, Denmark
Contact: I. Novikov, Juliane Maries Vej 30, DK 2100 Copenhagen, Denmark
Tel: +45 3532 5900
Fax: +45 3532 5910
E-mail: novikov@tac.dk

- [Physics Of Space : Growth Points and Problems](#)
January 10 - 14, 2000, Observatoire de Paris-Meudon, France
Contact: Nicole Meyer, DESPA, Observatoire de Paris-Meudon, F 92195
Meudon Cedex, France
Fax: 33 1 4507 2806
E-mail: OBS2000@ulyse.obspm.fr

- 195TH AAS MEETING
January 11 - 15, 2000, Atlanta GA, USA

Contact: H. McAlister, Georgia State University, Atlanta GA 30303-3083, USA
Tel: 1 404 651 2932 Fax: 1 404 651 1389
Email: hal@chara.gsu.edu

- [Moriond Workshop on Cosmology: Energy Densities in the Universe](#)
January 22 - 29, 2000, Les Arcs, France
Contact: Rencontres de Moriond, Université Paris-Sud, Bldg 211, F 91405 Orsay
Cedex, France
Tel: 33 1 6929 0550 Fax: 33 1 6928 8659
Email: moriond@lal.in2p3.fr

- [Third MONS Workshop: MONS Science Preparation and Target Selection](#)
January 24 - 26, 2000, Aarhus University, Denmark
Contact: Hans Kjeldsen, Institut for Fysik & Astronomi, Aarhus University,
DK 8000 Aarhus, Denmark
Tel: 45 8942 3609 Fax: 45 8612 0740
Email: hans@obs.aau.dk

- [Disks, Planetesimals & Planets](#)
January 24 - 28, 2000, Puerto de la Cruz, Tenerife, Spain
Contact: M. Murphy, Inst. de Astrofísica de Canarias, E 38200 La Laguna,
Tenerife, Spain
Tel: 34 922 605 200 Fax: 34 922 605 210
Email: planet@ll.iac.es

- [Astronomy, Physics and Chemistry of H3+](#)
February 9 - 10, 2000, Royal Society, London, UK
Contact: Takeshi Oka, University of Chicago, 5735 S. Ellis Ave., Chicago IL 60637, USA
Tel: 1 773 702 7070 Fax: 1 773 702 0805
Email: t-oka@chicago.edu

- [From Particles to the Universe](#)
February 20 - 26 , 2000, Lake Louise, Canada
Contact: Lee Grimard, Lake Louise Winter Institute, Department of Physics, University of Alberta, Edmonton, AB, T6G 2J1, Canada
Tel: 1 780 492 8486 Fax: 1 780 492 0714
Email: grimard@phys.ualberta.ca

- [XXVIII ITEP School of Physics](#)
February 22 - March 1, 2000, Moscow, Russia
Contact: Maxim Chernodub, Institute of Theoretical and Experimental Physics, B. Cheremushkinskaya, 25, Moscow, 117259, Russia.
Tel: 7 095 129 94 64 Fax: 7 095 883 96 01
Email: ws2000@itep.ru

- [Sources and Detection of Dark Matter in the Universe \(DM20\): 4th International Symposium](#)
February 23 - 25, 2000, Marina del Rey CA, USA
Contact: DM20, Physics and Astronomy Dept., Box 951547, Los Angeles CA 90095-1547, USA
Fax: 1 310 206 1091
Email: dm20@physics.ucla.edu

- [Mapping the Hidden Universe](#)
February 23 - 29, 2000, Guanajuato, Mexico
Contact: ZOA-HI Meeting, Depto. de Astronomia, Univ. de Guanajuato, Aptdo Postal 144,
Guanajuato, GTO 36000, Mexico
Tel: 52 4 732 9607 Fax: 52 4 732 0253
Email: zoahi@astro.ugto.mx

- [Millenial Advances in Astrophysical Chemistry](#) (dead link, 2/12 -99)
March 6, 2000, Burlington House, London, UK
Contact: Dr. Helen Jane Fraser, University of Nottingham, University Park,
Nottingham NG7 2RD, UK
Tel: 44 115 951 3472 Fax: 44 115 951 3562
Email: helen.fraser@nottingham.ac.uk

- [Microlensing 2000: A New Era of Microlensing Astrophysics](#)
March 6 - 10, 2000, Cape Town, South Africa
Contact: J Menzies, SAAO, P.O. Box 9, 7935 Observatory, South Africa
Tel: 27 21 447 0025 Fax: 27 21 447 3639
Email: jwm@sao.ac.za

- Winter School on Singularities in Gravitational Systems: Application to the Transfer of Small Bodies in the Solar System, Arc 2000
March 12 - 18, 2000, Nice, France
Contact: Claude Froeschlé, OCA/Observatoire de Nice, B.P. 4229, F 06304
Nice Cedex 4, France

Tel: 33 492 00 30 24 Fax: 33 492 00 30 33
Email: claude@obs-nice.fr or michel@obs-nice.fr

- [Galaxy Formation and Evolution](#)
March 13 - 17, 2000, University of California, Santa Barbara CA, USA
Contact: Dorene Iverson, Institute for Theoretical Physics, Santa Barbara CA 93106, USA
Tel: 1 805 893 3178 Fax: 1 805 893 2431
Email: dorene@itp.ucsb.edu

- [31st Lunar and Planetary Science Conference](#)
March 13 - 17, 2000, NASA Johnson Space Center, Houston TX, USA
Contact: LeBecca Simmons, Lunar and Planetary Institute, 3600 Bay Area Boulevard, Houston TX 77508, USA
Tel: 1 281 486 2158 Fax: 1 281 486 2160

- [Stars, Gas and Dust in Galaxies: Exploring the Links](#)
March 15 - 18, 2000, La Serena, Chile
Contact: Ms. Andrea Lagarini, ESO, Alonso de Cordova 3107, Santiago 19, Chile
Tel: 562 228 5006 ext. 3113 Fax: 562 228 5132
Email: alagarin@eso.org

- [Chapman Conference on Space Weather: Progress and Challenges in Research and Applications](#)
March 20 - 24, 2000, Clearwater FL, USA

Contact: AGU Meetings Dept, Space Weather Conference, attn. R. Feathers,
2000 Florida Ave NW, Washington DC 20009, USA
Tel: 1 202 462 6900 Fax: 1 202 328 0566
Email: meetingsinfo@agu.org

- [Dynamics of Star Cluster and the Milky Way](#)
March 20 - 24, 2000, Heidelberg, Germany
Contact: R. Spurzem, Astronomisches Rechen-Institute, Münchhofstrasse 12-14,
D 69120 Heidelberg, Germany
Fax: 49 6221 405 297
Email: star2000@ari.uni-heidelberg.de

- ROSSi 2000 : Astrophysics with the Rossi X-Ray Timing Explorer.
A Survey at the Close of the Millenium,
March 22 - 24, 2000, NASA/Goddard Space Flight Center, Greenbelt MD, USA
Contact: Tod Strohmayer, NASA GSFC, Code 662, Greenbelt MD 20771, USA
Tel: 1 301 286 1256 Fax: 1 301 286 0708
Email: stroh@clarence.gsfc.nasa.gov

- [Washington Area Astronomers Meeting](#)
March 23, 2000, University of Maryland, College Park MD, USA
Contact: George H. Kaplan, U.S. Naval Observatory, 3450 Massachusetts Ave. NW
Washington DC 20392-5420, USA
Tel: 1 202 762 1562 Fax: 1 202 762 1612
Email: gkaplan@usno.navy.mil

- [ISTP Spring Workshop at NASA/GSFC](#)
March 27 - 30, 2000 NASA/Goddard Space Flight Center, Greenbelt MD, USA
Contact: Nicola J. Fox, ISTP Science & Operations Coordinator, NASA/Goddard Space Flight Center, Code 696, Greenbelt, MD 20771, USA
Tel: 1 301 286 8872 Fax: 1 301 286 1648
Email: nicola.fox@gsfc.nasa.gov

- [Astronomical Telescopes and Instrumentation](#)
March 27 - 31, International Congress Centre, Munich, Germany
Contact: P.O. Box 10, Bellingham WA 98227-0010, USA
Tel: 1 360 676 3290 Fax: 1 360 647 1445
Email: spie@spie.org

- [Bringing Space into Education](#)
April 3 - 5, 2000, Strasbourg, France
Contact: Claude Gourdet, Executive Director, IAF, 3-5 rue Mario Nikis, F 75015 Paris, France
Tel: 33 1 45 67 42 60 Fax: 33 1 4273 21 20
Email: iaf@wanadoo.fr

- [SAAS-FEE Advanced Course: High-Energy Spectroscopic Astrophysics](#)
April 3 - 8 , 2000, Les Diablerets, Switzerland
Contact: 30th Saas-Fee Advanced Course, INTEGRAL Science Data, Centre Ch d'Ecogia 16, CH 1290 Versoix, Switzerland
Email: sf2000@obs.unige.ch

- [ESA-CERN Workshop on Fundamental Physics in Space and Related Topics](#)
April 5 - 7 , 2000, Geneva, Switzerland
Contact: M. Jacob, TH Division, CERN, CH 1211 Geneva 23, Switzerland

- Chronology of Mars in Comparison with Inner Solar Bodies
April 10 - 14, 2000, Bern, Switzerland
Contact: J. Geiss, ISSI, Hallerstr. 6, CH 3012 Bern, Switzerland
Fax: 41 31 631 4897 Email: geiss@issi.unibe.ch

- [The NOT in the 2000's](#)
April 12 - 15, 2000, Santa Cruz de La Palma, Spain
Contact: Nils Bergvall, Astronomiska Observatoriet, Box 515, S 75120 Uppsala, Sweden
Tel: 46 18 525 724 Fax: 46 18 527 583
Email: nils.bergvall@astro.uu.se

- [Spacetime 2000: A Forward-looking Forum for Professional-Amateur Interaction in a Small Country Setting](#)
April 14 - 17, 2000, Wellington, New Zealand
Contact: E. Budding, CIT, PO Box 40740, Upper Hut, Wellington, New Zealand
Tel: 64 4 527 6398 Fax: 64 4 527 6374
Email: Edwin.Budding@cit.ac.nz

- [Geoscience 2000](#)
April 17 - 20, 2000, University of Manchester, UK

Contact: Maxine Winter, the Geological Society, Burlington House, Piccadilly,
London W1V 0JU, UK
Tel: 44 171 434 9944 Fax: 44 171 494 0579
Email: geo2000@geolsoc.org.uk

- Oort Centenary : "Looking Ahead with Wonder"
April 25 - 27, 2000, Leiden, The Netherlands
Contact: Janet Soulsby, Leiden Observatory, Postbus 9513, NL 2300 RA Leiden,
The Netherlands
Tel: 31 71 5275833 Fax: 31 71 5275819
Email: oortsymp@strw.leidenuniv.nl

- [Millennium Conference on Earth, Planetary & Solar System Science
25th European Geophysical Society General Assembly](#)
April 25 - 29, 2000, Nice, France
Contact: EGS office, Max-Planck-Str. 13, D 37191 Katlenburg-Lindau, Germany
Tel: 49 5556 1440 Fax: 49 5556 4709
Email: egs@copernicus.org

- [4th IAA International Conference on Low-Cost Planetary Missions](#)
May 2 - 5, 2000, Laurel MD, USA
Contact: R.W. Farquhar, JHU/APL, Johns Hopkins Rd, Laurel MD 20723-6099,
USA
Fax: 33 147 238 216
Email: diana.whitman@jhuapl.edu

- [Astrophysical Turbulence](#)
May 8 - 12, 2000, University of California, Santa Barbara CA, USA
Contact: Dorene Iverson, Institute for Theoretical Physics, Univ. of California,
Santa Barbara CA 93106 USA
Tel: 1 805 893 3178 Fax: 1 805 893 2431
Email: dorene@itp.ucsb.edu

- The Astrophysics of Galactic Cosmic Rays
May 15 - 19, 2000, Bern, Switzerland
Contact: R. Kallenbach, ISSI, Hallerstr. 6, CH 3012 Bern, Switzerland
Fax: 41 31 631 4897
Email: reinald.kallenbach@issi.unibe.ch

- [Gas and Galaxy Evolution](#)
May 21 - 24, 2000, Socorro NM, USA
Contact: Michael Rupen/ John Hibbard, NRAO, 1003 Lopezville Road, Socorro
NM 87801, USA
Tel: 1 505 835 7000 Fax: 1 505 835 7027
Email: mrupen@nrao.edu

- [7th Conference between Particle and Nuclear Physics](#)
May 22 - 26, 2000, Quebec City, Canada
Contact: Anne B. MacInnis, MIT-Bates, P.O. Box 846, Middleton MA 01949, USA
Tel: 1 617 253 9285 Fax: 1 617 253 9599
Email: macinnis@mit.edu

- [EuroConference on: The Evolution of Galaxies. I - Observational Clues](#)
May 23 - 27, 2000, Granada, Spain
Contact: Jos, M. Vilchez, Inst. de Astrofísica de Andalucía, E 18080 Granada, Spain
Tel: 34 958 12 13 11 Fax: 34 958 81 45 30
Email: euroconf@iaa.es

- Canadian Astronomical Society (CASCA)
May 25 - 28, 2000, University of British Columbia, Vancouver BC, Canada
Contact: Mark Halpern, UBC, 6224 Agricultural Road, Vancouver, BC V6T 1Z1, Canada
Tel: 1 604 822 6709
Email: halpern@physics.ubc.ca

- [Galactic Structure, Stars and the ISM, 4th. Tetons Conference](#)
May 28 - June 1, 2000, Jackson Lake Lodge, Grand Teton National Park WY, USA
Contact: Dr. Chick Woodward, Chair, SOC, University of Wyoming, Physics & Astronomy, Laramie WY 82071, USA
Tel: 1 307 766 2706 Fax: 1 307 766 2652
Email: tetons4@wapiti.uwyo.edu

- [Workshop on Waves in Dusty, Solar and Space](#)
May 29 - June 2, 2000 Leuven, Belgium
Contact: F. Verheest, Sterrenkundig Observatorium, Univ. Gent, Krijgslaan 281, B 9000 Gent, Belgium
Tel: 32 9 264 4799 Fax: 32 9 264 4989
Email: Frank.Verheest@rug.ac.be

- [Structure of the Nucleus at the Dawn of the Century](#)
May 29 - 3 June, 2000, Bologna, Italy
Contact: Alberto Ventura, ENEA, Via Martiri di Monte Sole 4, I 40129 Bologna, Italy
Tel: 39 051 6098305 Fax: 39 051 6098705
Email: nucth2000@bo.infn.it

- [Joint European and National Astronomical Meeting for 2000 \(JENAM 2000\)](#)
[9th European and 5th Euro Asian Astronomical Society Conference \(Mirror site\)](#)
May 29 - June 3, 2000, Moscow, Russia
Contact: Dr. A.M. Cherepashchuk, JENAM-2000 Sternberg Astronomical Institute,
13, Universitetskij prosp., 119899 Moscow, Russia
Tel: 7 095 932 8844 Fax: 7 095 932 8844
Email: jenam@sai.msu.su

- 196th AAS Meeting
June 4 - 8, 2000, Rochester NY, USA
Contact: J. Pipher, Univ. of Rochester, Dept of Physics, Rochester NY 14627, USA
Tel: 1 716 275 4402 Fax: 1 716 275 8527
Email: jlpipher@sherman.pas.rochester.edu

- [Galaxy Disks and Disk Galaxies](#)
June 12 - 16, 2000 Rome, Italy
Contact: George Coyne, Vatican Observatory, V 00120 Citt del Vaticano, Rome,
Italy
Tel: 39 06 6988 5266 Fax: 39 06 6988 4671
Email: geoyne@specola.va

- [XIX International Conference on Neutrino Physics & Astrophysics](#)
June 16 - 21, 2000, Sudbury, Ontario, Canada
Contact: Pierre Lamoureux, National Research Council, 1200 Montreal Road,
Building
M-19, Ottawa, Ontario K1A OR6, Canada
Tel: 1 213 993 9431 Fax: 1 613 993 7250
Email: nu2000@nrc.ca

- [Challenges for Science and Engineering in the 21st Century](#)
June 14 - 18, 2000, Stockholm, Sweden
Contact: Lars Rydén, INES, Gutenbergstr. 31, D 44139 Dortmund, Germany
Tel: 49 231 575218 Fax: 49 231 575210
Email: INES2000@t-online.de

- [NATO ASI on Space Storms and Space Weather Hazards](#)
June 19 - 29, 2000, Crete, Greece
Contact: Anastasios Anastadiadis, National Observatory of Athens, Metaxa and
V. Pavlou str. Penteli GR 15236, Greece
Tel: 30 1 6138340 /42 Fax: 30 1 6138343
Email: anastasi@creator.space.noa.gr

- [1st G. H. Advanced Lectures on the Starburst-AGN Connection](#)
June 26 - 30, 2000, Tonantzintla, Puebla, Mexico
Contact: Secretaria del Programa Guillermo Haro, INAOE, Apdo. Postal 51 y 216,
Puebla
Pue. 72000, Mexico
Tel: 52 2 2472011 Fax: 52 2 2472231

Email: agn00@inaoep.mx

- **NUCLEI IN THE COSMOS 2000 CONFERENCE**
June 27 - July 1, 2000, Aarhus, Denmark
Contact: J. Christensen-Dalsgaard, K. Langanke, University of Aarhus, Ny Munkegade
Bld. 520, DK 8000 Aarhus, Denmark
Tel: 45 89 42 3614 or 45 89 3671 Fax: 45 86 12 0740
Email: jcd@obs.aau.dk, langanke@ifa.au.dk

- [Fourth Biennial History of Astronomy Workshop](#)
July 1 - 4, 1999, Notre Dame IN, USA
Contact: Michael J. Crowe, Program of Liberal Studies, Univ. of Notre Dame, Notre Dame, IN 46556, USA
Tel: 1 219 631 6212
Email: Michael.J.Crowe.1@nd.edu

- [The Physics of Galaxy Formation](#)
July 3 - 7, 2000, Tsukuba, Japan
Contact: Masayuki Umemura, Center for Computational Physics, Univ.of Tsukuba, Ten-nodai 1-1-1, Tsukuba, Ibaraki 305-8577, Japan
Tel: 81 298 53 6494 Fax: 81 298 53 6489
Email: gf2000@rccp.tsukuba.ac.jp

- [US-European Celestial Mechanics Workshop](#)

July 3 - 7, 2000, Poznan, Poland

Contact: Prof. Edwin Wnuk, Astronomical Observatory, Adam Mickiewicz Univ.,
Sloneczna 36, PL 60286 Poznan, Poland

Fax: 48 618686511

Email: wnuk@juno.astro.amu.edu.pl or wnuk@amu.edu.pl

- [Constructing the Universe with Clusters of Galaxies](#)

July 4-8, 2000, Paris, France

Contact: Daniel Gerbal, Florence Durret or Brigitte Raban,
Institut d'Astrophysique de Paris, 98bis Bd Arago,
F 75014 Paris, France

Tel: 33 1 44 32 80 00 Fax: 33 1 44 32 80 01

Email: raban@iap.fr

- [Catastrophic Events and Mass Extinctions: Impacts and Beyond](#)

July 9 - 12, 2000, Vienna, Austria

Contact: Christian Koeberl, Inst of Geochemistry, Univ. of Vienna, Althansstrasse
14,

A 1090 Wien, Austria

Tel: 43 1 31336 1714 Fax: 43 1 31336 781

Email: christian.koeberl@univie.ac.at

- [Interacting Winds from Massive Stars](#)

July 10 - 14, 2000, Isles de la Madeleine, Quebec, Canada

Contact: Anthony Moffat, Univ. de Montr,al, Dept. de Physique, C.P. 6128, Succ.
Centre-Ville, Montr,al, QC H3C 3J7, Canada

Tel: 1 514 343 6682 Fax: 1 514 343 2071

Email: Moffat@astro.umontreal.ca

- [Cosmos in the Classroom 2: The Triumphs and Tribulations of Teaching Astronomy to Non-Science Majors](#)
July 17 - 19, 2000, Pasadena CA, USA
Contact: Andrew Fraknoi, Astronomical Society of the Pacific, 390 Ashton Ave., San Francisco CA 94127, USA
Tel: 1 415 337 1100 Fax: 1 415 337 5205
Email: fraknoi@admin.fhda.edu

- [The Restless Universe \(Applications of Gravitational N-body Dynamics to Planetary, Stellar and Galactic Systems\). NATO ASI](#)
July 23 - August 5, 2000, Blair Atholl, UK
Contact: Bonnie Stevens, Dept of Mathematics, Glasgow Caledonian University, Cowcaddens Road, Glasgow G4 0BA, Scotland, UK
Tel: 44 141 331 3619 Fax: 44 141 331 3608
Email: bst@gcal.ac.uk

- [COSPAR Colloquium: The Outer Heliosphere: The Next Frontiers](#)
July 24 - 28, 2000, Potsdam, Germany
Contact: Dr. Klaus Scherer, Max-Planck-Institut fuer Aeronomie, D 37191 Katlenburg-Lindau, Germany
Tel: 49 5556 979 465 Fax: 49 5556 979 240
Email: scherer@linmpi.mpg.de

- [P Cygni 2000: 400 Years of Progress](#)
August 21 - 23, 2000, Armagh, Northern Ireland, UK
Contact: M. de Groot, Armagh Observatory, College Hill, Armagh, BT61 9DG, Northern

Ireland, UK

Tel: 44 28 37 522928 Fax: 44 28 37 527174

Email: mdg@star.arm.ac.uk

- [New Era of Wide-Field Astronomy](#)

August 21 - 24, 2000, Preston, UK

Contact: Centre for Astrophysics, Attn: Dr. R.G. Crowes, University of Central Lancashire,

Preston, PR1 2HE, UK

Tel: 44 1772 893540 Fax: 44 1772 892996

Email: r.g.clowers@uclan.ac.uk

- [Eta Carinae and Other Mysterious Stars - Hidden Opportunities for Emission Spectroscopy](#)

August 24 - 26, 2000, Hven, Sweden

Contact: Sveneric Johansson, Department of Physics, Lund University, P.O. Box 118,

S 221 00 Lund, Sweden

Tel: 46 46 126097 Fax: 46 45 2224709

Email: Hven2000@fysik.lu.se

- [PRAHA2000 - 16th International Conference on High Resolution Molecular Spectroscopy](#)

September 3, 2000, Prague, Czech Republic

Contact: Dr. Stepan Urban, Academy of Sciences of the Czech Republic, J. Heyrovsky

Institute of Physical Chemistry, Dolejskova 3, CZ 18223, Praha 8, Czech Republic

Tel: 420 2 6605 3635 Fax: 420 2 858 2307

Email: paha2k@jh-inst.cas.cz

- [4th Integral Workshop](#)
September 4 - 8, 2000, Alicante, Spain
Contact: V. Reglero, Dept. of Astronomy and Astrophysics, Dr. Moliner 50,
E 46100 Burjassot, Spain
Tel: 34 96 398 3229 Fax: 34 96 398 3261
Email: loc@castor.daa.uv.es

- X-ray Astronomy 2000
September 4 - 8, 2000, Palermo, Italy
Contact: D. Randazzo, Oss. Astronomico di Palermo, Piazza del Parlamento 1,
I 90134 Palermo, Italy
Tel: 39 091 233 243 Fax: 39 091 233 444
Email: xray2000@astropa.unipa.it

- [IV Scientific Meeting of the Spanish Astronomical Society \(SEA\)](#) also
<http://sea.am.ub.es/>
September 11-14, 2000, Santiago de Compostela, Spain
Contact: Dr. J.A. Docobo, Observatorio Astronomico "Ramon Maria Aller",
Universidade de Santiago de Compostela, P.O. Box 197, Santiago de Compostela
(Spain)
Tel: (+34) 981 59 27 47
Fax: (+34) 981 59 70 54
Email: oadoco@usc.es

- [20th. NSO/Sacramento Peak Summer Workshop on Advanced Solar Polarimetry -](#)

[Theory, Observation and Instrumentation](#)

September 11 - 15, 2000, Sunspot NM, USA

Contact: Dr. Michael Sigwarth, National Solar Observatory, P.O. Box 62, Sunspot
NM 88349-0062, USA

Tel: 1 505 434 7018 Fax: 1 505 434 7029

Email: sigwarth@sunspot.noao.edu

- [The Sixth International Wein 2000 Symposium](#)

September 24 - 28, 2000, Heidelberg, Germany

Contact: Dr. H.V. Klapdor-Kleingrothaus, MPI f. Kernphysik, P.O. Box 103980,
D 69029 Heidelberg, Germany

Tel: 49 6221 051 6262 Fax: 49 6221 051 6540

Email: klapdor@mickey.mpi-hd.mpg.de

- [S-RAMP Conference](#)

October 2 - 6, 2000, Sapporo, Japan

Contact: Y. Kamide, Solar-Terrestrial Environment Laboratory, Nagoya University
Honohara 3-13 Toyokawa, Aichi 442-8507, Japan

Tel: 81 533 86 3154 Fax: 81 0533 86 0811

Email: s-ramp@kurasc.kyoto-u.ac.jp

- [Spin and Magnetism in Young Neutron Stars](#)

October 2 - 6, 2000, Santa Barbara CA, USA

Contact: Dorene Iverson, Institute for Theoretical Physics, Univ of California,
Santa Barbara CA 93106, USA

Tel: 1 805 893 3178 Fax: 1 805 893 2431

Email: dorene@itp.ucsb.edu

- Deep Fields
October 9 - 11, 2000, ESO Headquarters, Garching, Germany
Contact: Stefano Cristiani, Space Telescope European Coordinating Facility, Karl Schwarzschild Str. 2, D 85748 München, Germany
Tel: 49 89 32006291 Fax: 49 89 32006480
- [Meeting of the High Energy Astrophysics Division \(HEAD\) of the American Astronomical Society](#)
November 6 - 10, 2000, Honolulu HI, USA
Contact: Dr. John Vallergha, Eureka Scientific Inc., 2452 Delmer St., Suite 100, Oakland CA 94601-3017, USA
Tel: 1 510 530 1688 Fax: 1 510 530 2416
Email: head2k@netcom.com

- [Astronomical Data Analysis Software and Systems X \(ADASS X\)](#)
November 12 - 15, 2000, Boston MA, USA
Contact: P. Buckley, Smithsonian Astrophysical Observatory, 60 Garden St., MS-2, Cambridge MA 02138, USA
Tel: 1 617 495 7290 Fax: 1 617 495 7356
Email: pbuckley@head-cfa.harvard.edu

- [The Evolution of Galaxies. II - Basic Building Blocks](#)
October, 2001, St. Denis de la Réunion, France
Contact: Laurent Vigroux, CEA, Service d'Astrophysique, F 91191 Gif-sur-Yvette, France
Tel: 33 1 69 08 39 12 Fax: 33 1 69 08 65 77
Email: lvigroux@cea.fr

- [The Evolution of Galaxies. III - From Simple Approaches to Self-Consistent Models](#)
May 2002, Kiel, Germany
Contact: Gerhard Hensler, Universität Kiel, Olshausenstr. 40, D 24098 Kiel,
Germany
Tel: 49 431 880 4125 Fax: 49 431 880 4100
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