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# INFORMATION BULLETIN No. 82

**May 1998**

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## PREFACE

The previous issue of the Information Bulletin was largely dominated by matters related to the XXIIrd General Assembly in Kyoto. A few items that could not be fit into that issue are included in IB 82. I regret that, in addition, a couple of significant mistakes had occurred in IB 81: First, one GA Resolution (No. B3) had been missed; it is printed in full here (Section 3) together with the revised numbers of the following Resolutions of type B, and will of course be printed correctly in the *Transactions*. The correction was also incorporated in the on-line version of IB 81 available from our Web page; I am grateful to Dr G. Petit for calling it to our attention.

Second, the number of Individual Members listed in IB 81 was, unfortunately somewhat inflated. A thorough overhaul of our membership data base, including some late information on deceased members, led to the revised membership numbers now presented in Section 11. We have taken the opportunity to update some statistical information last presented in IB 68 (July 1992).

In response to several requests, Section 2 lists the dates of major milestones in our schedule up to the XXIVth General Assembly in Manchester in August 2000, for the benefit of all concerned. Note that adjustments may occur; and that the list is also maintained and continually updated on

our Web page. One piece of Web news must go on the front page: Sake Hogeveen of The Netherlands discovered that the Web address we originally hoped to get (**www.iau.org**) had become vacant on the market. Thus alerted, we have managed to secure it for the IAU, and our Web page is now being moved to its *real* permanent address. Thanks, Sake!

Legend has it that life in the IAU is hectic for about half a year before and after each General Assembly and relatively quiet in between. Like many legends, it has so far had little to do with reality: In addition to our regular activities, some major new initiatives have been taken, and external events tend to crash upon us when a breathing space appeared within reach. Some of these are recorded in the "Faits Divers" section, but two need to be mentioned here: First, our new Web page has been received with much interest and, it seems, general satisfaction. Interest became overwhelming in March when an uncomfortably close asteroid passage in 2028 was predicted. Public interest appears to be waning, although Hollywood continues to fuel it, but much effort is currently being expended on improving procedures for the future.

Second, as a follow-up action to General Assembly Resolution A1 on Protection of the Night Sky (IB 81 p. 27), our presence at the United Nations Commission on the Peaceful Uses of Outer Space (UN-COPUOS) has been stepped up, and plans are under way to sponsor a satellite meeting, *Preserving the Astronomical Sky*, in connection with the major UN international conference UNISPACE III in Vienna in July 1999. Another satellite meeting on *Capacity Building in Astronomy and Basic Space Science* is also being planned. Stay tuned!

I must, unfortunately, end on a sad note: After eight years with us, Julie Saucedo has decided that the time has become ripe for her to open a new chapter in her life and seek other challenges. Hundreds of IAU members will join Monique Orine and myself in missing her always kind and cheerful help in the most unlikely of situations, and in wishing her every luck and much happiness in her future life. We are currently seeking a successor to help us run the business of the Union, which has grown tremendously during Julie's time at the Secretariat.

May 20, 1998

Johannes Andersen  
General Secretary

## 1. FAITS DIVERS

Astronomy is facing increasing pressures on our ability to conduct sensitive observations at almost all wavelengths. Radio astronomy is being squeezed out of the radio spectrum by (electrically and financially) powerful telecommunications systems. In the optical, we struggle not only with

ground-based light pollution, where at least scientific arguments and economic common sense converge, but the problems from sunlit space debris threaten to be dwarfed by those from the future commercial displays that continue to be conceived by fertile minds. GA Resolution A1 at Kyoto directed to IAU to attempt to stem this tide. The channel through which we may hope to reach the ears of the World's governments on this issue is the UN *Committee on the Peaceful Uses of Outer Space* (COPUOS), at which the IAU has enjoyed Observer status since a number of years. Building on previous spirited astronomy presentations by former IAU General Secretary Derek McNally, we have started to contact potential supporters during the COPUOS meeting in Vienna in February. Business in the UN circles assumes an experience in political culture and diplomatic etiquette for which your present General Secretary is not previously known, but I am encouraged that progress can and is being made. Success will be neither quick nor easy, but then few important goals are achieved without effort. Your help in convincing your government and space agency representatives in COPUOS of the need to take action now will be important for our chances of success.

After being disabled for a while due to a hacker "visit", our Web e-mail facility was re-started on March 10. The unexpected announcement in IAU Circular No. 6837 on March 11 that asteroid 1997 FX11 might conceivably pass uncomfortably close to Earth in 2028 provided instant and convincing confirmation that e-mail could be received again! With help from the IAU Near Earth Object (NEO) community, clarifying information was quickly provided on our Web page, the danger was disproved already the next day, and the news storm abated. Nonetheless, much soul-seaching continues in the community on how to ensure that alarming announcements are not made unnecessarily, how responsible authorities and the public can be informed in a prompt and well-prepared manner in case a future NEO might prove less innocent, and how we can help to meet what many consider an obligation by astronomers to society: Sometime in the (hopefully distant) future the danger *might* be real, and we astronomers are the professionals in the field. The IAU is engaging actively in these discussions to ensure that the issue is treated as the global problem it might be, and that the best international expertise contribute to its rational solution.

The above developments, coupled with a few die-hard latecomers amongst authors, have slowed down the completion of the *Highlights* and *Transactions* from the Kyoto GA. To complicate matters further, the Secretariat has been hit by a succession of unlikely, but very time consuming health hazards, ranging in size from a tiny tropical virus to a monster dog(!). As of the time of this writing, everybody is back in full swing, and progress is being made.

From the front-page news, I repeat that the permanent address of the IAU Web page will change to **<http://www.iau.org/>**. The change should be complete by the time you read this; please update your references to the IAU page at your earliest convenience. The old name ([www.intastun.org](http://www.intastun.org)) will remain valid through 1998, linked to the new address, but will then be dropped by us.

Finally, a piece of good news for those interested in the history of the IAU: Former IAU President, Prof. Adriaan Blaauw, has completed the inventory, sorting, cataloguing, and packing of the IAU

archives for the period 1919-1970 into over 100 archival boxes, taking up some 15 meters of shelf space. It is planned that these archives will shortly be deposited at the Archives of the Académie des Sciences in Paris, where they will be preserved in a professional manner and be accessible to historians of science. On behalf of the Union, I wish to thank Prof. Blaauw for devoting part of his very active "retirement" to this large effort, which has ensured the orderly preservation of the key records of our past for posterity.

## 2. MAIN DEADLINES IN 1998-2000

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<b>Date</b>	<b>Action item</b>	<b>By</b>
<b>1998:</b>		
02 July	71st Meeting of the Executive Committee (Paris)	EC
15 July	Notify 1999 meeting proposers	AGS
01 October	Contributions due to Inf. Bull. 83 (January 1999)	All interested
<b>1999:</b>		
15 March	Proposals due at AGS for 2000 Symposia (GA) and Colloquia	SOC chairs
15 March	Proposals due at GS for JDs at GA XXIV	SOC chairs
01 April	Contributions due to Inf. Bull. 84 (June 1999)	All interested
01 May	Ranking due for 2000 meeting proposals	Div. Presidents
01 May	Other Agenda items due for EC Meeting #72	All concerned
xx June	72nd Meeting of the Executive Committee	EC
26 June	World Science Conference begins in Budapest	UNESCO, ICSU
01 July	Notify 2000 Meeting proposers (Symp, Coll, JD)	AGS+GS
19 July	UNISPACE III conference begins in Vienna	UN-COPUOS
01 September	Submit Preliminary Programmes for GA Symp., JDs	SOC chairs
01 October	Camera-ready manuscripts due for "Reports on Astronomy"	Div+Comm. Pres.
01 October	Preliminary Announcement of GA XXIV (= IB 85)	GS/GA-LOC
01 October	Contributions due to Inf. Bull. 86 (January 2000)	All interested
07 November	Submit Budget for 2001-2003 to Adhering Organizations	GS
07 November	Proposals by Division Presidents for new Members	Division Presidents

07 December	Remind Adhering Organizations to propose new Members	GS
<b>2000:</b>		
07 February	Submit Resolutions with financial implications	A.O.s, Div, Comm
15 February	Submit Abstracts to Symposium/JD SOCs	Participants
15 February	Submit Symposium Travel Grant applications to SOC	Participants
15 February	Submit GA Travel Grant applications to General Secr.	Participants
01 March	Recommendation to AGS on Symposium Travel Grants	SOC chairs
07 March	Proposals by Adhering Organizations for new Members	Adhering Org.
07 March	Propose Items for Agenda of GA XXIV	Adhering Org.
15 March	Proposals due for Meetings in 2001 (Symp/Coll /JD/JCM)	SOC chairs
01 April	Contributions due to Inf. Bull. 87 (June 2000)	All interested
01 April	Notify all Symposium and/or GA Travel Grant Applicants	GS/AGS
01 May	Deadline for Early Registration at GA	Participants
07 May	Submit Resolutions without financial implications	AO, Div, Comm.
06 August	73rd Meeting of the Executive Committee	EC
07 August	Beginning of first GA Symposia	EC
09 August	Opening Session of GA XXIV	SOC chairs
16 August	Closing Session of GA XXIV	EC
19 August	End of last GA Symposium	SOC chairs

### 3. CORRECTION TO IB 81, SECT. 7

#### Missing Resolution B3

Through an unfortunate misunderstanding, the Resolution approved by the General Assembly as resolution B3 was missed in the printed version of IB 81 (p. 31), and the Resolutions originally designated B4-B7 were renumbered B3-B6. The text of the original Resolution B3 is reproduced below; as it has already been referred to externally at several occasions, it will be published under that designation in the Proceedings of the General Assembly in IAU Transactions Vol. XXIIIB, and the following resolutions will also be printed with their original numbers. For clarity, the titles of all resolutions in Category B are repeated below (Resolutions A are unchanged). Our apologies for any inconvenience caused in the meantime.

#### RESOLUTION B1 ON THE USE OF JULIAN DATES

## **RESOLUTION B2 ON THE INTERNATIONAL CELESTIAL REFERENCE SYSTEM (ICRS)**

### **RESOLUTION B3 ON THE ESTABLISHMENT OF A RELATIVISTIC COHERENT FRAMEWORK**

The XXIII General Assembly of the IAU,

*considering that*

- the IAU Resolution A4 (1991) has set up a general relativistic framework to define reference systems centered at the barycenter of the solar system and at the geocenter,
- the Sub Working Group on Relativity in Celestial Mechanics and Astrometry, established by IAU Resolution C6 (1994), reports that relativity has to be taken into account for all astronomical and geodynamical observations but that the framework of IAU Resolution A4 (1991) is not sufficient for some applications, and that the current terminology should be changed to be consistent in the general relativistic framework,
- a consistent system of notations is desirable and should be used in all fields of astronomy, geodesy and metrology that deal with space-time references,

*noting that*

- work on these matters is also being carried out in several other organizations of different types; in the BIPM (an intergovernmental organization), in the IAG (an international association of scientific unions), in the IERS (a service of IAU and IUGG),
- it is of utmost importance that all interested parties adopt consistent definitions and conventions in a coherent general relativistic framework,
- the BIPM has proposed a collaboration with the IAU to realize this goal,

*recommends that*

- a Joint Committee of the BIPM and the IAU be formed, its tasks being to establish definitions and conventions, to provide a coherent relativistic frame for all activities in space-time references and metrology at a sufficient level of uncertainty, to establish a uniform system of notations for quantities and units, and to develop the adopted definitions and conventions for practical application by the user,
- the IUGG be invited to participate in this Joint Committee to ensure that a coherent system

is agreed by the scientific community,

- the organizations taking part in the Joint Committee adopt Resolutions or Recommendations, each following its own procedures, with the aim of having identical definitions, conventions and notations based on the conclusions of the Committee.

BIPM: Bureau International des Poids et Mesures

IAG: International Association of Geodesy

IERS: International Earth Rotation Service

IUGG: International Union for Geodesy and Geophysics

#### RESOLUTION B4 ON NON-RIGID EARTH NUTATION THEORY

#### RESOLUTION B5 ON THE INTERNATIONAL CELESTIAL REFERENCE SYSTEM (ICRS) AND THE HIPPARCOS CATALOGUE

#### RESOLUTION B6 ON RELATIVITY IN CELESTIAL MECHANICS AND IN ASTROMETRY

#### RESOLUTION B7 ENCOURAGING VLBI AND LLR OBSERVATIONS

### 4. SCIENTIFIC MEETINGS

**Note:** The current Rules for Scientific Meetings can be requested at any time from the Assistant General Secretary or the Secretariat. They can also be found at the IAU Web site, where up-to-date information on future IAU scientific meetings is also maintained.

Proposals for IAU Symposia, Colloquia, and Co-Sponsored Meetings in the year 2000, as well as for Joint Discussions, Commission Meetings, and any Special Scientific Sessions to be held at the XXIVth General Assembly that year should be submitted as indicated below

**no later than March 15, 1999.**

Proposals for Joint Discussions, Commission Meetings, etc.

to be held at GA XXIV should be submitted to the General Secretary.

All other proposals should be submitted to the President of the Division concerned, or, for Commissions or Working Groups not affiliated with a Division, to the Assistant General Secretary (see the Rules for Scientific Meetings for detailed instructions).

## **4.1 XIVth IAU General Assembly**

7 - 19 August 2000, in Manchester, UK.

Preparations are proceeding; more information to be given in IB 83 (January 1999).

## **4.2 Future IAU Symposia**

(No changes since the announcements in IB 81 pp. 4-6).

### **IAU Symposium 190 New Views of the Magellanic Clouds**

13 - 19 July, 1998, Victoria, Canada

See IB 81 p. 4

### **IAU Symposium 191 Asymptotic Giant Branch Stars**

28 August - 1 September, 1998, Montpellier, France

See IB 81 p. 4

### **IAU Symposium 192 The Stellar Content of Local Group Galaxies**

7 - 12 September, 1998, Cape Town, South Africa

See IB 81 p. 5

### **IAU Symposium 193 Wolf-Rayet Phenomena in Massive Stars and Starburst Galaxies**

3 - 7 November, 1998, Puerto Vallarta, Mexico

See IB 81 p. 5

### **IAU Symposium 194 Activity in Galaxies and Related Phenomena**

17 - 21 August, 1998, Yerevan, Armenia

See IB 81 p. 6

## **4.3 Future IAU Colloquia**



(No changes since the announcements in IB 81 pp. 7-8).

### **IAU Colloquium 171 The Low Surface Brightness Universe**

6 - 10 July, 1998, Cardiff, U.K.

See IB 81 p. 7

### **IAU Colloquium 172 The Impact of Modern Dynamics in Astronomy**

6 - 11 July, 1998, Namur, Belgium

See IB 81 p. 8

### **IAU Colloquium 173 Evolution and Source Regions of Asteroids and Comets**

24 - 28 August, 1998, Tatranská Lomnica, Slovak Republic

See IB 81 p. 8

## **4.4 Regional Meeting**

### **IXth Latin American Regional Meeting in Astronomy**

November 9-13, 1998, Tonantzintla, Puebla, Mexico (see also IB 81, p. 9).

*Contact address:* Dr. A. Carramiñana, INAOE, Luis Enrique Erro 1, Tonantzintla, Puebla 72480, Mexico

*Tel:* 1 52 22 47 2011\*1324 *Fax:* 1 52 22 47 2231

*E-mail:* [latino98@ianoep.mx](mailto:latino98@ianoep.mx)

*WWW:* <http://www.ianoep.mx/~latino98/>

## **4.5 Co-sponsored Meeting**

### **32nd COSPAR Scientific Assembly**

July 12 - 19, 1998, Nagoya, Japan (see IB 81, p. 9)

# **5. NEWS FROM DIVISIONS**

Following the establishment of the new IAU Web home page, all Divisions except Divisions IV (Stars) and VII (Galactic System) have now set up Divisional Web pages. These are linked to the IAU home page and provide further links to the Commission Web pages when available.

## 5.1 News from Division Presidents

**Division I: Fundamental Astronomy (Ken Seidelmann)** Current information about the Commissions and meetings being sponsored by Commissions can be found on the Commission home pages. These can be reached directly, or through the IAU site or the Division home page (<http://aries.usno.navy.mil/ad/iau.html>).

Commissions 8 and 24 plan to merge into one Commission 8, Astrometry, at the IAU General Assembly in 2000. A single Vice-President has been elected for the two current commissions.

The Organizing Committee of the Division is composed of the Commission Presidents and the former President of the Division.

Discussions have begun on the possible establishment of an International VLBI Service to coordinate observations and analysis of VLBI observations. The goal of the service would be to provide improvements to the ICRF as well as Earth orientation observations.

Images at both S and X band have now been obtained for approximately 90% of the ICRF sources. They are available at <http://maia.usno.navy.mil/rorf/rrfid.html>.

### Division II : The Sun & Heliosphere (Peter Foukal)

A Division Web page has been set up at <http://www.iau.org/div2/index.html>.

### Division VI: Interstellar matter (Michael Dopita)

During the restructuring of the IAU into a Divisional structure, the old Commission n. 34 which covers "Interstellar Matter" became a Division in its own right, and its membership is now some 730.

To provide fast and timely routes of communication, a strong effort is being made to move all communications and announcements onto the Internet. The home page of Division VI is to be found on: <http://msowww.anu.edu.au/~mad/IAUComm34.html> which also contains links to the various working groups, and to the electronic version of the list of members.

To provide a better service to the community, Division VI is also seeking information on any proposed conferences, workshops or meetings which are broadly in its area of speciality, and will provide links to the home pages of such conferences. In addition, the Division would like to provide links to bodies of data available on the web which would be helpful to its members.

Finally, to assist in the preparation of proposals for IAU Symposia, Colloquia and Joint Discussions, to coordinate the work of the Division with other parts of the IAU, and to provide a forum for discussion, we have been extending the Working Group structure within the Division. Currently we have a Working Group on Planetary Nebulae, an Astrochemistry Working Group, and a (newly-constituted) Working Group on Star Forming Regions. In order to fully cover the work of the Division, we are also hoping to form a Working Group on the Hot and Extragalactic ISM, and those who are interested on serving on such a Working Group are asked to contact the President of the Division by e-mail at: [michael.dopita@anu.edu.au](mailto:michael.dopita@anu.edu.au).

### **Division IX : Optical Techniques (Chris Sterken)**

The Division's Web page can be found at <http://www.vub.ac.be/STER/IAU/IAUDivIX.html>. The page provides links to the participating Commissions, Comm. 9 (Instruments), Comm. 25 (Photometry and Polarimetry) and Comm. 30 (Radial Velocities). These links, in turn, give access to useful information on Newsletters, standard stars, data catalogues, etc.

Division IX provides a forum for astronomers engaged in the innovation, development, and calibration of optical instrumentation as well as of observational procedures, including data processing. With the fast technological changes, the Division structure should also involve, and thought should be given to the possible creation of Working Groups inside this Division (and linked to other Divisions) which will, for example, deal with topics like Telescope Technology, Adaptive Optics, Interferometry, Detectors, Data reduction, Data Archiving, Calibration, even Observatory and Site Management.

We are looking into the possibilities to set up a number of such Working Groups, and we welcome any contributions and ideas from Members of Division IX (and other Divisions).

### **Division X : Radio Astronomy (Jim Moran)**

The postal and e-mail addresses of Commission members have been updated. Members are encouraged to check their addresses on the IAU website and send corrections or additions to the Commission 40 President ([moran@cfa.harvard.edu](mailto:moran@cfa.harvard.edu)). Members who are considering sponsoring colloquia or symposia should contact the President during the early stages of their planning in order to avoid conflicts with other meetings.

## **6. COMMISSION MATTERS**

Over the last few months, several more Commissions have established Web pages, linked to the IAU page. At the time of writing, the following Commissions are still missing from the list: Comm. 10 (Solar activity), 12 (Solar radiation and structure), 16 (Physical Study of planets and satellites), 20 (Position and motion of minor planets, comets and satellites), 29 (Stellar spectra), 31 (Time), 33 (Structure and dynamics of the Galactic system), 35 (Stellar constitution), 36 (Stellar atmospheres), 37 (Star clusters and associations), 49 (The interplanetary plasma and the

heliosphere), 50 (Protection of existing and potential observatory sites, and 51 (Bioastronomy: The search for life in the Universe). We urge these Commissions to establish Web connections as soon as possible; if desired, such pages can be hosted at the IAU Web site (contact the General Secretary).

Other news from Commissions:

### **6.1 Commission 6**

Annual Report for 1997 from the Central Bureau for Astronomical Telegrams.

273 Circulars were issued in 1997, six more than in 1991, and making a new record. Just as had been anticipated, comet C/1995 O1 (Hale-Bopp) put on a splendid show for northern-hemisphere observers, continuously at first magnitude and brighter from mid-February until early May. With its prominent dust tail generally estimated as attaining a length of 15-20 degrees in the evening sky, it was perhaps seen by more people than any previous comet, and amateur and professional astronomers obtained what must be a record number of color images of any comet. Some 57 of the year's Circulars contained items on this comet. Among the more intriguing discoveries was the appearance of a narrow tail of neutral sodium in the general direction of the gas tail, the favorable geometry allowing these tails to be well separated from the dust tail when the comet was at its best. In the southern hemisphere, the comet was still being reported as being seen with the naked eye in November.

Contributing more to the record number of Circulars, however, was the appearance of a record number of 140 extragalactic supernovae. Although three of these attained magnitude 14 or brighter, the median magnitude was 21, and several were as faint as magnitude 24.

Observations of gamma-ray bursts also "came of age", with 109 Circulars containing items on as many as ten new such events recorded during the year (and continuing coverage of the July 1996 event). In several cases optical counterparts were found, and in some cases detections at radio wavelengths were also reported.

The number of reports of comets during the year was significantly boosted by the recognition of as many as 36 comets in data (in several cases from 1996) obtained with the LASCO white-light coronagraphs aboard the Solar and Heliospheric Observatory (SOHO) spacecraft. None of these objects was observed from the ground, and all but two of them seem to have been members of the Kreutz sungrazing group that did not survive perihelion passage.

Two distant satellites of Uranus were discovered, the first "irregular" satellites known to orbit that planet, but showing now that all four giant planets are accompanied by both irregular and regular satellites and at least segments of rings.

A significant event for the Central Bureau was the decision, timed to coincide with the meeting of IAU Commission 6 in Kyoto on August 23, to make the Circulars freely available in the World Wide Web. The Circulars are posted there after some delay, ranging from 1 to 72 hours. This is being done both as a genuine service to the international astronomical community, but also to put an end to the illicit electronic postings of the Circulars that have gone on for several years anyway.

Nevertheless, there is bound to be some impact on the Bureau's finances (which are partly balanced by the Minor Planet Center), and the full impact of this is not yet clear. Although subscribers have the advantage that they can receive the Circulars passively by e-mail and with no

delay, one obvious effect of the free WWW availability has been that their number peaked, at around 600 in mid-year, dropping to 584 in December. The number of subscribers to the printed version of the Circulars continued its steady decline, from 411 in January to 370 in December.

Most of the year's IAU Circulars were prepared by Bureau Associate Director Daniel W.E. Green. The remainder were generally by the undersigned, with a few by summer student Timothy B. Spahr. Responsibility for the administrative work of the Bureau has been shared by Donna Thompson and Muazzez Lohmiller. Gareth Williams has again very effectively maintained the Bureau's presence on the World Wide Web (at URL <http://cfa-www.harvard.edu/iau/cbat.html>). He, Spahr and student Jen Owens also put some effort into computer-scanning and preparing pre-1982 Circulars for inclusion there.

Brian G. Marsden

Director of the Bureau

## 6.2 Commission 20

Annual Report for 1997 from the Minor Planet Center.

Although the number of pages of Minor Planet Circulars (MPCs) issued, 2408, was very slightly less than in 1996, the comparison is misleading, because a significant change made in October meant the transfer of essentially all of the observations to the Minor Planet Circulars Supplement (MPSs), of which 264 pages had been issued by the end of the year. The observational material in the MPCs themselves consists now of detailed summaries of the objects observed at each observatory, so it is still possible to measure the relative contributions of each observing program. In contrast, the MPSs, simply a long listing (in small print) of the observations, ordered by object and date, make for rather dull reading. A record 758 minor planets were given permanent numbers in 1997, a 23% increase over 1996.

A total of 301 Minor Planet Electronic Circulars (MPECs) were issued during the year, 29 during the first half of November alone. The *raison d'être* of the MPECs has been to provide up-to-date information about unusual objects. In an effort also to provide information about main-belt objects on a timescale more rapid than the monthly cycle of the MPCs, a procedure was developed for the automatic nightly preparation of a special MPEC containing all the identifications made and orbits computed during the preceding 24 hours. Although the format of the MPECs has meant that these orbits are given to somewhat reduced precision, the precision in these "Daily Orbit Update" MPECs is quite sufficient to yield adequate ephemerides. If greater precision is required, it can be obtained from files contained in the Minor Planet Center's pages in the World Wide Web. There will be no "Daily Orbit Update" MPEC for some days around full moon each month while the MPCs themselves are being prepared and the files of orbits and observations are being updated.

Other new features in the WWW pages include OBSPLANNER, which allows a registered user to enquire about main-belt objects that could usefully be observed. These objects, randomly selected from a rather large supply, are then "reserved" for that user, who undertakes to make observations of them. If no observations are reported within a week, objects are returned to the pool for further random selection. The WWW also routinely contains orbital elements and ephemerides for observable comets and unusual minor planets. Like the IAU Circulars, the MPECs are also freely

available there, although one can subscribe to have them delivered by e-mail and to use certain other features in the Computer Service.

The number of subscriptions to the printed MPCs has remained at 210-220. A new edition of the Catalogue of Cometary Orbits was issued more than 18 months after its predecessor, and it is not expected that there will be another one until 1999. Although there has been some income from these publications, the fact that the decreasing number of subscribers to the printed IAU Circulars is no longer compensated by an increasing number of subscribers to the Computer Service and e-mail delivery is resulting in a shortfall. In the mean time, as is clear from the first paragraph above, the work of the Minor Planet Center increases in terms of the volume of observations received and orbits computed. The Minor Planet Center therefore very much appreciates a grant received from the U.S. National Aeronautics and Space Administration in 1997 to pay the salary of Associate Director Gareth V. Williams.

It is Williams who has in fact been principally responsible for the processing of observations and the computation of orbits of minor planets. He also produced most of the MPECs, maintained the WWW pages and largely prepared the MPCs. The undersigned shared in the MPC preparation and attended to cometary data. The low-level observing program with the 1.2-m reflector at the Smithsonian Astrophysical Observatory's (SAO's) station in Arizona continued, with Carl W. Hergenrother as observer. This is one of the few telescopes in the world in regular use for astrometry of minor planets and comets down to magnitude 23, and it is proving particularly useful for recoveries of near-earth objects, as well as for follow-up of Kuiper Belt candidates.

Syuichi Nakano was again "Liaison in Japan", carefully organizing the data obtained by several dozen Japanese amateur astronomers. Timothy B. Spahr and Jen Owens were summer students. Donna Thompson and Muazzez Lohmiller were responsible for the accounts, and Billy Duggan oversaw the production of the MPCs in the SAO's print shop.

Brian G. Marsden

Director, Minor Planet Center

### **6.3 Commission 47**

Unfortunately, the Vice-President of Commission 47 was incorrectly identified in the list given in IB 81, p. 21. The correct name and address are given below, as well as at the Web page. We apologise to all concerned.

Dr John Peacock  
Royal Observatory  
Blackford Hill  
Edinburgh EH9 3HJ  
UK  
*Tel:* 44 131 650 5230  
*Fax:* +44 131 650 5212  
*E-mail:* [J.Peacock@roe.ac.uk](mailto:J.Peacock@roe.ac.uk)

## 7. EXECUTIVE COMMITTEE

### 71st Meeting of the Executive Committee

The 71st meeting of the EC will take place on July 2-3, 1998, at Observatoire de Paris, France, at the invitation of Vice-President C. Césarsky. Major items on the Agenda will include the selection of IAU sponsored meetings in 1999.

## 8. EDUCATIONAL ACTIVITIES

The primary IAU educational activities are the Exchange of Astronomers programme operated by Commission 38 (see below), and the International Schools for Young Astronomers (IASYA) and the Teaching for Astronomy Development (TAD) programmes organised by Commission 46. Partial funding for these activities from ICSU, UNESCO, and other sources is received through ICSU and gratefully acknowledged.

### 8.1. Commission 38: Exchange of Astronomers

Within the budget of the Commission as approved by the Executive Committee, funds are available to Commission 38 toward grants to qualified individuals to enable them to visit institutions abroad. It is intended, in particular, that the visitors should have ample time and opportunity to interact with the intellectual life of the host institution so that maximum benefit is derived by both sides. It is also a specific objective of the programme that astronomy in the home country be enriched after the applicant returns.

Detailed guidelines for these grants and the application procedures to be followed were published 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:

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

### 8.2. Commission 46: Teaching of Astronomy

#### 8.2.1. The IAU/UNESCO International Schools for Young Astronomers (ISYA)

A report on the 23rd ISYA was published in IB 81, pp. 39-40. An ISYA in connection with the 1999 solar eclipse in Romania is under consideration.

### 8.2.2. Teaching for Astronomy Development (TAD)

The TAD programme provides flexible support of a longer-term nature to the development of astronomy education in selected countries. TAD activities in 1997 in Vietnam (see IB 81, pp. 40-41) and Honduras are continuing through 1998. Its possible extension to a North African country is under study.

## 9. RELATIONS TO OTHER ORGANIZATIONS

### ICSU (International Council of Scientific Unions)

On April 25, ICSU held an Extraordinary General Assembly at the Austrian Academy of Sciences in Vienna. The substantial agenda item was an extensive revision of *ICSU's Statutes and Rules of Procedure*, with the purpose of making ICSU a faster-reacting, more proactive body in the promotion and coordination of international, interdisciplinary research and its application to societal problems in the 21<sup>st</sup> century. These changes were made in response to an in-depth international Assessment of ICSU, carried out in 1995-1996, which pointed the way towards a more proactive and effective role of ICSU in a future world of rapid change.

To reflect more accurately the present and future roles of ICSU, its name was changed to *The International Council for Science* (but the acronym preserved). Among structural changes, the 50+-strong General Committee was abolished, the Vice Presidents were assigned specific tasks related to scientific planning and external relations, the Executive Board was enlarged by two members, and the office of President-Elect was reintroduced, the President-Elect to succeed the Past President on the Executive Board midway between General Assemblies. Finally, the ICSU Grants Programme will be changed to provide mostly larger grants to joint proposals between two or more ICSU bodies, awarded competitively in response to specific applications and given for a limited time to start up new initiatives and attract additional external funding.

The next Ordinary ICSU General Assembly will be held in Cairo, Egypt, in September 1999.

A key ICSU activity over the next year will be the organisation of the joint UNESCO/ICSU World Science Conference in Budapest, Hungary, in late June 1999. The IAU is contributing actively to the definition of the scientific programme of this major event. More details in IB 83 (January 1999).

## 10. PUBLICATIONS



The Proceedings of IAU General Assemblies and Symposia are published as a series by the IAU Publisher, *i.e.* by Kluwer Academic Publishers for all meetings through 1997, and the Astronomical Society of the Pacific for all meetings after January 1, 1998. The choice of publisher for IAU Colloquia, Regional Meetings, and Co-Sponsored Meetings is left to the discretion of the organisers.

Previous IAU meetings and their proceedings are listed on the IAU Web page under *Scientific Meetings* and *IAU Publications*, based on the best information available to us at any time. Please report any errors or omissions to the Secretariat.

Since IB 82 the following publications have been received in Paris:

### **Symposium Series**

#### **179 New Horizons from Multi-Wavelength Sky Surveys**

Baltimore, MD, USA, August 26 - 30, 1996

Eds. B.J. McLean, D.A. Golombek, J.E. Hayes & H.E. Payne

Kluwer Academic Publishers, ISBN 0-7923-4803-6, 1998

#### **180 Planetary Nebulae**

Groningen, The Netherlands, August 26 - 30, 1996

Eds. H.J. Habing & H.J.G.L.M. Lamers

Kluwer Academic Publishers, ISBN 0-7923-4893-1, 1998

## **11. MEMBERSHIP**

At closer examination, the number of individual members given in IB 81 was too large, as a number of deceased Members had not been assigned correctly. After extensive checking, the table below lists the current status as of the date of writing.

### **Membership Statistics May 15, 1998**

<b>Adhering or Associate</b>	<b>No. of</b>	<b>% of</b>	<b>Women</b>	<b>Men</b>
<b>Member Country</b>	<b>Members</b>	<b>Total</b>	<b>%</b>	<b>%</b>
USA	2235	26.8	8.9	91.1
France	609	7.3	26.8	73.2
UK	535	6.4	9.2	90.8
Germany	488	5.9	5.7	94.3
Japan	448	5.4	2.5	97.5
Italy	409	4.9	17.8	82.2
China (Nanjing)	368	4.4	10.6	89.4
Russia	344	4.1	18.6	81.4
India	227	2.7	4.0	96.0
Spain	204	2.4	16.2	83.8
Canada	199	2.4	6.0	94.0
Australia	191	2.3	7.9	92.1
Netherlands	167	2.0	6.0	94.1
Ukraine	119	1.4	16.8	83.2
Poland	117	1.4	12.8	87.2
Brazil	109	1.3	16.5	83.5
Sweden	95	1.1	4.2	95.8
Argentina	90	1.1	33.3	66.7
Greece	89	1.1	12.4	87.6
Belgium	88	1.1	12.5	87.5
Mexico	83	1.0	20.5	79.5
Czech Republic	71	0.9	7.0	93.0

Switzerland	70	0.8	0.0	100.0
Turkey	53	0.6	11.3	88.7
Denmark	52	0.6	7.7	92.3
Korea RP	51	0.6	5.9	94.1
Bulgaria	50	0.6	30.0	70.0
Chile	46	0.6	8.7	91.3
South Africa	46	0.6	4.3	95.7
Israel	45	0.5	2.2	97.8
Hungary	41	0.5	14.6	85.4
Egypt	39	0.5	7.7	92.3
Finland	37	0.4	8.1	91.9
Rumania	37	0.4	35.1	64.9
Ireland	33	0.4	12.1	87.9

<b>Adhering or Associate</b>	<b>No. of</b>	<b>% of</b>	<b>Women</b>	<b>Men</b>
<b>Member Country</b>	<b>Members</b>	<b>Total</b>	<b>%</b>	<b>%</b>
Armenia	31	0.4	6.5	93.5
Austria	31	0.4	6.5	93.5
Slovak Republic	27	0.3	18.5	81.5
New Zealand	26	0.3	7.7	92.3
China (Taipei)	23	0.3	4.3	95.7
Estonia	22	0.3	13.6	86.4

Norway	22	0.3	4.5	95.5
Georgia	19	0.2	31.6	68.4
Portugal	17	0.2	11.8	88.2
Iran	15	0.2	0.0	100.0
Croatia	13	0.2	7.7	92.3
Indonesia	12	0.1	0.0	100.0
Lithuania	11	0.1	27.3	72.7
Saudi Arabia	11	0.1	9.1	90.9
Venezuela	9	0.1	11.1	88.9
Azerbaijan	8	0.1	0.0	100.0
Latvia	8	0.1	25.0	75.0
Tajikistan	7	0.1	0.0	100.0
Malaysia	6	0.1	16.7	83.3
Uruguay	5	0.1	20.0	80.0
Vatican City State	5	0.1	0.0	100.0
Iceland	4	0.0	0.0	100.0
Algeria	3	0.0	0.0	100.0
CAAA *	2	0.0	50.0	50.0
Peru	1	0.0	100.0	0.0
Bolivia	0	0.0	0.0	0.0
<b>Total in Member Countries</b>	<b>8223</b>	<b>98.7</b>	<b>11.4</b>	<b>88.6</b>

\* CAAA includes: Costa Rica, El Salvador, Guatemala, Honduras,

## Nicaragua &amp; Panama

<b>Other Countries</b>	<b>No. of</b>	<b>% of</b>	<b>Women</b>	<b>Men</b>
	<b>Members</b>	<b>Total</b>	<b>%</b>	<b>%</b>
Yugoslavia FR	25	0.3	16.0	84.0
Korea DPR	20	0.2	0.0	100.0
Kazakhstan	9	0.1	11.1	88.9
Iraq	8	0.1	0.0	100.0
Uzbekistan	8	0.1	12.5	87.5
Cuba	5	0.1	0.0	100.0
Slovenia	5	0.1	0.0	100.0
Nigeria	4	0.0	0.0	100.0
Columbia	3	0.0	0.0	100.0
Thailand	3	0.0	0.0	100.0
Morocco	2	0.0	0.0	100.0
Singapore	2	0.0	0.0	100.0
Sri Lanka	2	0.0	0.0	100.0
Vietnam	2	0.0	0.0	100.0
Albania	1	0.0	100.0	0.0
Lebanon	1	0.0	0.0	100.0
Mauritius	1	0.0	0.0	100.0
Pakistan	1	0.0	0.0	100.0

Paraguay	1	0.0	0.0	100.0
Philippines	1	0.0	0.0	100.0
State of Bahrain	1	0.0	0.0	100.0
<b>Total in other Countries</b>	<b>105</b>	<b>1.3</b>	<b>6.7</b>	<b>93.3</b>
<b>All IAU Members</b>	<b>8328</b>	<b>100.0</b>	<b>11.3</b>	<b>88.7</b>

## 12. OTHER SCIENTIFIC MEETINGS OF INTEREST TO MEMBERS

### Protostars and Planets IV

July 5 - 10, 1998, Santa Barbara, CA, USA, listed in IB 80 p. 51 (*note: error in IB 81!*).

### Nuclei in the Cosmos V

July 6 - 11, 1998, Volos, Greece, listed in IB 81 p. 49

### 32nd COSPAR Scientific Assembly

July 12 - 19, 1998, Nagoya, Japan, listed in IB 81 p. 49

### Annapolis Workshop on Magnetic Cataclysmic Variables

July 13 - 17, 1998, Annapolis MD, USA

Contact address: Koji Mukai, NASA/Goddard Space Flight Center, Greenbelt, MD 20771, USA

Tel: 1 301 286 9447 Fax: 1 301 286 1684

E-mail: [mcv2@milkyway.gsfc.nasa.gov](mailto:mcv2@milkyway.gsfc.nasa.gov)

WWW: <http://heawww.gsfc.nasa.gov/~mcv2>

### First Science and Commissioning Workshop for the Green Bank Telescope

July 27 - 29, 1998, Green Bank WV, USA

Contact address: J.J. Condon, NRAO, 520 Edgemont Road, Charlottesville, VA 22903, USA

Tel: 1 804 296 0322 Fax: 1 804 296 0278

*E-mail:* [jcondon@nrao.edu](mailto:jcondon@nrao.edu)

*WWW:* <http://www.gb.nrao.edu/~gbtworks>

### **Chapman Conference on Magnetic Helicity in Space and Laboratory Plasmas**

July 28 - 31, 1998, Boulder, CO, USA, listed in IB 81 p. 49

### **Evolution of Large-Scale Structure: From Recombination to Garching**

August 2 - 6, 1998, Garching bei München, Germany

*Contact address:* Tony Banday, MPI für Astrophysik, P.O. Box 1523, D 85740 Garching bei München, Germany

*Tel:* 49 89 3299 00 *Fax:* 49 89 3299 3235

*E-mail:* [cosmo@mpa-garching.mpg.de](mailto:cosmo@mpa-garching.mpg.de)

*WWW:* <http://www.mpa-garching.mpg.de/~cosmo>

### **Ultraviolet-Optical Space Astronomy Beyond HST**

August 5 - 7, 1998, Boulder, CO, USA

*Contact address:* CASA, Univ. of Colorado, Campus Box 389, Boulder, CO, 80309, USA

*Tel:* 1 303 492 4050 *Fax:* 1 303 492 7178

*E-mail:* [uvconf@casa.colorado.edu](mailto:uvconf@casa.colorado.edu)

*WWW:* <http://www.casa.colorado.edu/~uvconf/>

### **Galaxy Dynamics**

August 8 - 12, 1998, New Brunswick, NJ, USA, listed in IB 81 p. 49

**Astrophysics with the NOT** August 12 - 15, 1998, Turku, Finland  
*Contact address:* V. Piirola, Tuorla Observatory, FIN-21500 Piikkiö, Finland  
*Tel:* 358 2 2744 274 *Fax:* 358 2 2433 767

*E-mail:* [piirola@astro.utu.fi](mailto:piirola@astro.utu.fi)

WWW: <http://astro.utu.fi/>

### **High Velocity Clouds Workshop**

August 14 - 15, 1998, Canberra, Australia, listed in IB 81 p. 49

### **Meteoroids 1998**

August 16 - 22, 1998, Tatranská Lomnica, Slovak Republic, listed in IB 81 p. 50

### **The Galactic Halo: Bright Stars & Dark Matter**

August 17 - 21, 1998, Canberra, Australia, listed in IB 81 p. 50

*Contact address:* Brad K. Gibson, Mount Stromlo & Siding Spring Observatories, Private Bag, Weston Creek PO, Canberra, ACT 2611, Australia

*Tel:* 61 26 279 8037 *Fax:* 61 26 249 0233

*E-mail:* [tss@mso.anu.edu.au](mailto:tss@mso.anu.edu.au)

WWW: <http://msowww.anu.edu.au/~tss/>

### **New Perspectives on the Interstellar Medium**

August 22 - 28, 1998, Naramata BC, Canada

*Contact address:* Lloyd Higgs, DRAO, Box 248, Penticton, BC V2A 6K3, Canada

*Tel:* 1 250 493 2277 *Fax:* 1 250 493 7767

*E-mail:* [Lloyd.Higgs@hia.nrc.ca](mailto:Lloyd.Higgs@hia.nrc.ca)

WWW: <http://www.drao.nrc.ca/web/naramata.workshop.html>

### **Variable Stars as Important Astrophysical Tools**

August 31 - September 11, 1998, Izmir, Turkey

*Contact address:* Cafer Ibanoglu, Ege Univ. Observatory, Bornova, P.O. Box 21, 35100 Izmir, Turkey

*Tel:* 90 232 388 4000 or 2321 *Fax:* 90 232 388 1036

*E-mail:* [ibanoglu@astronomy.sci.ege.edu.tr](mailto:ibanoglu@astronomy.sci.ege.edu.tr)



WWW: <http://astronomy.sci.ege.edu.tr/~asi1351/>

### **The Central Parsecs - Galactic Center Workshop 1998**

September 7 - 11, 1998, Tucson AZ, USA

*Contact address:* Heino Falcke, MPIfR Bonn, Auf dem Hügel 69, D 53121 Bonn, Germany

*Tel:* 49 228 525 217 *Fax:* 49 228 525 229

*E-mail:* [hfalcke@mpifr-bonn.mpg.de](mailto:hfalcke@mpifr-bonn.mpg.de)

WWW: <http://www.mpifr-bonn.mpg.de/gc98>

### **2nd International Workshop on the Identification of Dark Matter**

September 7 - 11, 1998, Buxton, UK

*Contact address:* J.W. Roberts, Dept. of Physics, Univ. of Sheffield, Sheffield S3 7RH, UK

*Tel:* 44 114 222 3566 *Fax:* 44 114 272 8079

*E-mail:* [j.w.roberts@sheffield.ac.uk](mailto:j.w.roberts@sheffield.ac.uk)

WWW: <http://www.shef.ac.uk/~phys/idm98.html>

### **Joint European and National Astronomy Meeting**

September 9 - 12, 1998, Prague, Czech Republic

*Contact address:* Zuzana Dienstbierová, Astron. Inst., Bocní II 1401, 141 31 Praha 4, Czech Republic

*Tel:* 420 2 6710 3038 *Fax:* 420 2 769 023

*E-mail:* [zuzana@ig.cas.cz](mailto:zuzana@ig.cas.cz)

WWW: <http://sunkl.asu.cas.cz/jenam98/>

### **Astronomy with Adaptive Optics - Present Results and Future Programs**

September 11 - 17, 1998, Garching bei München, Germany, listed in IB 81 p. 50

**Harmonizing Cosmic Distance Scales in a Post-Hipparcos Era**

September 14 - 16, 1998, Strasbourg, France, listed in IB 81 p. 50

**The Extreme Universe**

September 14 - 18, 1998, Taormina, Italy, listed in IB 81 p. 50

**Remote Sensing Methodology for Earth Observation and Planetary Exploration**

September 15 - 18, 1998, Noordwijk, The Netherlands

*Contact address:* ESTEC Conference Bureau, Postbus 299, 2200 AG Noordwijk, The Netherlands

*Tel:* 31 71 565 5005 *Fax:* 31 71 565 5658

*E-mail:* [eslab32@estec.esa.nl](mailto:eslab32@estec.esa.nl)

*WWW:* <http://www.estec.esa.nl/CONFANNOUN/98a01>

**New Views of the Moon: Integrated Remotely Sensed, Geophysical, and Sample Datasets**

September 18 - 20, 1998, Houston TX, USA

*Contact address:* Brad Jolliff, Campus Box 1169, Washington University, One Brookings Drive, St. Louis, MO 63130, USA

*Tel:* 1 314 935 5622 *Fax:* 1 314 935 7361

*E-mail:* [blj@levee.wustl.edu](mailto:blj@levee.wustl.edu)

*WWW:* <http://cass.jsc.nasa.gov/meetings/moon98/>

**Ultraluminous Galaxies: Monsters or Babies**

September 20 - 26, 1998, Schloss Ringberg, Germany

*Contact address:* Linda Tacconi or Dieter Lutz, MPE, Postfach 1603, D 85740 Garching bei München, Germany

*Tel:* 49 89 3299 3873 or 3614 *Fax:* 49 89 3299 3569

*E-mail:* [ulirg@hpgenzel.mpe-garching.mpg.de](mailto:ulirg@hpgenzel.mpe-garching.mpg.de)

WWW: [http://www.mpe-garching.mpg.de/www\\_ir/ulirg98.html](http://www.mpe-garching.mpg.de/www_ir/ulirg98.html)

### **III Scientific Meeting of the Spanish Astronomical Society (SEA)**

September 21 - 24, 1998, La Laguna, Tenerife, Spain

*Contact Address:* J.M. Rodriguez-Espinosa, Instituto de Astrofisica de Canarias, E-38200 La Laguna, Tenerife, Spain

*Tel:* 34 22 605241 *Fax:* 34 22 605210

*E-mail:* [jre@iac.es](mailto:jre@iac.es)

WWW: <http://www.iac.es/proyect/sea/principal.html>

### **Galaxy Evolution: Connecting the Distant Universe to the Local Fossil Record**

September 21 - 25, 1998, Meudon, France, listed in IB 81 p. 50

### **HI in the Local Universe II**

September 28 - 30, 1998, Melbourne, Australia

*Contact address:* Rachel Webster, School of Physics, Univ. of Melbourne, Parkville VIC 3052, Australia

*Tel:* 61 3 9344 5454 *Fax:* 61 3 9347 4783

*E-mail:* [hiconf@physics.unimelb.edu.au](mailto:hiconf@physics.unimelb.edu.au)

WWW: <http://astro.ph.unimelb.edu.au/hiconf/>

### **3rd Cologne-Zermatt Symposium: The Physics and Chemistry of the Interstellar Medium**

September 22 - 25, 1998, Zermatt, Switzerland, listed in IB 81 p. 51

*Contact address:* ESTEC Conference Bureau, Postbus 299, 2200 AG Noordwijk, The Netherlands

*Tel:* 31 71 565 5005 *Fax:* 31 71 565 5658

*E-mail:* [confburo@estec.esa.nl](mailto:confburo@estec.esa.nl)

WWW: [http://astro.estec.esa.nl/XMM/news/ws1\\_top.html](http://astro.estec.esa.nl/XMM/news/ws1_top.html)

**1st X-Ray Multi-Mirror Mission Workshop**

September 28 - October 2, 1998, Noordwijk, The Netherlands

**Solar Wind 9**

October 5 - 9, 1998, Nantucket MA, USA

*Contact address:* Christine Halas, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, MS-15, Cambridge, MA 02138, USA

*Tel:* 1 617 496 7573 *Fax:* 1 617 495 7049

*E-mail:* [chalas@cfa.harvard.edu](mailto:chalas@cfa.harvard.edu)

*WWW:* <http://cfa-www.harvard.edu/sw9/>

**Chemical Evolution from Zero to High Redshift**

October 14 - 16, 1998, Garching bei München, Germany

*Contact address:* Gertrud Contardo, ESO, Karl-Schwarzschild-Str. 2, D 85748 Garching bei München, Germany

*Tel:* 49 89 32006 225 *Fax:* 49 89 32006 480

*E-mail:* [gcontard@eso.org](mailto:gcontard@eso.org)

*WWW:* <http://www.eso.org/gen-fac/meetings/>

**Chapman Conference on Space-Based Radio Observations at Long Wavelengths**

October 19 - 23, 1998, Paris, France

*Contact address:* Robert G. Stone, NASA/Goddard Space Flight Center, Greenbelt, MD 20071, USA

*Tel:* 1 301 286 8631 *Fax:* 1 301 286 1683

*E-mail:* [stone@urap.gsfc.nasa.gov](mailto:stone@urap.gsfc.nasa.gov)

*WWW:* <http://www.agu.org/meetings/cc98fcall.html>

**The Universe as Seen by ISO**

October 20 - 23, 1998, Paris, France

*Contact address:* P. Cox, IAS, Bt 121, Univ. Paris XI, F 91405 Orsay Cdx, France

*Tel:* 33 1 69 85 8737 *Fax:* 33 1 69 85 8675

*E-mail:* [cox@iaslab.ias.fr](mailto:cox@iaslab.ias.fr)

*WWW:* [http://isowww.estec.esa.nl/meetings/Paris\\_98.html](http://isowww.estec.esa.nl/meetings/Paris_98.html)

**3rd International Conference on Oriental Astronomy**

October 27 - 30, 1998, Fukuoka, Japan

*Contact address:* Masanori Hirai, Fukuoka University of Education, Akama 729-1, Munakata, Fukuoka 811-4192, Japan

*Tel:* 81 940 35 1375 *Fax:* 81 940 33 7730

*E-mail:* [ICOA@fukuoka-edu.ac.jp](mailto:ICOA@fukuoka-edu.ac.jp)

*WWW:* <http://www.fukuoka-edu.ac.jp/meeting/ICOA.html>

**Eighth Annual Conference on Astronomical Data Analysis Software and Systems (ADASS'98)**

November 1 - 4, 1998, Urbana IL, USA

*Contact address:* Richard Crutcher, Astronomy Dept., Univ. of Illinois, 1002 W. Green St., Urbana, IL 61801, USA

*Tel:* 217 333 3090 *Fax:* 1 217 244 7638

*E-mail:* [crutcher@astro.uiuc.edu](mailto:crutcher@astro.uiuc.edu)

*WWW:* <http://www.ncsa.uiuc.edu/ADASS98>

**Gamma-Ray Burst in the Afterglow Era**

November 3 - 6, 1998, Rome, Italy

*Contact address:* M Feroci, Istituto di Astrofisica Spaziale, Via Fosso del Cavaliere, I 00133 Roma, Italy

*Tel:* 39 6 4993 4099 *Fax:* 39 6 2066 0188

*E-mail:* [feroci@saturn.ias.rm.cnr.it](mailto:feroci@saturn.ias.rm.cnr.it)

*WWW:* <http://www.tesre.bo.cnr.it/rome98/>

### **ESO Workshop on Minor Bodies of the Outer Solar System**

November 9 - 12, 1998, Garching bei München, Germany

*Contact address:* Richard West, ESO, Karl-Schwarzschild-Str. 2, D 85748 Garching bei München, Germany

*Tel:* 49 89 32006 276 *Fax:* 49 89 320 2362

*E-mail:* [rwest@eso.org](mailto:rwest@eso.org)

*WWW:* <http://www.eso.org/mboss98>

### **The Evolution of Galaxies on Cosmological Time Scales**

November 30 - December 5, 1998, Puerto de la Cruz, Tenerife, Spain

*Contact address:* John Beckman, Instituto de Astrofisica de Canarias, Via Lactea s/n, E 38200 Tenerife, Spain

*Tel:* 34 22 605 263 or 261 *Fax:* 34 22 605 210

*E-mail:* [evogal@ll.iac.es](mailto:evogal@ll.iac.es)

*WWW:* <http://www.iac.es/MEETINGS/evogal.html>

### **Second European Symposium on the Utilisation of the International Space Station**

November 16 - 18, 1998, Noordwijk, The Netherlands

*Contact address:* ESTEC Conference Bureau, Postbus 299, 2200 AG Noordwijk, The Netherlands

*Tel:* 31 71 565 5005 *Fax:* 31 71 565 5658

*E-mail:* [confburo@estec.esa.nl](mailto:confburo@estec.esa.nl)

*WWW:* <http://www.estec.esa.nl/CONFANNOUN/98a02>

**Origin of the Earth and Moon**

December 1 - 3, 1998, Monterey, California, USA, listed in IB 81 p. 51

**International Symposium on Solid State Detectors for the 21st Century**

December 4 - 6, 1998, Nara, Japan

*Contact address:* Hiroshi Tsunemi, Dept. of Earth and Space Science, Graduate School of Science, Osaka Univ. 1-1, Machikaneyama-cho, Toyonaka, Osaka 560 0043, Japan

*Tel:* 81 6 850 5477 *Fax:* 81 6 850 5539

*E-mail:* [ssd\\_sympo@ess.sci.osaka-u.ac.jp](mailto:ssd_sympo@ess.sci.osaka-u.ac.jp)

*WWW:* [http://wwwxray.ess.sci.osaka-u.ac.jp/ssd\\_sympo/](http://wwwxray.ess.sci.osaka-u.ac.jp/ssd_sympo/)

**19<sup>th</sup> Texas Symposium on Relativistic Astrophysics and Cosmology**

December 14 - 18, 1998, Paris, France, listed in IB 81 p. 51

**AAS High Energy Astrophysics Division (HEAD) Meeting**

April 12 - 15, 1999, Charleston SC, USA

*Contact address:* John Valleria, Suite 100, 2452 Delmer St., Oakland, CA 94602, USA

*Tel:* 1 510 530 1688 *Fax:* 1 510 530 2416

*E-mail:* [eureka@netcom.com](mailto:eureka@netcom.com)

*WWW:* <http://oj287.astro.utu.fi/sgg>

**Clustering at High Redshift**

June 29 - July 2, 1999, Marseille, France

*Contact address:* A. Mazure or O. Le Fèvre, LAS, Traverse du Siphon, BP 8, F 13376 Marseille, France

*Tel:* 33 491 055 902 *Fax:* 33 491 661 855

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**Amateur-Professional Partnership in Astronomical Research and Education**

July 4 - 7, 1999, Toronto, Canada

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**Asteroids, Comets, Meteors 1999**

July 26 - 30, 1999, Cornell University, Ithaca NY, USA

*Contact Address:* Beth E. Clark, ACM Conference, Space Sciences Bldg, Cornell Univ., Ithaca, NY 14853-6801, USA

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**Second International Workshop on Cometary Astronomy**

August 14 - 16, 1999, Cambridge, UK

*Contact address:* Daniel W.G. Green, Smithsonian Astrophysical Observatory, 60 Garden Street, Cambridge, MA 02138, USA

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*WWW:* <http://www.cam.wits.ac.za/origins99/>

**13. ANNOUNCEMENT****A Life in Astrophysics: Selected Papers of V.A. Ambartsumian**



Allerton Press, Inc. announces the publication of selected papers of Past IAU President Viktor A. Ambartsumian, one of the giants of 20th century astrophysics.

Before his death in 1996, Ambartsumian selected for this volume those papers from his total oeuvre that have either had a marked impact on 20th century astronomy or that in his opinion have potential for further development. The volume was edited by Ambartsumian's son Rouben. Following an Introduction by G. Burbidge, the papers are arranged chronologically and take the reader successively from individual stars, multiple systems and star clusters, associations and superassociations into the world of galaxies. The collection closes with an Epilogue, in which Ambartsumian summarizes the three main directions of his theoretical work: (1) the invariance principles as applied to the theory of radiative transfer, (2) the inverse problems of astrophysics, and (3) the empirical approach to problems of the origin and evolution of stars and galaxies.

A Life in Astrophysics: Selected Papers of Viktor A. Ambartsumian: ISBN 0-89864-082-2, 294 pp., illus., \$47.50 + \$7.50 postage/handling (USA and Canada), \$65.00 (all other countries, airspeed delivery included). For further information, please contact Allerton Press, Inc., 150 Fifth Avenue, New York, New York 10011, USA.

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