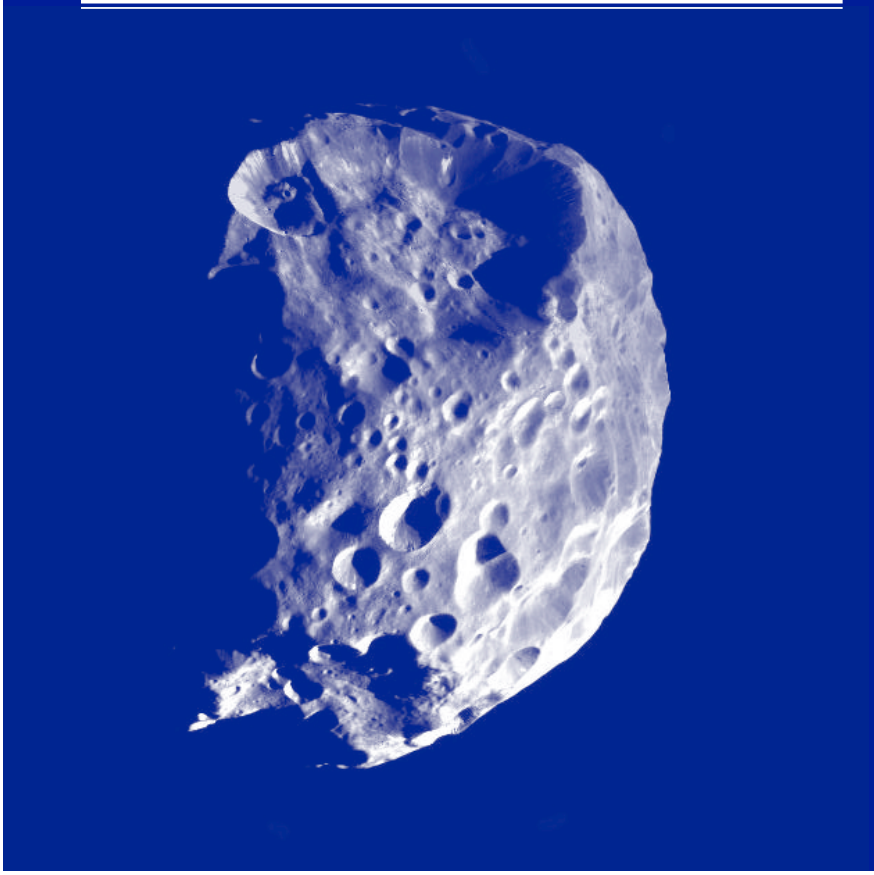
# INTERNATIONAL ASTRONOMICAL UNION

# UNION ASTRONOMIQUE INTERNATIONALE



INFORMATION BULLETIN JANUARY 2005 96

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**CONTENTS**

# PREFACE

Articles printed in this volume of the IB provide a representative sample of the numerous activities in the Union that aim to serve the vast community of astronomers and other international scientific organizations that we cooperate with. This demonstrates, in the case we should need to be reminded, that the Union is fully alive and active also in the years between the General Assemblies, which normally get most attention.

Astronomy is in the forefront of making use of new technological opportunities to accelerate the quality and effectiveness of its science. As a result, our science faces great challenges in managing increasing amount of data. We are under time pressure to develop and agree on a set of guiding principles for how to manage astronomical data. IAU Commission 5's Working Group on "Astronomical Data", chaired by Ray Norris, is actively involved in a consortium under ICSU and CODATA in developing guidelines for safeguarding the future of astronomical data. As astronomers we are also accustomed to enjoy the freedom to establish open access to astronomical databases in collaboration with colleagues across all boarders on this planet. Many of us have been comfortably unaware of recent legal threats to this privilege and the successful fight that has been endured and won on our behalf by ICSU and CODATA to safeguard this important condition for fostering and promoting scientific co-operations.

The Union's responsibility for promoting astronomical research and education in its member countries, as well as recruiting new countries to the Union, is handled conscientiously and professionally by the various Program Groups under Commission 46. I am happy to include examples of these on-going initiatives also in this IB.

As always, the every day's affairs of the IAU office are conscientiously and efficiently managed by Monique Léger-Orine. The database for the IAU membership is now being brought to completion for becoming a timely and useful service to the community, thanks to the untiring efforts of Claire Vidonne during the past year. We are currently in the process of modernizing the IAU web site in order to improve its accessibility and use by the IAU membership. The web site was recently transferred from Uppsala to Paris where it is now conveniently installed in the Institut d'Astrophysique de Paris (IAP). A contract has been signed with regard to regular maintainance of our computers and of our web site.

The outlook for a rich and attractive science program for the next General Assembly is promising, as judged from the Letters of Intent received this fall. The full program will be decided at the meeting of the Executive Committee in April 2005, where also the IAU Division Presidents will be present, which I shall look forward to present to you in the June 2005 issue of the IB.

Finally, the IAU Officers and Secretariat wish you all a happy and successful year 2005!

*Oddbjørn Engvold, General Secretary*

# 1. MAIN DEADLINES AND EVENTS

**FOR COMPLETE AND UPDATED INFORMATION**
please see: http://www.iau.org/IAU/News/deadlines.html

## 2005

| | | |
|---|---|---|
| Jan | 3 | Submission of proposals for IAU Symposia, Joint Discussions, Special Sessions and Colloquia in 2006 |
| Jan | 31 | Request for room(s) for meeting(s) of Divisions, Commissions, Working Groups, during the XXVIth General Assembly in Prague |
| Mar | 14-18 | **IAUC 198** Near-Field Cosmology with Dwarf Elliptical Galaxies (*Switzerland)* |
| Mar | 14-18 | **IAUC 199** Probing Galaxies through Quasar Absorption Lines (*China Nanjing)* |
| Apr | 18-20 | 80th Meeting of the Executive Committee in Rome, Italy |
| | | Final selection by the EC and Division Presidents of proposals for IAU Symposia, Joint Discussions, Special Sessions and Colloquia in 2006 |
| May | 16-20 | **IAUS 227** Massive Star Birth: A Crossroads of Astrophysics *(Sicily, Italy)* |
| May | 23-27 | **IAUS 228** From Lithium to Uranium: Elemental Tracers of Early Cosmic Evolution (*France)* |
| July | 26-29 | 9th Asian-Pacific Regional IAU Meeting (APRIM-2005) *(Bali, Indonesia)* |
| Aug | 7-12 | **IAUS 229** Asteroids, Comets, Meteors - ACM 2005 *(Brazil)* |
| Aug | 15-19 | **IAUS 230** Populations of High-Energy Sources in Galaxies *(Ireland)* |
| Aug | 29-Sept 2 | **IAUS 231** Astrochemistry throughout the Universe: Recent Successes and Current Challenges (*USA)* |
| Sept | 30 | Contributions of Divisions to Transactions XXVIA (Reports on Astronomy) due to the IAU Secretariat |
| Oct | 3-7 | **IAUC 200** Direct Imaging of Exoplanets: Science and Techniques *(France)* |
| Nov | 14-18 | **IAUS 232** The Scientific Requirements for Extremely Large Telescopes (ELTs) *(South Africa)* |
| Nov | 15 | Proposals for **new Individual Members** due by Divisions or EC |
| Nov | 15 | Submission of **Resolutions type A** (Resolutions with financial implications) |
| Dec | 12-16 | 11th Latin-American Regional IAU Meeting (LARIM-2005) *(Pucon, Chile)* |
| Dec | 15 | Proposals for **new Individual Members** due by National Members |

## 2006

| | | |
|---|---|---|
| Apr | 30 | Submission of Applications for **Peter Gruber Foundation Fellowships** |
| May | 15 | Submission of **Resolutions type B** (Resolutions without financial implications) |
| May | 31 | Communication to the IAU Secretariat of title(s) for Division, Commission, Working Group Meetings at the XXVIth General Assembly in Prague |
| Aug | 14-25 | XXVIth IAU General Assembly (*Prague, Czech Republic)* |

## 2009

| | | |
|---|---|---|
| Aug | 2-15 | XXVIIth IAU General Assembly *(Rio de Janeiro, Brazil)* |

# 2. SCIENTIFIC MEETINGS

please also see: http://www.iau.org/IAU/News/futmeet.html

## 2.1. FUTURE SYMPOSIA

**IAUS 227: Massive Star Birth: A Crossroads of Astrophysics**
*May 15-19, 2005, Catania, Sicily, Italy*

***Scientific Organizing Committee:***
Edward Churchwell (Co-Chair, USA), Peter S. Conti (Co-Chair, USA), Philippe R.J. Eenens (Mexico), Marcello Felli (Italy), Guido Garay (Chile), Yasuo Fukui (Japan), Suzana Lizano (Mexico), C. Malcolm Walmsley (Italy), & Hans Zinnecker (Germany).

***Local Organizing Committee:*** Marcello Felli (Chair).

***Principal Topics:***
- Introductory framework: the role of massive stars in astrophysics; Orion, the nearest massive star birth region.
- Star birth sequence, the environments: chemistry as a tracer of high-mass star birth; molecular envelopes and deeply embedded YSOs; Modelling protostellar SEDs; hot cores; jets from hot cores; dissipation of stellar discs; hypercompact HIM; radio observations of UCHII regions; IR observations of UCHII regions; SPITZER observations of MSF regions.
- Star birth sequence, the stars: stellar evolution before the ZAMS; the role of magnetic fields in star formation; accretion processes; binary mergers; massive star outflows; CHANDRA observations of massive star birth; X-ray studies of young protostars; parameters of ZAMS Stars; parameters of massive YSOs; winds in ZAMS O-type stars.
- Star birth in a cluster environment: molecular clouds and clusters; molecular cloud cores/clusters in the Magellanic clouds; IR studies of newly formed clusters; turbulence and star birth; SPITZER studies of newly formed clusters; proto clusters: massive/low mass star formation; NIR studies of GHII region clusters; star birth clusters; Population III massive Stars.

***Editors:*** Edward B. Churchwell & C. Malcolm Walmsley.

***Contact address:*** Peter S. Conti
Email: pconti@jila.colorado.edu - URL: http://www.arcetri.astro.it/iaus227/

**IAUS 228: From Lithium to Uranium: Elemental Tracers of Early Cosmic Evolution**
*May 23-27, 2005, Paris, France*

***Scientific Organizing Committee:***
Tom Abel (USA), Nobuo Arimoto (Japan), Beatriz Barbuy (Brazil), Roger Cayrel (Chair, France), Alessandro Chieffi (Italy), Bengt Gustafsson (Sweden), Amina Helmi (the Netherlands), Vanessa Hill (France), Poul E. Nissen (Denmark), Keith A. Olive (USA), Max Pettini (UK), Francesca Primas (Germany), Christopher Sneden (USA), Friedrich-Karl Thielemann (Switzerland), & Simon D.M. White (Germany).

***Local Organizing Committee:*** Vanessa Hill (Chair).

***Principal Topics:***
- Historical context and tribute to F. & M. Spite.
- Primordial nucleosynthesis: lithium the "Spite Plateau"; lithium and the Big Bang nucleosynthesis.
- First stars: First stars formation; IMF of the first stars; stellar evolution at Z=0.
- Extremely metal-poor stars: Search for Pop. III stars and metallicity distribution of EMPS; observed abundances from C to iron-peak elements.

- Nucleosynthesis and yields: massive stars and SNe yields predictions; intermediate-stars yields; constraints on yields from direct observations of ejecta (SNe, PNe).
- The globular cluster-field relation: observed abundances in old field stars; abundances in globular clusters and formation scenarios.
- Heavy elements: r-process production and observations; s-process production and observations; thorium and uranium as cosmo-chronometers.
- Linking the halo with its surroundings: abundances in nearby dwarf spheroidal galaxies; the chemical-kinematics connection.
- The high-redshift connection: abundances in damped Layman-alpha systems; abundances in the intergalactic medium; abundances in high-redshift star-forming galaxies.

***Editors:*** Vanessa Hill, Patrick Francois & Francesca Primas.

***Contact address:*** Vanessa Hill
Email: Vanessa.Hill@obspm.fr - URL: http://wwwgepi.obspm.fr/symp228/index.php

**IAUS 229: Asteroids, Comets, Meteors - ACM 2005**
*August 8-12, 2005, Rio de Janeiro, Brazil*

***Scientific Organizing Committee:***
Richard P. Binzel (USA), Angioletta Coradini (Italy), Julio A. Fernández (Co-Chair, Uruguay), Sylvio Ferraz-Mello (Co-Chair, Brazil), Gerhard Hahn (Germany), Dimitrij Lupishko (Ukraine), Alessandro Morbidelli (France), Jana Ticha (Czech Republic), Jun-ichi Watanabe (Japan), & Iwan P. Williams (UK).

***Local Organizing Committee:*** Daniela Lazzaro (Chair).

***Principal Topics:***
- Internal structure of asteroids and comets: binaries and satellites, gravitational aggregates, cometary nuclei structure.
- Trans-Neptunian Objects (TNOs): physical properties, structure of the Kuiper belt.
- Connections between asteroids, cometary nuclei and trans-Neptunian objects: differences and similarities.
- Connections between asteroids and meteorites: mineralogical characterization.
- Connections between comets, meteor showers and interplanetary dust.
- Minor bodies dynamics: origin of comets, transitions between populations, non-gravitational forces, asteroid families.
- Collisions and impacts: cratering, breakup, collisional evolution, hazards, bolides and super bolides, evolution of life.
- Near-Earth Objects (NEOs): searching, statistics, origin, physical characterization.
- Origin and evolution of our Solar System and extra-solar planetary systems: implications from minor bodies studies.

***Editors:*** Daniela Lazzaro, Sylvio Ferraz-Mello & Julio A. Fernández.

***Contact address:*** Daniela Lazzaro
Email: lazarro@on.br - URL: http://www.on.br/acm2005/

**IAUS 230: Populations of High-Energy Sources in Galaxies**
*August 15-19, 2005, Dublin, Ireland*

***Scientific Organizing Committee:***
L. Bassani (Italy), Brian McBreen (Ireland), You-Hua Chu (USA), C. Done (UK), Giuseppina Fabbiano (Co-Chair, USA), Günther Hasinger (Germany), Gloria Koenigsberger (Mexico), Katsuji Koyama (Japan), Vladimir M. Lipunov (Russian Federation), & Evert J.A. Meurs (Co-Chair, Ireland).

***Local Organizing Committee:*** B. McBreen (Chair).

***Principal Topics:***
- Key source categories in our Galaxy.
- High-energy processes in the ISM relevant to population evolution.
- Detailed population studies in Magellanic Clouds, Local Group, nearby galaxies.
- Source classes that emerge when sampling over galaxies; feedback on stellar evolution scenarios.
- Overall population characteristics.
- High-energy population synthesis modelling.
- The high-redshift context.

***Editors:*** Evert J.A. Meurs & Giuseppina Fabbiano.

***Contact address:*** Evert J.A. Meurs
Email: ejam@halley.dunsink.dias.ie - URL: http://www.dunsink.dias.ie/IAUS230/index.html

**IAUS 231: Astrochemistry throughout the Universe: Recent Successes and Current Challenges**
*August 29-September 2, 2005, Monterey, CA, USA*

***Scientific Organizing Committee:***
Louis J. Allamandola (USA), John H. Black (Sweden), Geoffrey A. Blake (USA), Paola Caselli (Italy), Ewine F. van Dishoeck (Chair, the Netherlands), Pascal Ehrenfreund (the Netherlands), Guido Garay (Chile), Michel Guelin (France), Chris Henkel (Germany), Eric Herbst (USA), Uffe G. Jorgensen (Denmark), John P. Maier (Switzerland), Karl M. Menten (Germany), Tom J. Millar (UK), Young Chol Minh (Korea, Rep of), Masatoshi Ohishi (Japan), Alejandro C. Raga (Mexico), Johnatan M.C. Rawlings (UK), Bertrand R. Rowe (France), & Jongmann Yang (China Nanjing).

***Local Organizing Committee:*** *Thomas G. Philips* (Chair).

***Principal Topics:***
- Star formation.
- Complex molecules in the universe.
- Energetic interfaces (PDRs, shocks, turbulence, masers).
- Connection with the solar system.
- Basic molecular processes.
- Diffuse and translucent clouds.
- Extragalactic chemistry.
- Current and future challenges.
- The formation of molecular hydrogen.

***Editors:*** Dariusz C. Lis, Geoffrey A. Blake & Eric Herbst.

***Contact address:*** Eric Herbst
Email: herbst@mps.ohio-state.edu - URL: http://asilomar.caltech.edu/

**IAUS 232: The Scientific Requirements for Extremely Large Telescopes (ELTs)**
*November 14-18, 2005, Cape Town, South Africa*

***Scientific Organizing Committee:***
Arne L. Ardeberg (Sweden), Yuri Yu. Balega (Russian Federation), Beatriz Barbuy (Brazil), David A.H. Buckley (South Africa), Philip A. Charles (South Africa), Matthew Colless (Australia), Xiang-Qun Cui (China Nanjing), Michel Dennefeld (Co-Chair, France), Gerard F. Gilmore (UK), Isobel M. Hook (UK), Masanori Iye (Japan), Rolf-Peter Kudritzki (USA), Bruno Leibundgut (Germany/ESO), Jeremy R. Mould (USA), Andreas Quirrenbach (the Netherlands), Virginia L. Trimble (Co-Chair, USA), & Patricia A. Whitelock (South Africa).

***Local Organizing Committee:*** John W. Menzies (Chair).

***Principal Topics:***
- Major achievements (and shortcomings) of 8-10m class projects.
- General features of the various ELT projects.
- Scientific goals of ELT's.
- Distant galaxies and cosmology.
- Nearby galaxies, ISM, stellar populations.
- Stars, planets and planetary systems.
- Links with other Large Facilities (ALMA, JWST, SKA, ...).
- Confrontation with technical possibilities and instrumentation plans.

***Editors:*** Bruno Leibundgut, Michel Dennefeld & Patricia A. Whitelock.

***Contact address:*** Michel Dennefeld
Email: dennefel@iap.fr - URL: http://www.saao.ac.za/IAUS232/

## 2.2. FUTURE COLLOQUIA

**IAUC 198: Near-Field Cosmology with Dwarf Elliptical Galaxies**
*March 14-18, 2005, Les Diablerets, Switzerland*

***Scientific Organizing Committee:***
Bruno Binggeli (Co-Chair, Switzerland), Nelson Caldwell (USA), Jonathan I. Davies (UK), Enrico V. Held (Italy), Helmut Jerjen (Co-Chair, Australia), Igor D. Karachentsev (Russian Federation), John Kormendy (USA), Mario Mateo (USA), Ben Moore (Switzerland), Joseph Silk (UK), Eline Tolstoy (the Netherlands), & R. Brent Tully (USA).

***Local Organizing Committee:*** Bruno Binggeli (Chair).

***Principal Topics:***
- Dwarf galaxy surveys.
- Faint-end luminosity function: implications for CDM models.
- Distance and velocity measurements, spatial distribution.
- Luminosity structure and morphological variety.
- Star clusters and nuclei.
- From gas to stars: content and structure of dwarf ellipticals.
- Galaxy transformation processes: outflows, winds, and the fate of dwarfs.
- Kinematics and dynamics, DM halos.
- Star-formation histories of dEs and their possible contribution to faint galaxy counts.
- Models for the formation of early-type dwarfs.

***Editors:*** Helmut Jerjen & Bruno Binggeli.

***Contact address:*** Helmut Jerjen
Email: jerjen@mso.anu.edu.au - URL: http://www.mso.anu.edu.au/IAUC198

**IAUC 199: Probing Galaxies through Quasar Absorption Lines**
*March 14-18, 2005, Shanghai, China Nanjing*

***Scientific Organizing Committee:***
Jacqueline Bergeron (France), Jiansheng Chen (China Nanjing), Stefano Cristiani (Italy), Brice Ménard (Co-Chair, USA), Houjun Mo (USA), Max Pettini (UK), Huub Röttgering (the Netherlands), David A. Turnshek (Co-Chair, USA), & Simon D.M. White (Germany).

***Local Organizing Committee:*** Chenggang Shu (Chair).

***Principal Topics:***
- Absorber spectroscopy: absorption line surveys; results from high-resolution spectroscopy.

- The Absorber-galaxy connection: galaxy-absorber cross-correlation functions; deep imaging of absorber systems; cosmological evolution of absorbers and galaxies.
- Chemical evolution and feedback into the IGM: latest observational constraints; metal-rich systems; galaxy evolution; confrontations against galaxy formation models.
- Lyman-alpha systems: the nature of Ly-alpha clouds; the connection to galaxies; chemical evolution; kinematics of DLAs; modelling galaxy formation at high z.
- Spatial distribution of absorbers and galaxies: absorber clustering; galaxy clustering from observations (SDSS, 2dF, ...).
- Probing re-ionisation with quasar absorption lines.

***Editors:*** Peter R. Williams, Chenggang Shu & Brice Ménard.

***Contact address:*** Brice Ménard
Email: menard@ias.edu - URL: http://center.shao.ac.cn/qsoals

**IAUC 200: Direct Imaging of Exoplanets: Science and Techniques**
*October 3-7, 2005, Nice, France*

***Scientific Organizing Committee:***
Claude Aime (Co-Chair, France), Malcolm Fridlund (Sweden), Thomas Henning (Germany), Anne-Marie Lagrange (France), Andreas Quirrenbach (the Netherlands), Roberto Ragazzoni (Italy), Daniel Rouan (France), Jean Schneider (Co-Chair, France), Sara Seager (USA), Michael Shao (USA), Motohide Tamura (Japan), & Wesley A. Traub (USA).

***Local Organizing Committee:*** Farrokh Vakili (Chair).

***Principal Topics:***
The topic of the colloquium will be the detection and analysis of photons directly coming from terrestrial and giant exoplanets by means of coronagraphic and interferometric techniques. It will address the interest of such a detection for a physical characterization of the planets (spectrum, polarization, temporal variation, bio signatures,…) and instrumental requirements. Instrumental techniques for detecting exoplanets will be considered on a general basis (monolithic and diluted apertures, infrared and visible, diffraction and interferometric techniques, ground (AO) and space observations, theory and experiment). An important part will be left for advanced active or passive techniques, such as active reduction of residual speckles in coronagraphy or passive image processing. It is expected that the approach of detection and estimation (in terms of signal processing) will allow better comparison of the techniques between them (theoretical benchmarks).

***Editors:*** Claude Aime & Farrokh Vakili.

***Contact address:*** Claude Aime
Email: Claude.Aime@unice.fr - URL: http://www-luan.unice.fr/IAUC200.htm

## 2.3. FUTURE REGIONAL MEETINGS

**9th Asian-Pacific Regional IAU Meeting (APRIM-2005)**
*July 26-29, 2005, Nusa Dua, Bali, Indonesia*

***Scientific Organizing Committee:***
Brian J. Boyle (Australia), Leonardo Bronfman (Chile), Cheng Fang (China Nanjing), John B. Hearnshaw (New Zealand), Bambang Hidayat (Indonesia), John P. Huchra (USA), Satoru Ikeuchi (Japan), Norio Kaifu (Japan), Iraida S. Kim (Russian Federation), Sun Kwok (China Taipei), Hyung Mok Lee (Korea, Rep of), Shin Mineshige (Japan, Co-Chair), Iratio Radiman (Indonesia), Ding-Qiang Su (China Nanjing), Winardi Sutantyo (Co-Chair, Indonesia), Russell Taylor (Canada), Jayant Vishnu Narlikar (India), & Gang Zhao (China Nanjing).

***Local Organizing Committee:*** Premana W. Premadi (Chair).

***Principal Topics:***
- Solar physics, planetary systems and extra solar planets.
- Stellar evolution, activities, binaries.
- Compact objects, AGNs and high-energy/cosmic ray astrophysics.
- The Milky Way, interstellar matter, star formation.
- Galaxies, large scale structure, cosmology.
- Gravitational lensing.
- Cosmology.
- Numerical astrophysics.
- Astronomical instrumentation.
- Education and popularization of astronomy.

***Editors:*** Winardi Sutantyo, Shin Mineshige & Premana W. Premadi.

***Contact address:*** Premana W. Premadi
Email: premadi@as.itb.ac.id - URL: http://www.as.itb.ac.id/APRIM2005

**11th Latin-American Regional IAU Meeting (LARIM-2005)**
*December 12-16, 2005, Pucon, Chile*

***Scientific Organizing Committee:***
Beatriz Barbuy (Brazil), Gustavo Bruzual (Venezuela), Gloria Dubner (Argentina), Julio Fernandez (Uruguay), Wolfgang Gieren (Chile), Mario Hamuy (Chile), Leopoldo Infante (co-Chair Chile), Rene Mendez (Chile), Dante Minniti (Chile), Monica Rubio (co-Chair, Chile), Maria Teresa Ruiz (Chile), & Silvia Torres (Mexico).

***Local Organizing Committee:*** Paulina Lira (Chair).

***Principal Topics:***
- The solar system.
- Extra-solar planets.
- Star formation.
- Galactic structure.
- Interstellar medium.
- The Local Group.
- Stellar populations.
- Active galaxies.
- Galaxy formation and evolution.
- Clusters of galaxies.
- Large scale structure.
- The early universe.

***Editors:*** Monica Rubio, Leopoldo Infante & Silvia Torres-Peimbert.

***Contact address:*** Monica Rubio <mrubio@das.uchile.cl>
Email: larim2005@sochias.cl - URL: http://www.sochias.cl/larim2005.html

### 2.4. FUTURE CO-SPONSORED MEETING

**ESO/ESA/IAU Conference: Communicating Astronomy with the Public 2005**
*ESO HQ, Garching, Munich, June 14-17, 2005*

***Scientific Organizing Committee:***
Ian Robson (UK ATC/ROE) (Chair), Lars Lindberg Christensen (ESA/ESO)

***Local Organizing Committee:*** Rudolf Albrecht (ESA/ESO) (Chair).

***Contact address:*** URL: http://www.communicatingastronomy.org/cap2005/

# 3. DIVISION MATTERS

## 3.1. NEWS FROM EC WORKING GROUPS

**EC Working Group on "Future Large Scale Facilities"**

The IAU WG on "Future Large Scale Facilities" is in a period of transition. The astronomical community is currently in the process of implementing one generation of Large Scale facilities: ALMA in radio astronomy, Pierre Auger Observatory for cosmic rays, many exciting space missions, ..., and developing long-term plans to implement the next generation of facilities and missions.

The present day is a time of major progress in astronomical investment. For future developments, major international planning exercises have been and are being held in many communities, both project specific and wavelength specific, and also in a global context under the auspices of the OECD. The major Space Agencies are currently developing new long-range priority plans, some top-down, others community-led. The basic inter-connection between fundamental physics, elementary particle physics, and astro-bio-physics is recognized. The European Commission expects to develop a strategic plan for major infrastructure developments in all subjects, including ground-based astronomy, which will form a basis for future continent-wide developments.

The planning and development activities across this wide spectrum of interests, transcending traditional astronomical domains of activity, are becoming inherently international without external IAU-led promotion. Together with the ease with which any interested individual worldwide can follow developments through web pages, this has altered the role of the WG-FLSF away from collating information from diverse sources, and more towards providing a forum for management and policy discussion.

In view of this, the WG-FLSF is being revamped. Expressions of interest in active involvement are welcome, as are suggestions for a practical and supportive role for the WG.

At a specific IAU-level, a major related IAU Symposium (South Africa, November 2005) has been supported; a Joint Discussion has been proposed for the 2006 IAU General Assembly in Prague.

*Gerry Gilmore, President of Working Group on "Future Large Scale facilities"*

**EC Working Group on "Women in Astronomy"**

Two main activities are planned for the next few months. The initial appointment by the IAU Executive Committee will be finalized. This follows from consultation with a wide list of potential members of the IAU Working Group on "Women in Astronomy", including all attendees of the Women in Astronomy function held at the Sydney GA. From the list returned by over 50 respondents we are proposing a group of 16 with representation from Europe (6), North America (4), South America (2), Russia (1), China (1), Australia and the Pacific (2). We have included 2 men in the list of nominations. It will be the role of the Executive Committee to canvass and encourage participation of a much larger group of Participating Members, which should include all astronomers who are actively working towards improving the status of women in astronomy. It is from all members, particularly those who expressed interest in assisting with the gathering of data, that we need to compile the hard statistics that will give us a global picture of the wide range of issues and conditions facing women in astronomy worldwide. Several delegates have already emailed us reporting on recent surveys, and these are being included in a

more general database.

The second activity is to commence planning for the 2006 General Assembly in Prague.

The working lunch at the Sydney General Assembly was extremely successful and we are considering staging a similar event in Prague. Via email consultation we will identify a limited number of themes for discussion in the break out sessions. The Executive Committee is to ratify the membership and the goals of the Working Group. It is also planned that the Working Group reports to the Executive Committee on the database of statistics and issues to be addressed.

Finally, an official web site is being linked through the IAU web site for Working Groups which will include the Terms of Reference, which are currently being drafted, for approval by the members. A set of draft goals was tabled in Sydney and are available at the URL: http://astronomy.swin.edu.au/wam.

As we have noted in previous reports, this Working Group will be open and inclusive in every way possible, and must encourage input and strategies on the most effective way to move forward in improving the status of women in astronomy.

*Anne Green & Sarah Maddison, Co-Presidents of Working Group on "Women in Astronomy"*

### 3.2. NEWS FROM DIVISIONS AND DIVISION WORKING GROUPS

**Division I - Fundamental Astronomy**
***Report on the Journées 2004, September 20-22, 2004, Paris, France***

The *Journées 2004* "Systèmes de Référence spatio-temporels", which were the sixteenth conference in this series, were organized at the Observatoire de Paris from 20 to 22 September 2004, with the sub-title "'Fundamental Astronomy: New concepts and models for high accuracy observations". The scientific program consisted of five sessions on topics related to the International Celestial Reference System (ICRS), including new concepts in fundamental astronomy, the associated nomenclature, and the astronomical models for Earth rotation (precession, nutation, atmospheric and oceanic effects, etc.). Special emphasis was given to recent developments of these models at the highest level of accuracy consistent with the current and future precision and temporal resolution of the observations of Earth rotation.

The *Journées 2004* were attended by 100 participants from 20 different countries. The program included 38 oral presentations and 33 posters. Special discussions were organized that were relevant to the IAU Division I Working Groups and the future organization of the Division in the framework of the upcoming IAU bye-laws on Commissions and Working Groups. The discussed issues were related to:

- The organization of Division I in the framework of the upcoming IAU bye-laws on Commissions and Working Groups. The focus of the discussion was where to put the activities of the ICRS Working Group that, although considered as being a successful WG, was disabled in 2003 to comply with the new IAU rules on Commissions and Working Groups. Several solutions were debated. One was a possible distribution of the seven tasks of the former ICRS WG into the most appropriate Commissions of Division I according to their recently revised terms of reference. Another solution was the creation of a new Commission to embrace all the activities of the seven tasks. An intermediate proposal was to expand Commission 31 on "Time" to include reference systems in general, and to make each of the seven tasks a WG in that expanded Commission. These different options are to be further discussed within the Division I special group, chaired by Division I President, T. Fukushima, that is looking at ways to

rationalize the current structure and advise on future arrangements.

- The work of the IAU Working Group on "Nomenclature for Fundamental Astronomy'' (NFA), chaired by N. Capitaine, the task of this which (see http://danof.obspm.fr/iauWGnfa/ ) is to propose new nomenclature associated with the implementation of the IAU 2000 Resolutions and making related educational efforts. Guided by the results of last year's questionnaires, and with input from extensive e-mail contributions, a series of draft explanatory documents have been developed and draft WG recommendations have been prepared including a draft Resolution proposal to the IAU 2006 General Assembly. Key issues include devising expressive new names, avoiding explosive growth in acronyms and initials, and certain relativistic nuances.

  The discussions during the *Journées 2004* allowed the audience to comment on the WG explanatory documents, the draft NFA WG recommendations, the Resolution proposal to the IAU 2006 General Assembly, and to discuss possible future actions of the WG.
- the draft report and draft recommendations of the Working Groups on "Precession and the Ecliptic" (Chair: J. Hilton) and on "Nomenclature in Fundamental Astronomy" (Chair: N. Capitaine), see http://danof.obspm.fr/iauWGnfa/ , both formed at the 2003 IAU General Assembly,
- the report of the WG on "Redefinition of Universal Time Coordinated" (Chair: D.D. McCarthy) especially on the basis of recent statements by the ITU-R Special Rapporteur Group.

There was also a kickoff meeting for the "Descartes-Nutation" Project (Chair: V. Dehant) that is intended to support cooperative studies devoted to precession-nutation on the EU Descartes prize funds obtained in 2003.

*Nicole Capitaine, President of the WG on "Nomenclature for Fundamental Astronomy"*

**Division II - Sun and Heliosphere**

Division II includes:

3 Commissions:
- C 10: "Solar Activity", Donald Melrose (President)
- C 12: "Solar Radiation and Structure", Tom Bogdan (President)
- C 49: "Interplanetary Plasma and Heliosphere", David Webb (President)

and 4 Workings Groups:
- WG on "Solar Eclipses", Jay Pasachoff (President)
- WG on "Solar and Interplanetary Nomenclature", Edward W. Cliver (President)
- WG on "International Solar Data Access", Robert D. Bentley (President)
- WG for "International Collaboration on Space Weather", David F. Webb (President)

***The Working Group on "Solar Eclipses"*** continues to assist professional astronomers and others to observe eclipses, especially through its web site at http://www.totalsolareclipse.net/ and through its approaches to National Liaisons in the countries through which the paths of totality will pass in order to assist with duty-free importation of scientific equipment and other tasks. In collaboration with the Program Group on "Public Education on the Occasions of Solar Eclipses" of IAU Commission 46 on "Astronomy Education and Development", it assists in providing information for the public about safe observation of eclipses, cooperating on the version of the web site at http://www.eclipses.info/. During 2004, partial eclipses were visible in southern Africa on April 19 and in Hawaii and Asia on October 13-14. In 2005, a hybrid annular/total eclipse on April 8 will have

totality solely in mid-Pacific and annularity reaching Panama and northernmost South America, with partial phases visible through most of the United States, and an annular eclipse on October 3 will cross Spain and northeastern Africa, with partial phases visible through most of Europe. Most plans are pointing toward the March 29, 2006, total solar eclipse for which totality will cross Africa from Ghana to Libya and northwestern Egypt, the Mediterranean, mid-Turkey, and then Russia, Kazakhstan, and farther to the northeast, with partial phases visible from essentially all of Europe and Africa and much of Asia.

***The Working Group on*** **"Solar and Interplanetary Nomenclature"** has the goal of examining terms of solar and heliospheric physics that are currently being used differently or are ill defined. Usually an article describing the terminology by a prominent expert in the field is requested and the article published, soliciting discussion or alternate views. Recently, an article on the terminology used to describe large-scale waves in the solar atmosphere was written by Dr. Bojan Vrsnak and submitted to Eos, Transactions of the American Geophysical Union. It will be published under the heading "The Last Word" in the Eos Forum. Terms related to large-scale waves include Type II shock, Moreton wave, EIT wave, flare wave, blast wave, piston-driven shock, and bow shock, among others.

***The new Working Group for*** **"International Collaboration on Space Weather"** aims mainly at coordinating many activities related to space weather at an international level. It is chaired by the Division II President, David Webb and a web site is under construction. At this time it co-operates with the International Heliospheric Year (UN/OOSA) (IAU representative: David Webb), the International Living with a Star program (NASA), and the CAWSES (Climate and Weather of the Sun-Earth System) Working Group on Solar Sources of Geomagnetic Activity (SCOSTEP). This latter group, chaired by Dr. Gopalswamy, aims at understanding how solar events, such as CMEs and high speed streams, impact geospace by investigating the underlying science and developing prediction models and necessary tools. Its first organizational meeting was held in Beijing on Sept. 11, 2004.

***The International Heliospheric Year (IHY)*** is an international program of scientific collaboration being planned for the time period centered on 2007, the 50th anniversary of the International Geophysical Year. It is aimed at producing scientific results through close international cooperation on observations and data analysis. Nat Gopalswamy is the Chair of the IHY subgroup within Div. II. Complete information on the IHY, that is being rapidly updated, can be found at the main IHY site: http://ihy.gsfc.nasa.gov/. An important IHY effort involves the United Nations and is being led by Hans Haubold under the auspices of the UN Basic Space Science Initiatives program http://www.oosa.unvienna.org/SAP/bss/ihy2007/index.html. A UN/BSS Science Organizing Committee Planning Meeting was held at GSFC, MD, USA in October 2004. The main goal was to initiate the planning of coordinated IHY/UNBSS activities, including at the next four annual UN/BSS workshops in 2005-2008 which will be devoted to the planning and implementation of IHY efforts relevant to developing countries. The purpose of these workshops will be to bring together IHY scientists from developing countries and those with instruments to be deployed so collaborative projects can be implemented. The next UNBSS workshop will be held in the United Arab Emirates in November 20-23, 2005. Additional IHY planning sessions will be held, for the U.S. effort, in Boulder, Co, USA, February 16-18, 2005 and, internationally, at the IAGA/IUGG meeting in France in July 2005. Within the IAU, John Hearnshaw, Chair of the Commission 46 Program Group for the "World Wide Development of Astronomy" has

agreed to include the IHY topic in a proposed two-day, special session at the IAU GA in 2006 on support for astronomy education and research in developing countries.

Two IAU Symposia involving the science of Division II were successfully held in 2004 and the Proceedings volumes are in progress. The first meeting was IAUS 223 on "Multi-Wavelength Investigations of Solar Activity" held June 14-19, 2004 in St. Petersburg, Russian Federation. The second meeting was IAUS 226 on "Coronal and Stellar Mass Ejections" held September 13-17, 2004 in Beijing, China.

*David Webb, President of Division II*

**Division III - Planetary Systems Sciences**

The general level of interest and interaction of the public at large and the topics covered by the Division remain high. Much of this is not however concerned with the finer points of science but with more mundane issues such as when and how will we start giving names to extrasolar planets, the policies adopted in naming asteroids, how many planets are there in the solar system, did an asteroid kill off the dinosaurs (as opposed to cause mass extinction). Dealing with such issues takes up a lot of time and effort from Division, Commission and Working Group Officers, which often goes unacknowledged.

The Commission 15 "Physical Studies of Comets and Minor Planets" web site has been moved to http://atlas.sr.unh.edu/IAU_Comm15/

The Working Group on "Extrasolar Planets (WGESP)" maintains a web site which contains a list of extrasolar planet claims that meet the WGESP's criteria for acceptance: http://www.ciw.edu/boss/iauindex.html

Progress in discovering new extrasolar planets continues to be rapid, with evidence for extrasolar gas giant planets having been found by microlensing, by transit surveys with spectroscopic follow-up, by pulsar timing, and Doppler spectroscopy. The latter technique has led to the discovery of planets with minimum masses comparable to that of Neptune.

The Working Group on "Planetary System Nomenclature (WGPSN)" is experiencing a busy time with a stream of new discoveries from both the Cassini mission and the series of Mars Explorers requiring names to be confirmed.

The Committee on Small Bodies Nomenclature is facing an ever-increasing workload with the continually expanding rate of discovery of minor planets. In addition, considerable time was spent discussing naming a particular body, 2003 VB12=(90377) as "Sedna".

The Organizing Committee members of the WG on the "Definition of a Planet" are joining the Division board to formulate a definition.

*Iwan Williams, President of Division III*

**Division VI - Interstellar Matter**

The new web pages for Division VI "Interstellar Matter" are at http://www1.ast.leeds.ac.uk/IAU34/IAU34news.html. The web pages are being updated and shortly the list of members of Division VI will be put on there. It would be appreciated if members could check details and inform the Division President at jed@ast.leeds.ac.uk of any omissions or errors.

Two important meetings of strong interest to Division VI members will be held in 2005:

***IAUS 231: Astrochemistry throughout the Universe: Recent Successes & Current Challenges***
*August 29-September 2, 2005, Monterey, CA, USA*
URL: http://asilomar.caltech.edu/

***IAUS 227: Massive Star Birth: A Crossroads of Astrophysics***
*May 15-19, 2005, Catania, Sicily, Italy*
URL: http://www.arcetri.astro.it/iaus227/

*John E. Dyson, President of Division VI*

**Division XII - Union-Wide Activities**

***Communicating Astronomy with the Public***
Our new Working Group, on "Communicating Astronomy with the Public" is up and running. They are part of the planning process for a June 14-17, 2005 meeting on the subject being held at ESO headquarters in Munich with IAU blessings (no money) and called CAP2005 for short. The web site, with preliminary program, registration details, etc is http://www.communicatingastronomy.org/cap2005.

The WG has established a virtual repository of educational and public outreach tools and a program group to stock it with useful materials. Go to http://www.communicatingastronomy.org/repository/ to see what is there and perhaps augment it. Contact the WG Secretary, Lars Lindberg Christensen (lars@eso.org), if you have something to add.

If you have ideas on what else the WG might be doing (and that you are willing to help with!), please communicate with its co-Chairs, Ian Robson (eir@roe.ac.uk) and Dennis Crabtree (Dennis.Crabtree@nrc-cncr.gc.ca).

***Astronomy Education and Development***
Commission 46 (President Jay Pasachoff, jay.m.pasachoff@williams.edu) has also been very active. Their efforts in Mongolia, Kenya, Cuba, and elsewhere are described at http://www.astronomyeducation.org along with plans for the summer 2005 International School for Young Astronomers in Mexico. Their education efforts connected with the transit of Venus and with solar eclipses appear at http://www.transitofvenus.info and http://www.eclipses.info

***Protection of Existing and Potential Observatory Sites***
Commission 50 (President Malcolm Smith, msmith@ctio.noao.edu) and its Working Group on "Controlling Light Pollution" have good news from Chile for both radio and optical astronomers. First, SUBTEL, the Chilean government telecommunications entity, has issued a resolution that concludes the process of establishing a radio-quiet zone around the ALMA site, only the second such in the world, after the Green Bank RQZ.

On the optical front, rapid progress is being made in controlling the growth of light pollution in the regions of Northern Chile that include Paranal, Las Camapanas, La Silla, Tololo, Pachon, and various sites being surveyed for future 20-100 m telescopes. The grace period for compliance with the compulsory lighting guidelines expires on October 1, 2005, and about 1/3 of the street lights in these communities have already been converted to point down, yielding the largest reduction in light pollution ever achieved anywhere. Full compliance will extend the lives of these sites by 15-30 years. But there is more to be done. The WG and Commission 50 will continue to seek satellite information to confirm the remarkable progress and document it for the Chilean authorities, to whom the IAU and all astronomers are already most grateful!

***WYP (World Year of Physics)***
For something fun, astronomical, and educational to do and share during WYP 2005, take a look at the project to reproduce Eratosthenes's measurement of the size of the earth, accessible from www.physics2005.org

On a less happy note, the organizers still intend to go forward with the idea of shining a ring of light around the world beginning in Princeton on April 18 (the 50th anniversary of Einstein's death). Thanks at least partly to Commission 46 President Jay Pasachoff and to agitation from Division XII and Commission 19 on Astrophysics of the International Union of Pure and Applied Physics (IUPAP), the project is now to begin with a "ring of darkness", in which lights are first turned off, then on. Unfortunately, shining lights, even lasers, up into the sky is still part of the recommended activity. Last we heard, the Institute of Physics (UK) had declined to support the project, but American Physical Society (USA) plans to. Your DP is still agitating, which brings us to the following message from Commission 50.

***IDA (The International Dark Sky Association)***
The IAU's primary ally in the effort to control light pollution world wide, needs financial support. It has already had to lay off some key staff and close vital programs. We urge all professional astronomers to help - amateurs currently outnumber us among the members, as they do world wide - and join IDA. Go to http:www.darksky.org

*Virginia Trimble, President of Division XII*

### 3.3. NEWS FROM COMMISSIONS AND COMMISSION WGs AND PGs

**Commission 5 - Working Group for "Astronomical Data"**
***Can Astronomy Manage Its Data?***

**Abstract**
Astronomy has a distinguished tradition of using technology to accelerate the quality and effectiveness of science, and data-intensive initiatives such as the Virtual Observatory lead the way amongst other fields of science. However, astronomical data are not uniformly well managed, and our current freedom to create open-access databases is threatened by those who would like all data to be subject to strict Intellectual Property controls. We, like other fields of science, need to establish and agree on a set of guiding principles for the management of astronomical data.

**1. Introduction**

Astronomy, like many other sciences, is in the midst of a data revolution, which offers both opportunities and threats. On one hand, we see the achievements of data centers like CDS and NED, the vigorous international development of the Virtual Observatory (VO), the revolutionary public data releases from individual astronomical projects, and the rapid dissemination of results made possible by forward-thinking journals, ADS, and astro-ph. All of these position astronomy as a role model to other sciences for how technology can be used to accelerate the quality and effectiveness of our science.

On the other hand, there are international pressures to surround our open-access databases in a morass of legal red tape, and we are poorly prepared to resist these. In some cases, the management and archiving of our valuable terabyte databases are haphazard and left to individual scientists to manage as best as they can. Vital data are published in journals but never make it into the data centers, while other valuable data gather dust in observatories, inaccessible, endangered, and in some cases undigitized. While many of us revel in our rapid electronic access to astronomical databases and journals, our colleagues in developing countries are unable to participate in this revolution, and are in danger of being left behind.

Astronomy needs to address these challenges: first, by establishing a consensus as to what represents good data management practice in astronomy, and, second, by building this

consensus into a framework of guiding principles. We can maximize our effectiveness in this task if we work with colleagues across the spectrum of international science, who are facing very similar challenges.

**2. Threats to Scientific Data**

In 2000-2, our freedom to create and use open-access astronomical databases was threatened by legislation proposed by WIPO (World Intellectual Property Organization), the European Union, and other bodies. Under that legislation, a system of licensing would be established under which any use of data would need to be accompanied by a paper trail to prove that use of the data was legitimate. Unlike the current copyright laws, which generally work well, there would be no provision for "fair use" for education or research. This would effectively make unworkable our current practice of freely distributing data and information.

While most practicing scientists were comfortably unaware that a war was being fought on their behalf, this threat was beaten off in a series of hard-won legal and political battles by members of ICSU (International Council of Science, the peak organization to which the IAU and other Scientific Unions subscribe) and CODATA (Committee for Scientific Data of the ICSU). With hindsight, the problem arose because science had never articulated any broad data management principles or policies. As a result, organizations concerned with Intellectual Property Rights had erroneously concluded that science had no opinion on how data should be managed, leaving them free to impose their views and legislation on scientific data.

A lesson from this is that the science community must ensure that its data needs are better articulated and understood, emphasizing, for example, the legitimacy of open-access databases. However, some of the criticisms leveled at science were, sadly, justified. For example, it is sometimes arbitrary and haphazard as to whether valuable data obtained at taxpayers' expense is ever made available to the rest of the scientific community, or is adequately protected and archived.

In the face of increasing pressures to place legal and commercial restrictions on access to data and information, the scientific community has recognized the need to establish sound data management principles. In early 2004, the ICSU set up a panel of independent experts to perform a "Priority Area Assessment on Scientific Data and Information". The resulting report is comprehensive and visionary, and proposes a way forward for the scientific community to create a new global framework for data and information policy and management. The IAU and other scientific Unions are encouraged to participate in this. The IAU is well-represented in this by its active participation in CODATA, and this paper is part of that process.

Other important initiatives include the World Summit on the Information Society (WSIS), which has been endorsed by the United Nations General Assembly, and which has declared, amongst other things, that "We strive to promote universal access with equal opportunities for all to scientific knowledge and the creation and dissemination of scientific and technical information, including open access initiatives for scientific publishing".

Furthermore, in January 2004 the OECD (Organization for Economic Cooperation and Development. The full statement may be found on http://www.oecd.org/document/0,2340,en_2649_34487_25998799_1_1_1_1,00.html) made a "Declaration on Access to Research Data from Public Funding" which essentially states that the governments concerned (representing the bulk of IAU membership) will work towards making publicly-funded data openly accessible.

**3. Other Issues in Astronomical Data Management**

*Open Access*

Because the advance of astronomy frequently depends on the comparison and merging of disparate data, it is important that astronomers have access to all available data on the objects or phenomena that they are studying. Astronomical data have therefore always enjoyed a tradition of open access, best exemplified by the astronomical data centers, which provide access to data for all astronomers at no charge.

There exist a number of exceptions to this open access tradition, some of which are widely-supported, such as the initial protection of observers' data by national facilities. However, in a few cases, observatories allow data archive access only to affiliated scientists, while still benefiting from the open access policies of other institutions. This asymmetry continues to be a cause for concern in astronomy.

*Crossing the Digital Divide*

The "Digital Divide" refers to the widening gulf between those with high-bandwidth access to information, data, and web services, and those who do not. Those who do not are further disadvantaged by this lack of access, making it even less likely that they will gain access in the future. Often the term is used to refer to the gulf between developing and developed nations, but it can also refer to the poor information services available to indigenous (and often geographically remote) inhabitants of an otherwise affluent developed country.

Astronomers in developing countries are better positioned than their colleagues in some other disciplines, because most astronomical information is already accessible to them, provided they have adequate internet bandwidth. However, there remain challenges, such as electronic access to journals that are funded by subscriptions from their users, and access by those with poor connectivity, which have yet to be addressed satisfactorily.

At the 2003 IAU General Assembly a resolution was adopted that, broadly, says that publicly funded archive data should be made available to all astronomers. This is aligned with ICSU and OECD recommendations, and may be regarded as a first step towards a articulating the principles by which the astronomical community would like to see its data managed.

*Formats for data in Journals*

Since most astronomical journals now publish in electronic form, it might be expected that all data-rich articles would automatically enter the archives of the major astronomical data centers. However, H. Andernach has shown (private communication) that in a representative sample of the electronic tables of 1500 such articles collated from the literature, less than 50 % appear in the archive of a data center. The problems of making accessible this collection, and eventually the data content of the entire astronomical literature, are:

- lack of manpower for writing metadata,
- non-standard data formats in the electronic publication,
- inadequate nomenclature for astronomical objects used by authors,
- the need to scan articles from older (non-electronic) journals.

To make the data in journals available to the data centers and the virtual observatory, standards for presentation of tables in journals need to be established and adhered to. While some journals are already making excellent progress in this direction, others are not. This task will be amongst those addressed by the data framework discussed below.

*Preservation and Digitization of Photographic Plates*

Astronomy possesses a large and potentially valuable reserve of heritage data - about 3 million photographic observations - that have accumulated in plate archives since the late 19th century. However, only a few of those data are accessible in digital form, and most are therefore inaccessible to most potential users. Little attention has been paid to the salvage of historic material, and expertise and equipment have become lost. Plate archives face loss and deterioration through ageing, disasters, and ignorant destruction. Resources for rescuing these data are necessarily in competition with those required to generate new data, and so it is important to determine what value to place on the historical archives, before we lose the opportunity to make that decision.

**4. A Strategic Framework for Managing Astronomical Data**

As the size and complexity of our databases increase, the management of these data must be taken increasingly seriously. However, some major projects are still being conceived and funded without any serious thought being given as to how the data will be managed.

Several very vigorous and effective groups in astronomy (e.g. the data centers, and some major observatories) are individually achieving ambitious goals in the area of data management and handling. However, between and outside these active groups are gaps in which data management is neglected or dealt with in an ad hoc way. Whilst the VO is attempting to make major databases accessible to all astronomers, it cannot do so unless those databases are properly constructed and managed. Astronomy does not have any strategic data framework that links these activities together, provides policies or guidelines for astronomical data management, or is able to represent the interests of astronomical data management to external parties. As a result:

- We are vulnerable to external threats such as the WIPO legislation described above,
- We are unable to represent astronomical data requirements in a coordinated way to external groups, such as ICSU, funding agencies, or journal publishers,
- There is no uniform approach across astronomy to preservation and dissemination of data,
- While some groups in astronomy adopt a professional approach to data management, others treat it as an afterthought, or neglect it completely, so that astronomy as a whole loses value,
- There is poor coordination between astronomy and other disciplines, and poor recognition in other disciplines of the data needs and strengths of astronomy.

It is important that the astronomy community is able to agree on a set of principles for managing data, so that we can:

- Help funding agencies and institutions understand the issues and principles involved in astronomical data management,
- Combat threats such as the WIPO legislation,
- Train the next generation of scientists in professional data management techniques,
- Address the issues described in Section 3 above,
- Maximize the science that we generate from our data.

Similar issues exist throughout all of science, and the ICSU's "Priority Area Assessment" described above recommends that a "Framework" of such principles needs to be established across all sciences. By setting up a framework focussed on astronomy, the IAU can ensure that its needs are addressed by the ICSU document.

IAU Commission 5 therefore proposes to develop a strategic framework for data management in astronomy, with recommendations to guide and assist individual observatories and organizations, and encouraging principles of open access as far as possible. It will do so in close liaison with the IVOA (International Virtual Observatory

Alliance), which can provide the tools and infrastructure for facilitating this process. Recognizing that the ICSU and CODATA are also engaging in a similar activity across all sciences, the IAU will actively work with ICSU and CODATA, both to participate in the ICSU framework, and to bring that experience to the development of an astronomical framework.

**5. Conclusion**

To safeguard the future of astronomical data, and to ensure that astronomers are able to reap the maximum scientific benefit from their data, it is essential that the astronomy community agree on a set of principles by which astronomical data should be managed. To achieve this goal, IAU Commission 5 representatives will:

- Actively participate in ICSU and CODATA discussions;
- Conduct electronic discussions within IAU to reach broad agreement on the way forward,
- Collaborate closely with the IVOA on developing requirements for implementing these strategies within the VO,
- Hold an open meeting at the Prague IAU GA in 2006, at which a draft framework will be debated,
- Propose a resolution at the IAU GA in 2006 for the IAU to adopt and develop the data management framework.

The ICSU report presents a vision of scientific data management that is well-aligned with the strategic goals of astronomy. The astronomical community should embrace the opportunity to make its data management strategy explicit, and work with colleagues in other scientific disciplines to bring sound data management principles to astronomy. To do so will not only further astronomy, but could generate a vigorous growth in the availability and inter-operability of astronomical data, resulting in even more cross-fertilization and delivery of cutting-edge science.

**Acknowledgements**

I thank my colleagues in the IAU Working Group for Astronomical Data, in IAU Commission 5, and in CODATA, for their participation in discussions that led to this paper.

*Ray Norris, Vice-President of Commission 5 and IAU delegate to CODATA*

**Commission 46 - Program Group for the "World Wide Development of Astronomy"**
**Report on visit to the University of Nairobi, June 15-17, 2004**

**1. Introduction**

This is a report of my visit to the University of Nairobi from 15 to 17 June 2004 as a member of the IAU Commission 46 Program Group for the "World Wide Development of Astronomy". The purpose of my visit was to assess the current situation with regard to teaching and research in astronomy and to make recommendations to the IAU on possible measures to promote and assist the development of an organized astronomy community in Kenya.

**2. Background on Kenya and Nairobi**

The Republic of Kenya, which attained independence in December 1963, occupies an area of 582,644 square kilometers astride the equator on the east coast of Africa. Climate in Kenya varies from tropical at the coast to arid in the interior, and is governed by altitude, with the highlands enjoying good rainfall. Kenya's population of 32 million comprises

a number of ethnic groups: Kikuyu 22 %, Luhya 14 %, Luo 13 %, Kalenjin 12 %, Kamba 11 %, Kisii 6 %, Meru 6 %, other African 15 %, non-African (Asian, European, and Arab) 1 %. English and Kiswahili are the official languages. Numerous other indigenous languages are also spoken. Most of the population is concentrated in the central and western parts of the country. GDP per capita for 2003 was about US$ 1000. The country has some 330,000 fixed-line telephones and about 1.4 million mobile phones in use. Internet penetration in Kenya has doubled in the past few years to 1.2 %, or about 400,000 users, amounting to about 3.2 % of internet users in Africa.

Nairobi is the political, commercial, administrative and cultural center of Kenya. This fast-growing city with a population of over 3.5 million is situated 140 km south of the equator and covers an area of 700 square kilometers. The city's altitude of 1600m above sea level makes for a mild climate year round.

**3. The University of Nairobi**

The University of Nairobi is the oldest and largest university in Kenya. The Main Campus of the University is situated near the City Center, and houses the Central Administration, the Jomo Kenyatta Memorial Library, the College of Architecture and Engineering and the College of Humanities and Social Sciences. Six other satellite campuses are situated throughout the city. The University offers approximately 200 programs in the sciences, applied sciences, technology, humanities, social sciences and the arts. Student enrolment in the 2001/2 academic year was about 22,000 students, comprising some 17,200 undergraduate and 4,800 postgraduate students.

**4. The Physics Department**

The host Department for my visit was the Physics Department, situated on the Chiromo Campus. At the undergraduate level, the Department offers a 2-year Diploma in Computer Science, and 4-year BSc degrees in Physics and in Microprocessor Technology and Instrumentation. At the postgraduate level, the Department offers Masters degrees in Theoretical Physics, Experimental Condensed Matter Physics, Geophysics, Electronics and Instrumentation, and Nuclear and Radiation Physics. The 2-year MSc degree comprises course work and a thesis. The Department also offers PhD degrees.

The Department's staff comprises 5 professors, 6 senior lecturers, 7 lecturers, and 10 tutorial fellows and graduate assistants, the latter all with MSc degrees. The Department's web page may be accessed at: http://www.uonbi.ac.ke/acad_depts/physics/

**5. Program of the visit**

My host in the Department was Dr Paul Baki. On the morning of 15 June he introduced me to the Head of Department, Prof. B. O. Aduda, and his colleagues. Prof. Aduda expressed his clear support for the initiative of Dr. Baki to introduce astronomy into the Physics Department and said he hoped the IAU and SAAO would assist his colleague with the introduction of an undergraduate astronomy course in the Department.

I then gave an informal presentation on the IAU, with emphasis on the activities of Commission 46 and its Program Group for the World Wide Development of Astronomy. This was adapted from the presentation very kindly provided by Prof. John Hearnshaw, Chair of the Program Group for the "World-Wide Development of Astronomy" in IAU Commission 46. In discussions following this presentation, Dr. Baki expressed his interest in joining the IAU to keep abreast of developments and opportunities for the development of astronomy in Kenya. Dr. Baki's colleagues from the other specialities in physics were all supportive of his initiatives, but I mentioned four in particular that could contribute to an undergraduate astronomy course. They are emeritus Prof. J.O. Malo, who has given

lectures in astrophysics, Prof. J.P. Patel, a geophysicist interested in planetary science, Dr. J.B. Awuor, a cosmologist, and Dr. Collins Mito, a remote sensing specialist.

In the afternoon I was taken on a tour of the Chiromo campus. The campus comprises a number of two or three-storey buildings set in very pleasant tropical gardens. As part of the campus tour, I was shown the library. To my pleasant surprise, I found that the library has an astronomy section containing several hundred titles! This collection provides a foundation upon which to build an undergraduate course.

The Department has a number of laboratories with a fair amount of equipment. I was shown the experimental condensed matter laboratory, which has experimental apparatus to support work on thin films, crystal growth and characterization, vacuum coating and semiconductor device modelling.

The Department has its own local area network, with connections around the building. Members of the Department do not all have computers on their desktops, but have good access to shared machines. Internet access in the Department was good. I was able to demonstrate the use of the ADS database and various other astronomy tools and web sites with modest, but quite acceptable access speeds. The costs of internet usage are transparent to the users, something which is taken for granted in many countries, but is not always the case in African universities, where users can sometimes be charged for receiving and sending emails. The students appear to be fairly conversant with the use of computers and have good access to computers in the University computer labs.

There is also some local expertise in the use of Linux and instrumentation control software in *LabVIEW*. I have no doubt that there is sufficient in-house computing expertise to support astronomical software environments, like *iraf*.

The tour of the Department's laboratories and other facilities was very helpful in giving me a picture of the spread of research interests and technical capabilities in the Department. I then had a discussion with Dr. Baki about the possibility of acquiring a small telescope to support the astronomy program at the University. I informed Dr. Baki of the Japanese ODA program, through which a number of Planetaria and Goto 45-cm telescopes have been donated to developing countries by the government of Japan. Dr. Baki said he was very keen to work towards the development of such a facility and recognized that a considerable amount of preparatory work and experience would be required before compiling a successful proposal. We also discussed the possibility of acquiring a smaller, mobile telescope as a short-term objective. A modern computer-controlled telescope in the range of 20-30 cm with some accessories would be an ideal instrument for public outreach and for developing students' observing skills.

I spent the rest of the 16$^{th}$ working with Dr. Baki on the development of a curriculum for a four-year undergraduate astronomy course. This course will be offered as part of the undergraduate Physics degree. Dr. Baki and I also discussed the practical component of the curriculum, but we did not have the time to develop a detailed list of practical exercises. I undertook to review the vast literature available on practical exercises and to make some recommendations on returning home to South Africa.

To seek the support of the University hierarchy for these initiatives, Prof. Aduda and I met with the Dean of Science, Prof. N.O. Akech, on June 16$^{th}$, and with the Principal of the College, Prof. L.W. Irungu, on June 17$^{th}$. Both expressed their strong support for the initiatives of Dr. Baki and the Physics Department to introduce astronomy into the University's curriculum.

On the evening of the 16$^{th}$ I met with Emeritus Prof. Joseph B. Otieno-Malo, President of the Kenya National Academy of Sciences (KNAS), which was founded in 1983 and is

affiliated to the Third World Academy of Sciences. Prof. Otieno-Malo expressed his support for the initiatives in the Physics Department. Should Kenyan astronomy reach the point where Kenya joins the IAU, the KNAS would be the natural adhering body.

**6. Conclusions and Recommendations**

There is a strong interest in the Physics Department at the University of Nairobi in developing astronomy with the assistance of colleagues in South Africa and the IAU. The Department has commenced an initiative to introduce astronomy as part of its undergraduate curriculum. The person who is spearheading this initiative is Dr. Paul Baki, a cosmologist by training. There is no doubt that Dr. Baki enjoys the full support of the academic hierarchy for the introduction of an astronomy program at the University of Nairobi's Chiromo campus. This was evident to me in all my meetings with Dr. Baki's colleagues and other officials in the College.

Clearly, astronomy in Kenya is in a nascent phase, and must be carefully nurtured if it is to flourish in the coming years. At this stage, small but significant steps may be taken to support this objective.

- The IAU should recognize and nurture the current initiatives to develop astronomy in Kenya. These are initiatives by Kenyan scientists who seek guidance and advice from their international colleagues. A step in this direction would be to admit Dr. Paul Baki as a member of the International Astronomical Union in his personal capacity at the next IAU General Assembly in Prague in 2006.
- A small, modern telescope at the University would provide an extremely powerful platform for public outreach and undergraduate training in astronomy, and could be the hub around which an undergraduate practical observing program is built. Consideration should be given to possible forms of assistance or facilitation which Commission 46 might be able to provide to enable the acquisition of a 20-30 cm computerized telescope with accessories.
- IAU Commission 46 should consider supporting Dr. Baki or one of his colleagues to travel to another country for a research experience of several months, relevant to the conditions, interests and level of development on the ground at the University of Nairobi. In order to maintain the momentum developed during my visit, it is proposed that consideration be given to facilitating such a visit during the 2004-5 academic year.
- Having acquired knowledge of all aspects of a working observatory, Dr. Baki and his colleagues should then be in a position to draft a proposal for a 0.5-m class telescope facility for undergraduate training and appropriate research. Commission 46 should avail itself to assist Dr. Baki in the development of such a proposal.

The flowering of Kenyan astronomy will take 5 to 10 years, when the present generation of students, inspired by the new curriculum at the University, decides to study astronomy at postgraduate level. Initially, such studies will take place in other countries, and it will be important to develop opportunities in Kenya for these young scientists to return to after graduation. The increasing penetration of the internet in Africa has greatly mitigated isolation of scientists over the past 10 years. The challenge for the future is to take advantage of the opportunities being created by the presence of new large-scale facilities on the continent, such as the Southern African Large Telescope or the High Energy Stereoscopic Facility in Namibia, to create an indigenous community of African astronomers.

**7. Acknowledgements**

I acknowledge the gracious hospitality of my hosts at the University of Nairobi. I am also grateful to the International Astronomical Union for financial support that enabled me to visit Kenya, and to Prof. John Hearnshaw, Chair of the Program Group for the "World Wide Development of Astronomy", for inviting me to undertake this memorable visit and for kindly allowing me to use his presentation on the IAU and Commission 46.

*Peter Martinez, Member of Commission 46, South African Astronomical Observatory*

**Commission 51 - Bioastronomy: Search for Extraterrestrial Life**

The 2004 Bioastronomy meeting on Habitable Worlds, held July 12-16 in Reykjavik Iceland, was the eighth in a series of international conferences on this topic initiated by Commission 51. Iceland was selected as the meeting site because of its unique environment, including a unique sub-arctic ecosystem, subglacial volcanic eruptions, and other astrobiologically important environments. The science sessions were planned by an international Science Organizing Committee of 15 scientists, led by Dr. Alan Boss, and the Local Organization was led by Dr. Thorsteinn Thorsteinsson of the National Energy Authority. The conference was held at the University Cinema Conference and Cultural Center situated on the campus of the University of Iceland. All of the scientific talks were held in plenary, for a total of 4.5 days, with a mid-conference tour. With nearly 100 invited and contributed talks, Bioastronomy 2004 presented a rich smorgasbord of scientific work on the origin, evolution and prevalence of life in the universe. In addition, there were 3 public talks, and a mid-week teacher workshop organized by the University of Hawaii NASA Astrobiology Institute lead team.

*Karen Meech, President of Commission 51, Institute for Astronomy, University of Hawaii*

## 4. REPORTS OF THE IAU REPRESENTATIVES TO INTERNATIONAL ORGANIZATIONS (2003-2006)

**COSPAR (Committee on Space Research)**

The 35th COSPAR Scientific Assembly was held in Paris, July 18-25, 2004. The event was a great success, since the attendance reached an all-time record of nearly 3200, including registered guests. A significant item was the participation of 465 students, which reflects a conscious effort to attract younger attendees to the COSPAR scientific events. A rich science program was offered, as usual with technical presentations related to satellites or space missions, but also with interdisciplinary, popular lectures on hot topics, which were open to the general public and well attended. As a new feature, panel discussions were also arranged on several general topics of broad interest.

The COSPAR Council adopted the basic outline of the preparations for the 36th Scientific Assembly, to be held in Beijing July 16-23, 2006, and unanimously accepted Canada's invitation to hold its 37th edition in Montreal in 2008. An expression of interest from India to host the 38th Scientific Assembly in 2010 was gratefully received. Further main items that were discussed included the recent financial results and budgets for the coming years, the COSPAR publications and the capacity-building program. An important effort is ongoing within COSPAR to oversee its publication program, and this is leading to new results that parallel those of the IAU though with some significant differences. For instance, all COSPAR publications will be refereed, whereas this is still open for IAU Symposia and Colloquia.

Upon the invitation of COSPAR's President, Prof. Roger Bonnet, a reflection on the future of COSPAR was held, at which Hans Rickman represented the IAU. Key issues included the role of COSPAR in the international society of the 21st century, especially vis-a-vis the scientific community, space agencies, ICSU, and its Unions, e.g. the IAU. Special attention was paid to the added value of COSPAR and what new tools it may exploit in order to further its contribution. Task Groups were appointed for several items that were identified as specially important, where amongst International Cooperation, Relations with ICSU and Other Bodies, Involving Young People, Outreach and Education, Capacity-Building, Efforts in Developing Countries, and Publications. These are to report to the following Bureau Meeting in March 2005.

*Hans Rickman - Paris, France, July 18-25, 2004*

**IAF (International Astronautical Federation)**

The 55th congress of the International Astronautical Federation took place October 4-8, 2004 in Vancouver, Canada. More than 2000 participants from over 45 countries deliberated the latest results and future prospects of all activities in space.

Everyday more than 10 parallel sessions took place and it is impossible to give a complete overview of all issues addressed.

The 4th of October 2004 marks the 47th anniversary of the first satellite launch, Sputnik. I will concentrate on a few highlights chosen according to my personal taste and interest. The first plenary session I attended was about the future of human exploration of space. The heads of the various space agencies debated the issues of space travel to Mars as a global enterprise and the necessity for international cooperation to make this successful. Most welcomed were the remarks made by one of the panelist, the movie director James Cameron, who emphasized the importance of maintaining the public interest in such a long term enterprise by humanizing human space flight. The public is not only interested in what the astronauts are doing in space but also in their personal experiences, feelings and emotions. The near term goal essential for future human space exploration is the return to flight of the space shuttle and the assembly completion of the Space Station.

The second plenary session I attended was a wonderful talk by Bruce Margon about the results from Hubble Space Telescope. In his own characteristic way, Bruce captivated the audience with stunning pictures of planets, stars, nebulae, galaxies and "empty" space. It is really a pity that further servicing of this highly productive telescope may not be possible in the future.

The highlight of the session on Space-based Astronomy that I co-chaired with Roger Malina was the presentation of the results from the small Canadian Space Telescope, MOST, by Jamie Matthews. The performance of this small satellite is quite impressive. The stellar seismology data that are obtained are unique. Collaboration with the French-led COROT mission has been started and will undoubtedly help to optimize the COROT observing program.

*Henk Olthof*

**IVS (International VLBI Service for Geodesy and Astrometry)**

Operating as a service of the International Association of Geodesy (IAG) and of the IAU, the IVS works closely with the International Earth Rotation and reference frame Service (IERS) and is a member of the Federation of Astronomical and Geophysical data analysis Services (FAGS). It provides services to support geodetic, geophysical, and astrometric research and operational activities, it promotes research and development activities in all aspects of geodetic and astrometric VLBI, it maintains contact with the community of

users of VLBI products and it integrates VLBI into a global Earth observing system. Its 70 components, representing 37 organizations in 17 countries, comprise 28 network stations, 3 operation centers, 6 correlators, 6 data centers, 21 analysis centers and 7 technology development centers, and the coordinating center. The IVS products include a terrestrial reference frame (TRF), the international celestial reference frame (ICRF), Earth orientation parameters (EOP), and tropospheric parameters (TROP).

The Coordinating Center completed an extensive revision of the IVS web site in June 2004: visit http://ivscc.gsfc.nasa.gov/

The IVS Directing Board met on October 8, 2004 at Makuhari, Japan, immediately following the 3rd e-VLBI Workshop.

The Board voted to accept a proposal from the Institute of Applied Astronomy, St. Petersburg, Russian Federation, for a new IVS Network Station at Zelenchukskaya in the Caucasus. The station is the second of the QUASAR network to be completed and 50 % of the time will be available for geodesy.

The IVS observing program for 2005 is similar to that for 2004, which will have recorded about 1 petabyte of data from 175 session days and 1100 station days. The program for 2005 is similar. Continuously improving recording equipment means that processing currently takes only about 50 % longer than the time taken to record the data, and experiments with "e-VLBI" - the transmission through computer networks of pre-correlation VLBI data at Gb/s rates - are continuing.

A program of observing CRF sources has been undertaken, in order ultimately to improve the ICRF and to provide a robust set of sources for the IVS observing program. 300 sources are being monitored, including both the ICRF defining sources and lists of sources known to be stable (supplied by Martine Feissel-Vernier). The observations are scheduled in such a way that the EOP results are not affected.

Work continues on incorporating the IAU 2000 models of precession-nutation and UT1 into the VLBI analysis procedures. The Analysis Centers that contribute to the Earth Orientation Parameters combination product use a mix of software packages, which avoids a single point of failure and allows a degree of intercomparison: the different sources of EOPs agree at the 100 microarcsecond level at present.

The initial draft report of Working Group 3: VLBI2010 was discussed in a one-day WG meeting prior to the e-VLBI Workshop. The WG is tasked with defining a vision for the next generation geodetic/astrometric system encompassing the data flow from the telescopes through product generation. The WG report needs to be better focussed on its audience, which is the geodetic and astrometric community plus funding agencies, and should articulate the vision of IVS for the future.

Axel Nothnagel (University of Bonn) and Chopo Ma (Goddard Space Flight Center) have been appointed as the IVS representatives to the IERS board for the next 4-year period (up to December 31, 2008).

Elections are under way for five IVS DB positions that expire in February 2005: two representatives and three "at large" positions. An election committee, chaired by Kerry Kingham, has issued a Call for Nominations.

The next IVS Directing Board will meet in Noto, Sicily on April 20, 2005, followed by the European VLBI meeting (April 21-22) and IVS Analysis Workshop (April 22-23). The Fourth e-VLBI workshop will be held in July 2005 in Sydney, Australia. The next IVS General Meeting will be in Concepcion, Chile, in 2006.

*Patrick Wallace*

**SCOPE (Scientific Committee on Problems of the Environment)**

*Adverse Environmental Impacts on Astronomy*

The Astronomical Community continues to be concerned about Adverse Environments Impact on Astronomy as reported to SCOPE some years ago.
While the problems posed by electromagnetic pollution at all wavelengths, the effects of man made particulates (including those generated by aircraft engines) on atmospheric extinction, increasing effect of aircraft lights and bright satellite/space debris are not strictly within the current purview of SCOPE, these effects have not gone away despite considerable effort to mitigate the effects of outdoor lighting at optical wavelengths. Indeed mitigation has not kept pace with new forms of outdoor lighting. New developments in communications may soon force optical/IR astronomy into the same difficult situation of long standing faced by the radio astronomy community - commercial competition for bandwidth.

However, a new concern is the effects on observation of global warming. The effects are far from clear at this time, and while the situation in the Southern Hemisphere seems not to be as unfavorable as in the Northern Hemisphere, it seems likely that the increasing water vapor content in the atmosphere may have serious consequences in itself, and through interaction with the increasing particulate burden. It is still too early to come to any conclusion on likely deterioration of local climates as a consequence of global warming in respect of astronomical observation at the best sites.

Astronomy is maintaining vigilance, but the outlook continues to be gloomy - interspersed with moments of hopefulness.

*Derek McNally*

## 5. REPORT ON THE PLANNING OF THE XXVIth GENERAL ASSEMBLY

Information on the General Assembly is available through the following web site:

**http://www.astronomy2006.com**

If, for any reason, you cannot visit our Web pages, please, use the following contact.

| | | |
|---|---|---|
| GA IAU 2006 Secretariat | Tel: | +420 224 942 575/579 |
| Congress Business Travel Ltd. (CBT) | Fax: | +420 224 942 550 |
| Lidická 66 | | |
| 150 00 Praha 5 - Smíchov | E-mail: | astro2006@cbttravel.cz |
| Czech Republic | URL: | http://www.astronomy2006.com\\ |

**AUSPICES OF THE PRESIDENTS OF THE CZECH REPUBLIC**

At early stages of the preparation of the GA XXVIth, the former President of the Czech Republic Václav Havel expressed his positive feelings that the conference will take place in the Czech Republic. The IAU GA in 2006 will be held under the auspices of the acting President of the Czech Republic, Václav Klaus, who is delighted that this important astronomical conference is organized again after almost 40 years in Prague.

**AUSPICES OF THE ACADEMY OF SCIENCES AND OF UNIVERSITIES**

The IAU GA in 2006 will be held under the auspices of the President of the Academy of Sciences of the Czech Republic and the Rector of the Masaryk University Brno.

**NATIONAL ORGANIZING COMMITTEE - NOC**

It consists of Jirí Bicák, Jirí Borovicka, Sona Ehlerová, František Fárník, Jirí Grygar, Petr Hadrava, Pater Harmanec, Petr Heinzel, Vladimír Karas, Marian Karlický, Zdenek Mikulášek, Jan Palouš (Chair), Martin Šolc, Jana Tichá, Jan Vondrák (Vice-Chair), & Marek Wolf.

**APPOINTMENT OF LOCAL ORGANIZING COMMITTEE - LOC**

At a meeting in October 2004, the NOC appointed the LOC for the XXVIth General Assembly of the IAU. It consists of the following persons:

L. Cervinka, Z. Dienstbierová, J. Palouš, R. Placek, P. Suchan, C. Ron (Tentative Chair), M. Šenderová, Z. Tesarová, J. Tichá, J. Vondrák, & M. Wolf.

**TOPICAL SUB-COMMITTEES**

At a meeting in October 2004, the NOC delegated to NOC and LOC members the following sub-committees responsible for different activities during preparation and running of the XXVIth General Assembly of the IAU: executive, finance, hospitality, tours and social events, web-site development, marketing and media, GA Newspaper, communication between SOC's, exhibition and sponsors, associated events, messages for the IAU Information Bulletin, room scheduling, contents of satchels, opening ceremony, badges, student-volunteers, women in astronomy, light pollution, program for accompanying persons, childcare, dinners and receptions, connection of databases.

**ASTRONOMICAL EXHIBITION AND SPONSORS**

Simultaneously with the scientific conferences there will be during GA XXVIth an exhibition of companies, institutions, publishers etc. It will be a regular part of this GA. The sponsorship of companies and institutions will also represent an important part of the GA budget. The National Organizing Committee has decided to maintain the same categories of promotional involvement as employed for the Sydney XXVth General Assembly of the IAU in 2003, i.e. Principal and Major Sponsors, Program Sponsors, Sponsors of Internet Café, Satchel, Dinner, Book of Abstracts, Newspaper, etc. More than 1000 invitations have been sent to potential exhibitors and sponsors.

*Jan Palouš & Jan Vondrák, on behalf of the National Organizing Committee,*

# 6. MEETING OF THE EXECUTIVE COMMITTEE

**80th MEETING OF THE EXECUTIVE COMMITTEE**

The 80th meeting of the Executive Committee, April 18-20, 2005, will take place at the Historical Monte Mario Observatory in Rome, Italy.

# 7. IAU PUBLISHING

## 7.1. 2004 POST MEETING REPORTS

All five 2004 Symposia, see: http://www.iau.org/IAU/Activities/meetings/pastsym.html and three 2004 Colloquia, see: http://www.iau.org/IAU/Activities/meetings/pastcqm.html were held between March and September 2004. A compilation of their Post Meeting Reports is available at http://www.iau.org/IAU/Activities/meetings/POSTMR2004.pdf

### 7.2. PROCEEDINGS PUBLISHED BY THE ASTRONOMICAL SOCIETY OF THE PACIFIC (ASP)

While the contract between the IAU and the ASP has expired at the end of 2003, publication of the Symposium Proceedings of IAUS 201 and IAUS 216 and of the Highlights Vol.13 (March 2005) and Transactions XXVB/2003 by ASP is pending. Collaboration with ASP has always been most efficient and pleasant, notably thanks to Managing Editor, Dr. D. Harold McNamara, and Production Manager, Mrs. Enid Livingston.

### 7.3. PROCEEDINGS PUBLISHED BY CAMBRIDGE UNIVERSITY PRESS (CUP)

Starting in 2004, the contract between the IAU and CUP provides in electronic publishing, in combination with the regular hard copies of both the IAU Symposium Proceedings series and the IAU Colloquium Proceedings series. All 2004 IAU-CUP Proceedings are freely available on the CUP web site: http://journals.cambridge.org/jid_IAU

*Karel A. van der Hucht, Assistant General Secretary & Chairman of IAU Editorial Board.*

## 8. EDUCATIONAL ACTIVITIES

### PG ON INTERNATIONAL SCHOOL FOR YOUNG ASTRONOMERS (ISYAs)

**27th ISYA, Al Akhawayn University in Ifrane (AUI), Morocco, July 02-23, 2004**

The 27th International School for Young Astronomers took place at Al Akhawayn University in Ifrane (AUI), Morocco, under the auspices of Mr. Rachid Benmokhtar Benabdellah, President of Al Akhawayn University.

This new ISYA was organized after a first "Teaching for Astronomy Development" (TAD) program has been running since 1999 at the University Hassan II in Casablanca, Morocco. During the opening ceremony, a second TAD agreement has been signed by the International Astronomical Union (IAU) represented by its General Secretary Prof. Oddbjørn Engvold, and AUI President, Mr. Rachid Benmokhtar Benabdellah. Prof. James C. White (TAD chairperson) also attended the ceremony. This new agreement has the objective to support the continued, long-term development of astronomy and astrophysics in Morocco.

The members of the Program Committee were:

- Dr. Michèle Gerbaldi (Institut d'Astrophysique, Paris, France)
- Dr. Hassane Darhmaoui (Al Akhawayn University)
- Dr. Khalil Chamcham (Casablanca University, Oxford University, UK)

Dr. Amine Bensaid (Al Akhawayn University, School of Science & Engineering) was the Chairperson of the Local Organizing Committee.

The number of participants was 29 (female: 9, male: 20) 11 Moroccan and 18 foreigners from: Algeria, Bulgaria, Iran, Jordan, Lebanon, Macedonia, Malaysia, Nigeria, Palestine, South Africa, Sudan and Turkey.

The background of the participants, ranged from finishing their B.Sci. degree to having started their Ph.D. about one year ago.

The faculty members were:

- Dr. Bruce Partridge (Haverford College, US)
  *Radio Astronomy and Cosmology*
- Dr. Bruno Guiderdoni (Institut d'Astrophysique de Paris, France)
  *Galaxy Formation*
- Dr. Edward Guinan (Villanova University, USA)
  *Magnetic Activity of the Sun and Solar type Stars*
  *Variable and Eclipsing Stars as Astrophysical Laboratories*
- Dr. Ignasi Ribas (Barcelona University, Spain)
  *Astronomical Techniques, Data Analysis*
- Dr. Jean-Pierre de Greve (Brussels University, Belgium)
  *Evolution of Close Binary Stars*
- Dr. Joseph Silk (Oxford University, UK)
  *Galaxy Formation*
- Dr. Kavilan Moodley (University of KwaZulu-Natal, South Africa)
  *Cosmological Models*
- Dr. Mariano Mendez (SRON - National Institute for Space Research, The Netherlands)
  *High-Energy Astrophysics*
- Dr. Martin Hendry (University of Glasgow, UK)
  *Statistical Astronomy*
- Dr. Michèle Gerbaldi (Institut d'Astrophysique de Paris and Univ de Paris-Sud Orsay, France)
  *Stellar Atmospheres*
- Dr. Mohammed Badaoui (APESA- Agronomic and Veterinary Inst. Hassan II, Rabat, Morocco)
  *Infrared High Resolution Molecular Spectroscopy*
- Dr. Pedro G. Ferreira (Oxford University, UK)
  *Cosmology with the Cosmic Microwave Background*

Sessions were organized for talks by the participants on their current interest and research. More than 15 talks were given.

Thanks to a fruitful collaboration with the AUI Information Technology Services Department a network of 20 computers under LINUX was set up for the practical activities. Specialized software packages were installed for the reduction and analysis of data, (IRAF) and (XSPEC) among others. More than 25 hours were spent in data reduction and analysis.

The Al Jabr School, in Casablanca, is acknowledged for the loan to AUI, of their 20cm-telescope, allowing observational sessions to be set up.

This ISYA could be organized thanks to the financial support of the Al Akhawayn University; ICTP (The Abdu Salam International Centre for Theoretical Physics, Italy) and CNRST (Centre National pour la Recherche Scientifique et Technique, Morocco) are acknowledged for the grants given for the venue of this event.

ISYA 27th also opened its doors to interested AUI students and faculty members who attended some of its activities.

ISYA 2004 URL: http://mail.alakhawayn.ma/~H.Darhmaoui/ISYA/index.htm

*Dr. Michèle Gerbaldi, IAP (France), Chairperson of the ISYA Program*

**28th ISYA, INAOE in Tonantzintla, Puebla, Mexico, July 25-August 12, 2005**

The 28th IAU-UNESCO International School for Young Astronomers, will be held at Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE), Tonantzintla, Puebla, Mexico, July 25-August 12, 2005.

The language of the School will be English.

Among the topics to be covered are:
- Theory of Galactic Star Formation.
- Stellar Atmospheres, binaries, extrasolar planets.
- Interstellar Medium.
- Supernovae: from Stellar Evolution to Cosmology.
- The Chemical History of the Universe.
- Groups and Clusters of Galaxies, Large-Scale Structures.
- Observational Techniques at various wavelengths.
- Astronomical Databases and Virtual Observatories.

More information and an application form can be obtained through the URL: http://www.inaoep.mx/~isya28/

Applications should include the student's achieved level of studies in physics and astronomy and any topic of special interest. Two letters of recommendation are required. Grants will be available.

The deadline to receive applications is **31st January 2005**.

The organizers can be contacted at isya28@inaoep.mx

*Dr. Itziar Aretxaga, INAOE, Principal Organizer of the 28th ISYA*
*Dr. Michèle Gerbaldi, IAP (France), Chairperson of the ISYA Program*

## 9. MEMBERSHIP

The General Secretary regrets to report the names of former and current IAU Members and Consultants whose death has been communicated to the Secretariat since the previous list published in IB 95:

| | | |
|---|---|---|
| Joseph W. **Chamberlain** * | Alan H. **Cook** | Pierre **Cugnon** |
| Willem **de Graaff** | Geoffrey G. **Douglas** * | Donald J. **Faulkner** |
| Walter A. **Feibelman** * | Robert **Glebocki** * | Vitalij G. **Gorbatsky** |
| R. Glenn **Hall** * | Charles L. **Hyder** * | Henry E. **Kandrup** * |
| Vladimir A. **Kotelnikov** * | John D. **Kraus** | Trudpert **Lederle** |
| Janet A. **Mattei** * | Paul J. **Melchior** | Rolf **Mewe** |
| J. Beverley **Oke** * | J. **Oro** | KevinH. **Prendergast** |
| James **Ring** * | William M. **Sinton** * | Mattheus M.J. **Snijders** * |
| Mieczyslaw **Subotowicz** | Peter A. **Sweet** * | James A. **Westphal** * |
| Fred L. **Whipple** | Raymond E. **White** * | |

* Death announced after the publication of IB96 (paper version).

# 10. IAU PUBLICATIONS

**PRICING of IAU books made by Cambridge University Press (CUP)**

| **Prices in USD for Year** | **2004** | **2005** |
|---|---|---|
| **Series Subscriptions** | | |
| *On-line + Print* | | |
| Institution | 900 | 995 |
| IAU Member | 450 | 495 |
| *On-line only* | | |
| Institution | 765 | 820 |
| IAU Member | 250 | 270 |
| On-line only, if no Print offered | 800 | 885 |
| *Print only* | | |
| Institution | 810 | 890 |
| IAU Member | 405 | 445 |
| **Individual Volumes** (Symposia, Colloquia, Transactions and Highlights) | | |
| On-line + Print | 130 | 140 |
| On-line only | 35 | 40 |
| Print only | 90 | 100 |
| **Bulk Order** (Symposia/Colloquia attendees) | | |
| On-line + Print | 65 | 70 |
| On-line only | 20 | 20 |
| Print only | 45 | 50 |

**PRICING* of IAU books made by the Astronomical Society of the Pacific (ASP)**

**1. Symposia**
Non-Member/Library/Institution: USD 95.00 - IAU Member/Attendee: USD 42.00

**2. Transactions**
Non-Member/Library/Institution: USD 125.00 - IAU Member: USD 80.00

**3. Highlights**
Non-Member/Library/Institution: USD 95.00 - IAU Member/Attendee: USD 56.00

* Note: Discounts are for IAU Individual Members ONLY.
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(E-version: http://journals.cambridge.org/jid_IAU )

**IAUS 202 Planetary Systems in the Universe**
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Eds. A.J. Penny, P. Artymowicz, A.-M. Lagrange & S.S. Russell
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### 10.2. COLLOQUIA

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Mexico: UNAM, RevMexAA-SC Vol. 20, ISBN: 970-32-1185-5, July 2004

**IAUC 192 Supernovae (10 Years of SN1993J)**
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Heidelberg: Springer, Springer-PP 99, ISBN 3-540-23039-4, October 2004
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## 11. OTHER MEETINGS ON ASTRONOMICAL TOPICS

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# UNION ASTRONOMIQUE INTERNATIONALE

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Cover Image: Saturn's satellite Phoebe imaged by the Cassini spacecraft in June 2004.
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