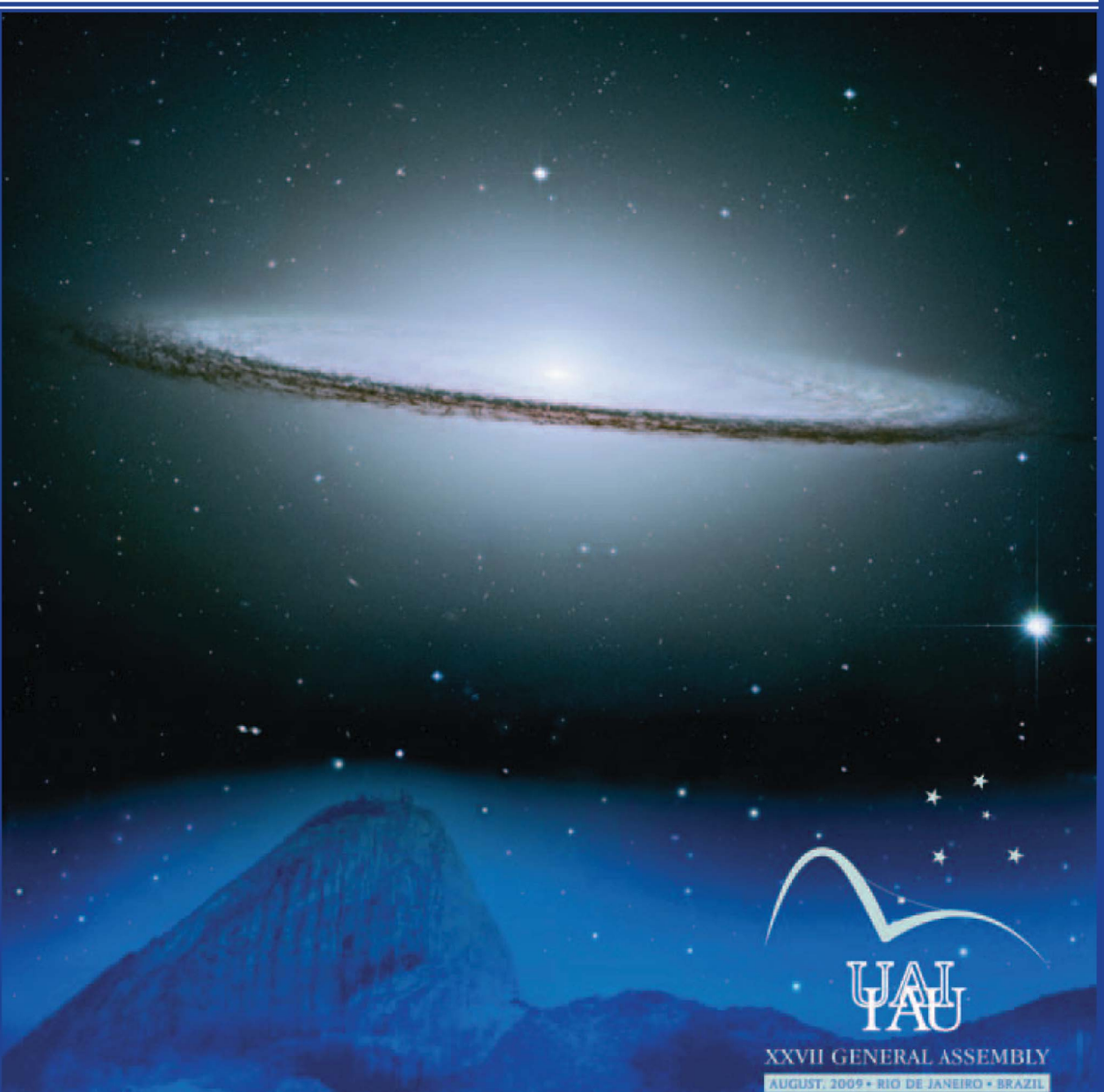
INTERNATIONAL ASTRONOMICAL UNION

UNION ASTRONOMIQUE INTERNATIONALE



INFORMATION BULLETIN JULY 2008

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On 29-31 January 2008, the IAU Officers did meet at the IAU Secretariat in Paris for their annual meeting, to handle current affairs and prepare for EC84. A brief report is given in § II.2.1 of this *Bulletin*. The entire EC did meet 28-30 May in Oslo, Norway for its EC84 meeting. A brief report is given in § II.2.2 of this *Bulletin*.

Just before this Officers' Meeting, the Officers attended the cremation service for Mme Monique Léger-Orine, the IAU Executive Assistant since July 1988. Since March 2008 the position of Executive Assistant is most professionally held by Mme Vivien A. Reuter.

Mme Reuter is assisted at the IAU Secretariat by Mme Maïténa Mitschler (data base assistant) and part-time by Mme Ginette Rude (archive assistant).

Maintenance and development of the IAU data base and web site, contracted to ESO, continue to be handled very capably by Lars Lindberg Christensen, Lars Holm Nielsen, Luis Clara Gomes, and Raquel Y. Shida in Garching-bei-München, Germany. This culminated in May of this year in the launch of the new IAU data base and the new IAU web site. The entire IAU membership is profiting from this development.

The past half year saw a continuation in the increase of impressive actions and planning by the EC Working Group on the *International Year of Astronomy 2009*. See § II.12 of this Bulletin, and <www.astronomy2009.org>.

Last Spring saw the *1st Middle-East African Regional IAU Meeting,* an initiative set to become a tradition. The next Regional IAU Meeting in this series will be hosted by South Africa in 2011.

The very well prepared *10th Asian-Pacific Regional IAU Meeting* in Kunming, China, 3-6 August 2008, will give a foretaste of the IAU XXVIII GA in Beijing 2009.

The IAU Proceedings Series, the flagship of the IAU, published its 250th volume, on *Massive Stars as Cosmic Engines* (eds. Bresolin et al., see § II.5.3 of this Bulletin) in June 2008, 55 years after the Proceedings of IAU Symposium No. 1 on *Coordination of Galactic Research* (ed. A. Blaauw) was published. Our IAU Assistant General Secretary Ian F. Corbett, all individual proceedings' editors, and our publisher Cambridge University Press are to be complimented upon the timely publication of nine volumes per year.

PART I of this *Information Bulletin*, presents the currently available information on the IAU XXVII General Assembly in Rio de Janeiro, Brasil, 3-14 August. The NOC in Brasil is gearing up for a most interesting and pleasant GA and, together with the IAU EC, is looking forward to welcoming a large proportion of the IAU membership, as well as many potential IAU members and otherwise interested astronomers from all over the world.

Karel A. van der Hucht, General Secretary, Paris, 31 July 2008

XXVII GENERAL ASSEMBLY

AUGUST 03 - 14, 2009
Rio de Janeiro - Brazil

The IAU XXVII GENERAL ASSEMBLY is organized by

The Brazilian Astronomical Society

I.1. IAU XXVII GENERAL ASSEMBLY RIO DE JANEIRO, BRAZIL, 3-14 AUGUST 2009

I.1.1. Invitation by the President of the IAU, Catherine J. Cesarsky

I have the great pleasure of inviting you to attend the XXVII General Assembly (GA) of the International Astronomical Union, which will take place in Rio de Janeiro from August 3 to 14, 2009. This is the second GA to take place in South America, following the Buenos Aires GA in 1991. In the intervening years, as participants in the very successful Latin American Regional Meetings every three years can testify, astronomy has much expanded and matured in this part of the world and thus it is timely to meet in this continent again.

At the 2003 GA, in Sydney, the IAU General Assembly voted unanimously to adopt a resolution declaring 2009 the International Year of Astronomy, marking the 400th anniversary of the first astronomical observation through a telescope by Galileo Galilei. UNESCO was prompt in joining IAU in the organization of the celebration and, in due time, the United Nations proclaimed 2009 to be the International Year of Astronomy (IYA). Many astronomers throughout the world will be engaged in IYA activities, putting their knowledge and their enthusiasm at the disposal of the public and educators, helping them to reach out to "the universe, yours to discover." In Rio, we shall have the opportunity to celebrate IYA together in one of the most beautiful sites of the world, endowed with balmy weather even in the middle of the winter, to meet with colleagues from around the world, to consolidate old friendships and associations and start new ones, to hear first hand of the latest discoveries, and to resume our fascinating and never ending debates on astronomical phenomena.

The scientific programme of the GA was selected in an interactive way by the IAU Division Presidents, at a meeting with the Executive Committee in Oslo. It will allow every astronomer to discuss problems in his or her research area with colleagues with similar interests, and to be informed about recent progress in other fields. As usual, there will be six Symposia, and more than 25 Joint Discussions and Special Sessions, covering a full range of topics in contemporary astrophysics. As is suitable in this IYA year, historical topics will be addressed, including a Special Session for the 400th anniversary of the publication of Kepler's Astronomia Nova. Details of the programme can be found in this IAU Information Bulletin. There will be three Invited Discourses on highly topical subjects, supplemented by a special presentation by Franco Pacini on Galileo commemorating the 400th anniversary of his first viewing through a telescope, and by a lecture by the recipient of the Gruber Cosmology

Prize 2009. As astronomy is moving forward at an unprecedented speed, it is more and more valuable to have chances to catch up on the news in other topics. Therefore, the starting reviews in each of the Symposia will be turned into plenary talks and throughout the GA a series of 'Hot Topics' will be identified, to attract general interest and, we hope, the attention of the world's media.

I very much look forward seeing you in Rio de Janeiro next August.

Catherine Cesarsky
President of the IAU, 21 July 2008

I.1.2. Welcome message from the National Organizing Committee

The IAU XXVII General Assembly will be held in Rio de Janeiro, Brazil, in August 3-14, 2009, organized by the Sociedade Astronômica de Brasileira (SAB) under the auspices of the Brazilian National Committee for Astronomy (NCA).

The City of Rio de Janeiro is well-known for its breath taking scenery, surrounded by a lush rain forest and awesome granite mountains, complemented by beautiful beaches and a deep blue sea. The weather is hot and tropical nearly all year round and slightly cooler during the months of June through August, when typical temperatures range from a chilly 18° C to a warmer 28° C. In addition, it is considered one of the world-wide prime destinations, particularly because of its exotic and vibrant culture and the warm hospitality of the *Cariocas* (the people from Rio).

Rio, however, is not only a prime tourist destination. The great concentration of scientific and technological activities also characterizes Rio as one of the most important centers in Brazil and Latin America. It is the place where the first Brazilian national observatory was established by the Emperor Dom Pedro I in 1827.

In the last decade, Astronomy in Brazil has experienced major growth and development, together with significant participation in the International Astronomical Community, such as the Gemini and SOAR projects.

On behalf of the Brazilian astronomical community, the National Organizing Committee of the IAU XXVII General Assembly warmly invites you to take part in this coming Assembly, which we hope will be very pleasant and of high scientific interest.

Daniela Lazzaro, Beatriz Barbuy, co-chairs National Organizing Committee
<www.astronomy2009.com.br/welcome.html>

I.1.3. Committees and sub-committees

National Organizing Committee - NOC
- Barbuy, Beatriz (co-chair) - IAG/USP, <barbuy@astro.iag.usp.br>
- Bruch, Albert - LNA/MCT
- da Silva, Licio - SAB and ON/MCT
- de Araújo, Francisco Xavier - ON/MCT
- de Medeiros, José Renan - UFRN
- Janot-Pacheco, Eduardo - IAG/USP
- Kepler, Souza Oliveira - UFRGS
- Lazzaro, Daniela (chair) - ON/MCT, <lazzaro@on.br>
- Lorenz-Martins, Silvia - OV/UFRJ
- Maciel, Walter Junqueira - IAG/USP
- Pastoriza, Miriani G. - UFRGS
- Silva-Valio, Adriana - CRAAM
- Vaz, Luiz Paulo Ribeiro - UFMG
- Villela, Thyrso - INPE/MCT and AEB/MCT

Executive Sub-Committee - EsC
- Barbuy, Beatriz - IAG/USP
- da Silva, Licio - SAB and ON/MCT
- de Araújo, Francisco Xavier - ON/MCT
- Janot-Pacheco, Eduardo - IAG/USP
- Lazzaro, Daniela - ON/MCT
- Pastoriza, Miriani G. - UFRGS
- Vaz, Luiz Paulo Ribeiro - UFMG
- JZ Congressos

Finance Sub-Committee - FsC
- Barbuy, Beatriz - IAG/USP
- Bruch, Albert - LNA/MCT
- da Silva, Licio - SAB and ON/MCT
- Kepler, Souza Oliveira - UFRGS
- Lazzaro, Daniela - ON/MCT
- Lépine, Jacques Raymond Daniel - IAG/USP
- Vaz, Luiz Paulo Ribeiro - UFMG
- JZ Congressos

WEB Sub-Committee - WsC
- Alencar, Silvia Helena Paixão - UFMG
- Corradi, Wagner José Barbosa – UFMG
- Gregório-Hetem, Jane - IAG/USP
- Sant'Anna, Thiago - ON/MCT
- Silva-Valio, Adriana – CRAAM
- Vaz, Luiz Paulo Ribeiro (chair) - UFMG

Social Events Sub-Committee - SEsC
- Alencar, Silvia Helena Paixão - UFMG
- Cuisinier, François - OV/UFRJ
- de Gouveia Dal Pino, Elisabete M. - IAG/USP
- de La Reza, Jorge Ramiro - ON/MCT
- Franco, Gabriel Armando Pellegatti - UFMG
- Lorenz-Martins, Silvia (chair) - OV/UFRJ
- Machado, Maria Auxiliadora D. - UERJ
- Rodrigues, Teresinha - ON/MCT
- Silva-Valio, Adriana R. - CRAAM

Sponsorship Sub-Committee - SpsC
- da Silva, Licio - SAB and ON/MCT
- da Silva, Maria de Fátima Alvez - UERJ
- de Araújo, Francisco Xavier (chair) - ON/MCT
- Ferreira, José Leonardo - IF/UnB
- Porto de Melo, Gustavo F. - OV/UFRJ
- Roig, Fernando Virgílio - ON/MCT
- Villela, Thyrso - INPE/MCT and AEB
- JZ Congressos

Associate Events Sub-Committee - AEsC
- Bulgarelli, Domingos - Planetário do Rio de Janeiro
- Damineli, Augusto Neto - IAG/USP
- de Nader, Rundstein Vasques - OV/UFRJ
- Falcão, Douglas Silva (chair) - MAST
- Kleber, Antares - ON/MCT
- Videira, Antônio Augusto Passos - CBPF and UERJ
- JZ Congressos

Marketing & Media Sub-Committee - MMsC
- Barbosa, Cássio Leandro (chair) - UNIVAP
- Corradi, Wagner José Barbosa - UFMG
- de Araujo, Francisco Xavier - ON/MCT
- de Oliveira-Abans, Mariângela- LNA/MCT
- Machado, Maria Auxiliadora Delgado – UERJ
- Nassif, Ricardo – LNA/MCT
- JZ Congressos

GA-Newspaper Editorial Board
- Cid Fernandes, Roberto Jr. – CFM/UFSC
- Nogueira, Salvador (Technical Associate Editor) - Journalist
- Rocha Pinto, Hélio J. (Scientific Associate Editor) - OV/UFRJ
- Roig, Fernando Virgilio – ON/MCT
- Steiner, João Evangelista (Editor-in-Chief) - IAG/USP

For updates, see <www.astronomy2009.com.br/committees.html> .

I.1.4. Important dates

2008

Beginning of early on-line registration ..... 1 November 2008
<www.astronomy2009.com.br>
Beginning of on-line submission of abstracts ..... 1 November 2008
<www.astronomy2009.com.br>

2009

End of early on-line registration ..... 1 March 2009
End of on-line submission of abstracts ..... 1 March 2009
Application for IAU GA Grants closes ..... 1 March 2009
Beginning of regular on-line registration ..... 2 March 2009
Notification of IAU GA Grants .....1 April 2009
SOC programme review and completion .....15 April 2009
Notification of abstract acceptance .....15 April 2009
Accepted abstracts may be modified ..…….....15 May - 15 June 2009
Media accreditation on-line registration deadline ..... 24 July 2009
End of regular on-line registration ..... 24 July 2009
Start of on-site registration ..... 3 August 2009

I.1.5. Financial support to attend the IAU XXVII General Assembly

A limited number of IAU Travel Grants to attend the IAU XXVII General Assembly will be available for young astronomers and astronomers from less privileged countries. Those who feel qualified and who plan to participate actively in the General Assembly may complete and submit an IAU GA Travel Grant Application Form, available on-line at the GA registration web site <www.astronomy2009.com.br/>. Such grants are exclusively towards travel expenses.

Deadline for the IAU GA Travel Grant Application: 1 March 2009

I.2. SCIENTIFIC PROGRAMME

The scientific programme of the IAU XXVII General Assembly was selected by the IAU Executive Committee and the IAU Division Presidents in their meeting in May 2008 and is published in chapter § I.2 of this *Bulletin*. The complete IAU XXVII GA programme, including the schedule for the Business Meetings, will be published on the IAU web site in January 2009 and in IAU *Information Bulletin* IB 103 (January 2009). In the present issue, we provide information on the IAU Symposia, Joint Discussions and Special Sessions during the GA. The three 2009 IAU Symposia outside the GA, IAU S260, IAU S261, and IAU S268, are listed in § II.4.2 of this *Bulletin*.

I.2.1. CONTACT ADDRESSES

Questions related to the Scientific Programme of the IAU XXVII General Assembly should be addressed either to
- the SOC chairpersons of the individual scientific meetings (contact information is listed in this chapter for each of the scientific meetings: Symposia, Joint Discussions and Special Sessions);
or to
- the IAU General Secretary, Karel A. van der Hucht
<k.a.van.der.hucht@sron.nl>, with a copy to the IAU Secretariat <iau@iap.fr>.

I.2.2. ABSTRACT SUBMISSION

The Abstract Server for papers to be submitted for presentation at the Symposia, Joint Discussions and Special Sessions of the IAU XXVII GA will be available as of 1 November 2008 at <www.astronomy2009.com.br>. The server provides instructions how to proceed. The Abstract Server accepts submissions in LaTeX format and provides a translator from RTF (Rich Text Format) files to LaTeX syntax for those who wish to submit their abstracts in Word or in plain ascii text.

The deadline for submission is 1 March 2009.

Review of abstracts by the scientific meeting organizers will be completed by 15 April 2009. In order for an abstract to appear in the Programme Book and the Abstract Book, the presenter must be fully registered by 1 May 2009. If necessary, accepted abstracts may be modified by the authors in the period from 15 May up to 15 June 2009.

For further details see <www.astronomy2009.com.br> .

I.2.3. CALENDAR OF SCIENTIFIC EVENTS

See IAU *Information Bulletin* 103, to be published in January 2009.

I.2.4. PROGRAMME OVERVIEW

Invited Discourses

ID 1	Franco Pacini	*The Legacies of Galileo*	5 August
ID 2	James F. Bell III	*Water on Planets*	6 August
ID 3	Simon D.M. White	*Evolution of Structure in the Universe*	10 August
ID 4	Maria Teresa Ruiz	*Do Low-Luminosity Stars Matter?*	11 August

Symposia

S262 *Stellar Populations – Planning for the Next Decade*
S263 *Icy Bodies of the Solar System*
S264 *Solar and Stellar Variability – Impact on Earth and Planets*
S265 *Chemical Abundances in the Universe – Connecting First Stars to Planets*
S266 *Star Clusters – Basic Galactic Building Blocks throughout Time and Space*
S267 *Co-evolution of Central Black Holes and Galaxies*

Joint Discussions

JD1 *Dark Matter in Early-type Galaxies*
JD2 *Diffuse Light in Galaxy Clusters*
JD3 *Neutron Stars – Timing in Extreme Environments*
JD4 *Progress in Understanding the Physics of Ap and Related Stars*
JD5 *Modelling the Milky Way in the Era of Gaia*
JD6 *Time and Astronomy*
JD7 *Astrophysical Outflows and Associated Accretion Phenomena*
JD8 *Hot Interstellar Matter in Elliptical Galaxies*
JD9 *Are the Fundamental Constants Varying with Time?*
JD10 *3D Views on Cool Stellar Atmospheres – Theory Meets Observation*
JD11 *New Advances in Helio- and Astero-Seismology*
JD12 *The First Galaxies – Theoretical Predictions and Observational Clues*
JD13 *Eta Carinae in the Context of the Most Massive Stars*
JD14 *FIR2009: the ISM of Galaxies in the Far-Infrared and Sub-Millimetre*
JD15 *Magnetic Fields in Diffuse Media*
JF16 *IHY Global Campaign – Whole Heliosphere Interval*

Special Sessions

SpS1 *IR and Sub-mm Spectroscopy – a New Tool for Studying Stellar Evolution*
SpS2 *The International Year of Astronomy 2009*
SpS3 *Astronomy in Antarctica*
SpS4 *Astronomy Education between Past and Future*
SpS5 *Accelerating the Rate of Astronomical Discovery*

SpS6 *Planetary Systems as Potential Sites for Life*
SpS7 *Young Stars, Brown Dwarfs, and Protoplanetary Disks*
SpS8 *The Galactic Plane – in Depth and Across the Spectrum*
SpS9 *Marking the 400th Anniversary of Kepler's "Astronomia Nova"*

I.2.5. INVITED DISCOURSES

ID 1 *The Legacies of Galileo* 5 August, 18:00 hr
Franco Pacini, <www.astro.unifi.it>
Dipartimento di Astronomia, Università degli Studi di Firenze, Firenze, Italy

ID 2 *Water on Planets* 6 August, 18:00 hr
James F. Bell III, <www.cornell.edu>
Astronomy Department, Cornell University, Ithaca, NY, USA

ID 3 *Evolution of Structure in the Universe* 10 August, 18:00 hr
Simon D.M. White, <www.mpa-garching.mpg.de>
Max-Planck-Institut für Astrophysik, Garching-bei-München, Germany

ID 4 *Do Low-Luminosity Stars Matter?* 11 August, 18:00 hr
Maria Teresa Ruiz, <www.das.uchile.cl>
Departamento de Astronomía, Universidad de Chile, Santiago de Chile, Chile

I.2.6. SYMPOSIA

IAU S262 ***Stellar Populations – Planning for the Next Decade***
3.5 days, 3 - 7 August 2009
Coordinating Division: VIII
SOC chairs: Gustavo R. Bruzual (Venezuela) and Stephane Charlot (France).
SOC members: Nobuo Arimoto (Japan), Vladimir Avila-Reese (Mexico), Beatriz Barbuy (Brasil), Jarle Brinchmann (Netherlands), Márcio Catelán (Chile), Matthew Colless (Australia), Mark Dickinson (USA), Richard S. Ellis (USA/UK), Tadayuki Kodama (Japan), Dante Miniti (Chile), Joseph I. Silk (UK), Rachel S. Somerville (Germany), Patricia B. Tissera (Argentina), and Achim Weiss (Germany).
Principal topics:

- the physics of stellar populations
- rotation and massive star evolution
- binary star evolution
- do simple stellar populations exist in nature?
- chemical enrichment

- how different chemical enhancement patterns change the solar pattern models?
- stellar populations in the Milky Way and in local resolved galaxies
- is the IMF universal?
- stellar populations in Early and Late-type galaxies
- UV to IR. Galaxies at low and high z
- what the highest-z galaxies tell us about the early universe and the galaxy formation process?
- large spectral surveys
- star formation history
- mass assembly history
- star formation quenching
- role of dark matter in galaxy evolution
- interface of AGN and galaxies
- the next decade: what should be done.

Editors: Gustavo R. Bruzual & Stephane Charlot
Contact: Gustavo R. Bruzual <bruzual@cida.ve>
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IAU S263 ***Icy Bodies of the Solar System***
3.5 days, 3 - 7 August 2009
Coordinating Division: III
SOC chairs: Julio A. Fernandes (Uruguay), Sylvio Ferraz-Mello (Brasil), and Rita M. Schulz (Netherlands).
SOC members: M. Antonella Barucci (France), Zoran Knezevic (Serbia), Karen J. Meech (USA), Keith S. Noll (USA), Dina Prialnik-Kovetz (Israel), Hans Rickman (Sweden), Imre Toth (Hungary), Giovanni B. Valsecchi (Italy), and Jun-Ichi Watanabe (Japan).
Principal topics:

- accretion of icy grains in the protoplanetary disk
- the long-period comet flux and the Oort cloud population
- transfer mechanisms of bodies from their source regions to the Sun's neighbourhood and the Oort Cloud
- how did the galactic environment shaped the early solar system?
- where did the Earth's water come from?
- transneptunian objects: physics and dynamics
- "dwarf planets" in the transneptunian region
- transition objects comets and asteroids
- activation mechanisms in comets and active asteroids
- are icy/rocky transition objects recognized in meteor showers or fireballs?
- dissipative forces in comets and satellites
- can icy bodies have water oceans in their interiors?
- cryovolcanism in icy bodies

- space missions to icy bodies.

Editors: Julio A. Fernandez, Daniela Lazzaro & Dina Prialnik-Kovetz
Contact: Julio A. Fernandez <julio@fisica.edu.uy>
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IAU S264 ***Solar and Stellar Variability – Impact on Earth and Planets***

3.5 days, 3 - 7 August 2009

Coordinating Division: II
SOC chairs: Alexandre H. Andrei (Brasil), Alexander Kosovichev (USA), and Jean-Pierre Rozelot (France).
SOC members: Annie Baglin (France), Maria Pia Di Mauro (Italy), Julio A. Fernandez (Uruguay), Eduardo Janot Pacheco (Brasil), John D. Landstreet (Canada), Cristina H. Mandrini (Argentina), Hiroko Miyahara (Japan), Mudumba Parthasarathy (India), Ignasi Ribas (Spain), Franck Selsis (France), Jill C. Tarter (USA), Jingxiu Wang (China Nanjing), and Lev M. Zeleny (Russia).
Principal topics:

The most critical aspects of the solar and stellar variability and its impact on the Earth and planets, including:

- physical mechanisms of solar and stellar variability
- solar diameter and irradiance measurements
- helio- and asteroseismic inferences
- variability of spectral irradiance and energetic particles, solar cycles and variability on century timescale
- effects on space weather and solar system planets
- implications for Earth's climate
- stellar magnetic activity and cycles, brightness changes in solar-type stars, stellar surface structures
- effects of magnetic activity on planet formation and evolution, habitable stellar systems.

Editors: Alexandre H. Andrei, Alexander Kosovichev & Jean-Pierre Rozelot
Contact: Alexander Kosovichev <sasha@sun.stanford.edu>
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IAUS 265 ***Chemical Abundances in the Universe – Connecting First Stars to Planets***

3.5 days, 10 - 14 August 2009

Coordinating Division: IV
SOC chairs: Katia Cunha (Brazil), Monique Spite (France), and Beatriz Barbuy (Brasil).
SOC members: Martin Asplund (Germany), Timothy C. Beers (USA), Michael S. Bessell (Australia), Bengt Gustafsson (Sweden), Chiaki Kobayashi (Japan),

Dante Minniti (Chile), Paolo Molaro (Italy), Max Pettini (UK), Elena Terlevich (Mexico), Stanley E. Woosley (USA), and Rosemary F. Wyse (USA).
Principal topics:

- primordial nucleosynthesis and the First Stars in the Universe
- abundances in the First Stars in the Galaxy
- abundances in the high-redshift Universe
- chemical abundance constraints on mass assembly and star formation in galaxies
- extra-solar planets - the chemical abundance connection
- abundance surveys and projects in the era of future large telescopes.

Editors: Katia Cunha, Monique Spite & Beatriz Barbuy
Contact: Katia Cunha <kcunha@noao.edu>
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IAU S266 ***Star Clusters – Basic Galactic Building Blocks throughout Time and Space***
3.5 days, 10 - 14 August 2009
Coordinating Division: VII
SOC chairs: Richard de Grijs (UK) and Jacques R.D. Lépine (Brasil).
SOC members: Beatriz Barbuy (Brasil), Giovanni Carraro (Italy), Licai Deng (China Nanjing), Michael A. Dopita (Australia), Uta Fritze-von Alvensleben (UK), Yuping Gao (China Nanjing), Douglas P. Geisler (Chile), Rosa M. Gonzalez Delgado (Spain), Stephen L.W. McMillan (USA), André Moitinho (Portugal), Anas M. Osman (Egypt), Philippe Prugniel (France), Ata Sarajedini (USA), and Alison I. Sills (Canada).
Principal topics:

- physics and modes of star cluster formation
- massive star clusters: formation, evolution, feedback, destruction
- star cluster systems in the context of their host galaxies
- stellar populations: simple versus composite stellar populations
- complementary insights from multi-wavelength coverage
- star cluster dynamics
- star clusters as laboratories for stellar evolution.

Editors: Richard de Grijs & Jacques R.D. Lépine
Contact: Richard de Grijs <R.deGrijs@sheffield.ac.uk>
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IAU S267 ***Co-evolution of Central Black Holes and Galaxies***
3.5 days, 10 - 14 August 2009
Coordinating Division: VIII
SOC chair: Bradley M. Peterson (USA).

SOC members: Roberto Cid Fernandes (Brasil), Suzy Collin (France), Martin S. Elvis (USA), Laura Ferrarese (Canada), Timothy M. Heckman (USA), Guinevere A.M. Kauffmann (Germany), Stefanie Komossa (Germany), Paulina Lira (Chile), Alessandro Marconi (Italy), Hagai Netzer (Israel), Elaine M. Sadler (Australia), Rachel S. Somerville (USA), Thaisa Storchi-Bergmann (Brasil), Keiichi Wada (Japan), and Martin Ward (UK).
Principal topics:

- the cosmological framework: the first galaxies and black holes (observations and theory)
- multi-wavelength properties of AGN and their hosts
- quasar & supermassive black hole demographics
- black hole masses, scaling relationships with host galaxies and their evolution
- relationships between AGNs, starburst regions, and stellar populations
- accretion and outflows
- physics of accretion and outflows: theory
- the interplay between radio jets and the ICM/IGM: observations and simulations
- modes of AGN feedback to galaxy evolution: observations and theory.

Editors: Bradley M. Peterson, Rachel S. Somerville & Thaisa Storchi-Bergmann
Contact: Bradley M. Peterson <peterson@astronomy.ohio-state.edu>
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I.2.7. JOINT DISCUSSIONS

JD1 *Dark Matter in Early-type Galaxies*

1.5 days, 3 - 5 August 2009
Coordinating Division: VIII
SOC chairs: Leon V.E. Koopmans (Netherlands) and Tommaso Treu (USA).
SOC members: Luca Ciotti (Italy), N. Evans (UK), Ortwin Gerhard (Germany), Dan Maoz (Israel), Priyamvada Natarajan (USA), Takaya Ohashi (Japan), and Silvia Pellegrini (Italy).
Principal topics:

Breakthroughs in observational and modelling techniques (lensing, dynamics and X-rays) as well as in theoretical studies, and large observational surveys:

- are the observational results presenting a self-consistent picture?
- are there major problems with the standard cold matter scenario?
- are there any viable alternatives to dark matter?

Assess the current status of the field and discuss future scientific goals:

- stellar and dark-matter density profiles

- CDM and stellar substructure, scaling relations
- formation mechanisms
- cosmic evolution
- observational/modelling techniques
- new/ongoing surveys.

Editors: Leon V.E. Koopmans & Tommaso Treu
Contact: Leon V.E. Koopmans <koopmans@astro.rug.nl>
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JD2 *Diffuse Light in Galaxy Clusters*
1.5 days, 6 - 7 August 2009 - *(note: new dates)*
Coordinating Division: VIII
SOC chairs: Magda Arnaboldi (Italy) and Ortwin Gerhard (Germany).
SOC members: Christophe Adami (France), Robin Ciardullo (USA), Kenneth C. Freeman (Australia), Lucio Mayer (Switzerland), Cláudia L. Mendes de Oliveira (Brasil), Sadanori Okamura (Japan), Simon D.M. White (Germany), and Ann I. Zabludoff (USA).
Principal topics:

Diffuse intracluster light (ICL) has now been observed in nearby and in intermediate redshift clusters. Individual intracluster stars have been detected in the Virgo and Coma clusters and the first colour-magnitude diagram and velocity measurements have been obtained. Recent studies show that the intracluster light contains of the order of 10% and up to 30% of the mass in stars overall, but in cores of dense and rich clusters like Coma, the local ICL fraction can be as high as 40-50%. Topics are:

- what can we learn from the ICL about the formation of galaxy clusters and the evolution of cluster galaxies?
- how and when did the ICL form?
- what is the connection to the central brightest cluster galaxy?
- cosmological N-body and hydrodynamical simulations are beginning to make predictions for the kinematics and origin of the ICL
- need to confront observational evidence and theoretical predictions
- identify future directions for understanding the origin and implications of this new component of galaxy clusters.

Editors: Magda Arnaboldi & Ortwin Gerhard
Contact: Magda Arnaboldi <marnabol@eso.org>
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JD3 *Neutron Stars – Timing in Extreme Environments*
1.5 days, 3 - 5 August 2009
Coordinating Division: XI

SOC chairs: Tomaso Belloni (Italy), Mariano Méndez (Netherlands), and Chengmin Zhang (China Nanjing).
SOC members: M. Ali Alpar (Turkey), Didier Barret (France), Dipankar Bhattacharya (India), Deepto Chakrabarty (USA), Marat R. Gilfanov (Germany/Russia), Jorge Horvath (Brasil), Victoria M. Kaspi (Canada), Michiel van der Klis (Netherlands), Duncan R. Lorimer (USA), Donald B. Melrose (Australia), Dany P. Page (Mexico), Andreas Reisenegger (Chile), and Gustavo E. Romero (Argentina).
Principal topics:

- quasi-periodic oscillations from mHz to kHz
- X-ray bursts and superbursts
- millisecond X-ray pulsars
- AXP/SGR and magnetars
- isolated neutron stars
- very-high energy emission from neutron stars
- gravitational waves from neutron stars
- neutron-star equation of state and strong gravity
- future instrumentation for timing.

Editors: Tomaso Belloni, Mariano Méndez & Chengmin Zhang
Contact: Tomaso Belloni <tomaso.belloni@brera.inaf.it>
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JD4 *Progress in Understanding the Physics of Ap and Related Stars*

1.5 days, 3 - 5 August 2009
Coordinating Division: IV
SOC chair: Margarida S. Cunha (Portugal).
SOC members: Natalia Drake (Russia), Michael M. Dworetsky (UK), Oleg Kochukhov (Sweden), Friedrich Kupka (Germany), Francis Leblanc (Canada), Lyudmila I. Mashonkina (Russia), Richard Monier (France), Ernst Paunzen (Austria), Nikolai E. Piskunov (Sweden), Hiromoto Shibahashi (Japan), Barry Smalley (UK), Werner W. Weiss (Austria), and Jozef Ziznovsky (Slovakia).
Principal topics:

Stellar magnetic fields, atomic diffusion, convection, rotation and pulsations are keys to the general understanding of stars and their evolution. The chemically peculiar (CP) stars provide unique environments in which these physical phenomena interact, both internally and in the atmospheric layers, leaving a multitude of signatures that can be studied using different kinds of observations and techniques. Topics:

- recent observations and modeling of CP stars as the starting point for a multi-disciplinary exchange of ideas focused on the interpretation of the convolved effects of magnetism, pulsations, convection, rotation, and diffusion, in an evolutionary context

- current and future ground and space-based observations of CP stars
- atmospheric modelling and atmospheric mapping in the context of CP stars
- understanding the CP and related phenomena in the context of stellar evolution.

Editors: Margarida S. Cunha, Michael M. Dworetsky & Barry Smalley
Contact: Margarida S. Cunha <mcunha@astro.up.pt>
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JD5 *Modelling the Milky Way in the Era of Gaia*
1.5 days, 6 - 7 August 2009
Coordinating Division: VII
SOC chair: James J. Binney (UK).
SOC members: Luis A.C. Aguilar (Mexico), Herwig B. Dejonghe (Belgium), Kenneth C. Freeman (Australia), Ortwin Gerhard (Germany), Naoteru Gouda (Japan), Amina Helmi (Netherlands), Jacques R.D. Lépine (Brasil), Alice C. Quillen (USA), Annie C.R. Robin (France), and Natalia Y. Sotnikova (Russia).
Principal topics:

Sophisticated dynamical models will be required to extract science from the large surveys of the Milky Way that will culminate in the *Gaia* survey (2012-2017). The JD will review:

- the kinds of data that are available to constrain such models
- the various types of dynamical model that could be constructed
- strategies for fitting models to the data, and
- the nature of the computational challenge that these processes will entail.

The aims of the JD are to clarify the work that must be accomplished, and to get the community working collaboratively towards the overall long-term goal.

Editor: James J. Binney
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JD6 *Time and Astronomy*
1.5 days, 6 - 7 August 2009
Coordinating Division: I
SOC chairs: Pascale Defraigne (Belgium) and Aleksander Brzezinski (Poland).
SOC members: Daniel Gambis (France), Yury P. Ilyasov (Russia), Sergei A. Klioner (Germany), Michael Kramer (UK), Richard N. Manchester (Australia), Demetrios N. Matsakis (USA), Rendong Nan (China Nanjing), and Gérard Petit (France).
Principal topics:

- aspects of time, its use for astronomy, and the contributions from astronomy
- Earth rotation and time: an overview of UT1 determination as well as UT1 modeling and prediction
- atomic time scales: the present realizations and performance of atomic time scales and time transfer techniques.
- pulsar timing and its applications: recent developments in precision
- pulsar timing and its application to time scales, planetary ephemerides, detection of gravitational waves and tests of gravitational theories.

Editors: Pascale Defraigne & Aleksander Brzezinski
Contact: Pascale Defraigne <p.defraigne@oma.be>
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JD7 ***Astrophysical Outflows and Associated Accretion Phenomena***

1.5 days, 6 - 7 August 2009

Coordinating Division: VI
SOC chairs: Elisabete M. de Gouveia Dal Pino (Brasil) and Alejandro C. Raga (Mexico).
SOC members: Mark Birkinshaw (UK), Sylvie Cabrit (France), Max Camenzind (Germany), Adriano H. Cerqueira (Brasil), F. Felipe Rodriguez (Mexico), Atillio Ferrari (Italy), I. Felix Mirabel (Chile), R. Naryan (USA), Thomas P. Ray (Ireland), K. Shibata (Japan), James M. Stone (USA), and Thaisa Storchi-Bergmann (Brasil).
Principal topics:

Highly collimated supersonic jets and outflows are very frequent in several astrophysical environments. Despite their different physical scales, all these outflow classes have strong morphological similarities.

- what physics do they share?
- can we find a universal mechanism of acceleration and collimation that operates in all classes?
- the origin of the astrophysical jets and their effects on the astrophysical environments
- understanding the driving mechanisms of jets from proto-stars (including their possible crucial link with star and planet formation) to microquasars and AGNs
- the basic physics of the accretion-jet process in magnetized disks, including the transport of angular momentum and the development of reconnection and turbulent dynamo
- cooling/heating processes, instabilities, shock structures and particle acceleration mechanisms in the jets

- the impact of the jets on energy balance and turbulence feeding in the astrophysical environments
- the potential association of jet-accretion phenomena with GRBs and UHECRs.

Editors: Elisabete M. de Gouveia Dal Pino & Alejandro Raga
Contact: Elisabete M. de Gouveia Dal Pino <dalpino@astro.iag.usp.br>
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JD8 ***Hot Interstellar Matter in Elliptical Galaxies***
1.5 days, 6 - 7 August 2009
Coordinating Division: VIII
SOC chairs: Dong-Woo Kim (USA) and Silvia Pellegrini (Italy).
SOC members: Françoise Combes (France), Sofia A. Cora (Argentina), Giuseppina Fabbiano (USA), Alexis Finoguenov (Germany), Brad K. Gibson (UK), Nimisha G. Kantharia (India), Chiaki Kobayashi (Japan), Cláudia L. Mendes de Oliveira (Brasil), Elaine M. Sadler (Australia), Craig L. Sarazin (USA), Thomas S. Statler (USA), and Ginevra Trinchieri (Italy).
Principal topics:

Physical properties of the hot interstellar matter in elliptical galaxies are related with the formation and evolution of elliptical galaxies via star formation episodes and environmental effects such as stripping, infall, and mergers, and growth of super-massive black holes. The *Chandra* and *XMM-Newton* X-ray space missions have provided a large amount of high spatial/spectral resolution observational data on the hot ISM in elliptical galaxies. The JD will review the observational constraints available on the physical properties of the hot ISM, confront the predictions of the state-of-art numerical simulations and analytical models of the dynamical/chemical evolution with observations, and explore:

- the evolution of the ISM and the elliptical galaxy
- metal abundances and chemical evolution in the hot ISM
- high resolution 2D distributions and fine structures of the diffuse hot ISM
- interplay between hot ISM, ICM, AGN and their connection to stellar formation and evolution
- dynamical and chemical evolution of the hot ISM via mergers, winds and SN/AGN feedback
- X-ray fundamental plane
- X-ray emission from distant elliptical galaxies and future missions.

Editors: Dong-Woo Kim & Silvia Pellegrini
Contact: Dong-Woo Kim <kim@cfa.harvard.edu>
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JD9 ***Are the Fundamental Constants Varying with Time?***
1.5 days, 10 - 11 August 2009
Coordinating Division: VIII
SOC chair: Paolo Molaro (Italy).
SOC members: John D. Barrow (UK), Françoise Combes (France), Sandro D'Odorico (Germany), Victor V. Flambaum (Australia), Sergei A. Levshakov (Russia), Carlos J.A.P. Martins (Portugal), Michael T. Murphy (Australia), Cédric Ledoux (Chile), Keith A. Olive (USA), Patrick Petitjean (France), Dieter Reimers (Germany), Roghunathan Srianand (India), Jean-Philippe Uzan (France), Elisabeth Vangioni-Flam (France), and John Webb (Australia).
Principal topics:

- theoretical expectations for variable constants: from strings to scalar fields
- cosmology with varying constants: dynamical dark energy
- tests of fundamental principles of GR: equivalence principle, space missions *Microscope* and *Aces*
- laboratory and geological bounds: atomic clocks, Oklo
- astronomical bounds: BBN, CMB, meteorites
- fine structure constant: AD method, MM method
- electron-to-proton mass ratio from molecular hydrogen and ammonia
- radio observations: bounds on combined constants
- future instrumentation: ALMA, SKA, ELT.

Editors: Paolo Molaro & Elisabeth Vangioni-Flam
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JD10 ***3D Views on Cool Stellar Atmospheres – Theory Meets Observation***
1.5 days, 10 - 11 August 2009
Coordinating Division: IV
SOC chair: Hans-G. Ludwig (France).
SOC members: Carlos Allende Prieto (USA), Martin Asplund (Germany), Mats Carlsson Norway), Márcio Cátelan (Chile), Kwing Lam Chan (China Nanjing), Dainis Dravins (Sweden), K.N. Nagendra (India), Aake Nordlund (Denmark), Nataliya Shchukina (Ukraine), Thirupathi Sivarani (USA), and Matthias Steffen (Germany).
Principal topics:

- hydrodynamics and radiative transfer of 3D model atmospheres: current status, limitations, and how to make headway?
- 3D views of the solar atmosphere with HINODE: what did we learn about solar surface structures, chromospheric and coronal heating?

- spectral line formation: the impact of 3D model atmospheres on stellar and solar abundance analysis
- NLTE and 3D atmospheres: computational bottle-necks and empirical constraints
- understanding of surface convection: atmospheres as outer boundaries of global stellar structure models
- astero-/helio-seismology and 3D model atmospheres.

Editors: Hans-G. Ludwig, Piercarlo Bonifacio, & K N. Nagendra
Contact: Hans-G. Ludwig <Hans.Ludwig@obspm.fr>
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JD11 ***New Advances in Helio- and Astero-Seismology***
1.5 days, 10 - 11 August 2009
Coordinating Division: II
SOC chairs: Junwei Zhao (USA), Hiromoto Shibahashi (Japan), and Guenter Houdek (UK).
SOC members: Thierry Appourchaux (France), Vladimir A. Baturin (Russia), Timothy R. Bedding (Australia), William J. Chaplin (UK), Dean-Yi Chou (China Taiwan), Jadwiga Daszyn'ska-Daszkiewicz (Poland), Maria Pia Di Mauro (Italy), Marcelo Emilio (Brasil), Hans Kjeldsen (Denmark), Yan Li (China Nanjing), Jaymie Matthews (Canada), Arlette Noels (Belgium), and Markus Roth (Germany).
Principal topics:

- new results from global helioseismology: solar cycle variations, internal rotation, composition, search for g-modes, implications for dynamo models
- advances in local helioseismology: local and large-scale flows
- meridional circulation, imaging of the deep interior and the far side of the Sun
- magnetoseismology
- numerical simulations of solar and stellar convection and oscillations, validation of helio- and asteroseismic techniques
- physics of solar and stellar oscillations
- asteroseismology of distant stars
- new results from *SDO, SOHO, Hinode, COROT, MOST* and ground-based helio- and asteroseismology projects.

Editors: Junwei Zhao, Hiromoto Shibahashi & Guenter Houdek
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JD12 ***The First Galaxies – Theoretical Predictions and Observational Clues***
1.5 days, 10 - 11 August 2009
Coordinating Division: VIII

SOC chairs: Tommy Wiklind (ESA/USA), Volker Bromm (USA), and Bahram Mobasher (USA).
SOC members: Andrew J. Bunker (Australia), Naoki Yoshida (Japan), Stephane Charlot (France), Henry C. Ferguson (USA), Jose A.S. Lima (Brasil), Sandra Savaglio (Germany), and Rachel S. Somerville (Germany/USA).
Principal topics:

- where do we stand today on understanding the formation of the first galaxies, their role in the re-ionization process and what progress can be made in the near future with new observational facilities
- Population III stars
- emergence of the first normal stellar populations
- formation of the first galaxies
- formation of the first AGNs
- co-evolution of stars and AGNs
- massive galaxies in the re-ionization epoch
- sources of re-ionization
- metallicities and dust in the first Gyr
- implications on results from revised stellar synthesis models
- observational challenges.

Editors: Tommy Wiklind, Volker Bromm & Bahram Mobasher
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JD13 ***Eta Carinae in the Context of the Most Massive Stars***
1.5 days, 12 - 14 August 2009
Coordinating Division: V
SOC chairs: Augusto Damineli Neto (Brasil) and Theodore R. Gull (USA).
SOC members: D. John Hillier (USA), Sveneric Johansson (Sweden), Gloria Koenigsberger (Mexico), Georges Meynet (Switzerland), Nidia Morrell (Chile), Atsuo T. Okazaki (Japan), Stanley P. Owocki (USA), Andy M.T. Pollock (Spain), Nathan Smith (USA), Christiaan L. Sterken (Belgium), Nicole St Louis (Canada), Karel A. van der Hucht (Netherlands), Roberto Viotti (Italy), and Gerd Weigelt (Germany).
Principal topics:

- the 2009 Eta Car event: monitoring campaigns in X-rays, spectroscopy, radio, interferometry
- origin of the bipolar shape of the Homunculus: rotation *vs.* binary orbit
- the Eta Car ejecta: insight into the central star/system
- the 2009 WR 140 periastron passage: X-rays and other monitoring campaigns
- HD 5980: similarities and differences to Eta Car and WR 140

- models of the wind-wind collision in Eta Car and other massive-star binaries: hydrodynamics, shock and plasma physics
- tidal flows and periastron passage events
- physical parameters of massive binary systems
- evolution of massive binaries: stellar mergers, systems near Eddington limit, supernova progenitors
- mass-loss regimes: giant eruptions, S Doradus instabilities, line-driven winds
- the role of rotation in massive stars: mass-loss, the
- omega-gamma limit
- atomic and molecular physics in Eta Car ejecta.

Editors: Augusto Damineli, Theodore R. Gull & Krister E. Nielsen
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JD14 ***FIR2009: the ISM of Galaxies in the Far-Infrared and Sub-Millimetre***

1.5 days, 12 - 14 August 2009

Coordinating Division: VI
SOC chair: Maria R. Cunningham (Australia).
SOC members: Susanne E. Aalto (Sweden), Maryvonne Gerin (France), George Helou (USA), Michele Kaufman (USA), Carsten Kramer (Germany), Frank Le Petit (France), Vincent Minier (France), Toshikazu Ohnishi (Japan), Monica Rubio (Chile), Marco Spaans (Netherlands), and Serena Viti (UK).
Principal topics:

- new results: what have we learnt about the interstellar medium (ISM) in the Milky Way and other galaxies from new facilities working at far infrared and sub-millimetre wavelengths?
- chemical tracers: what are the key chemical tracers of the different ISM physical environments in the Milky Way and external galaxies ?
- how does feedback from the processes of massive star formation affect the ISM? What role do supernovae explosions play in shaping the ISM, particularly in active star forming environments? How fast do molecular clouds form and evolve? What ends a star burst: negative feedback or the exhaustion of fuel? What effect do galaxy mergers have on the ISM of galaxies?
- how is star formation cycle different in galaxies of low metalicity, such as the LMC and SMC? What is the stellar and protostellar content of molecular clouds in different environments, and does this correlate with the chemical and dynamic properties of the environment?
- active galaxies: how different is the interstellar medium around an AGN compared to that of a compact starburst?

- galaxies at high-redshift: what are the properties of high-redshift galaxies with strong far infrared emission?
- phases of the ISM: the cold and dense molecular ISM is a prerequisite for any star formation; how does it form and how is it dispersed ? what do we know about the cycle of interstellar matter through the various phases of the ISM ?
- mechanisms for heating and cooling: what is the relative importance of shocks, UV-photons, X-rays, cosmic rays in different galactic environments?
- turbulence: what is the mutual relation between star formation and turbulence, and how do the turbulent properties of Galactic and extragalactic star forming regions differ? What mechanisms drive turbulence, and how do they vary with environment?
- what role do magnetic fields play in the ISM? Do they regulate star formation? How do they impact the phase balance in the ISM (e.g., for Galactic fountains)?

Editors: Maria R. Cunningham, Carsten Kramer & Vincent Minier
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JD15 ***Magnetic Fields in Diffuse Media***
1.5 days, 12 - 14 August 2009
Coordinating Division: VI
SOC chairs: Elisabete M. de Gouveia Dal Pino (Brasil) and Alex Lazarian (USA).
SOC members: Mitchell C. Begelman (USA), Michael A. Dopita (Australia), Torsten A. Ensslin (Germany), Edith Falgarone (France), José Franco (Mexico), Shu-ichiro Inutsuka (Japan), Germán Lugones (Brasil), Christopher F. Mckee (USA), and Giancarlo Setti (Italy).
Principal topics:

- magnetic fields, their origin, and their influence on the formation and evolution of astrophysical objects (stars, galaxies, cooling flows)
- quantitative studies of magnetic fields, the results of which can be compared with the results of dynamo and MHD turbulence simulations
- questions related to the origin of astrophysical magnetic fields in diffuse gas and quantify their effects on transport processes in the interstellar medium of spiral galaxies and in the intracluster medium, to get better insight into star formation, acceleration of cosmic rays, and transfer of matter, and energy between the diffuse and dense gas
- summarize the progress achieved recently
- outline the remaining outstanding problems, and review the progress of the 21st century instruments and projects for cosmic

magnetic field investigation such as, upgraded SOFIA, *Planck*, LOFAR, ALMA and SKA

Editors: Elisabete M. de Gouveia Dal Pino & Alex Lazarian
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JD16 ***IHY Global Campaign – Whole Heliosphere Interval***
1.5 days, 12 - 14 August 2009
Coordinating Division: II
SOC chair: Barbara J. Thompson (USA)
SOC members: Dipankar P.K. Banerjee (India), Andrew R. Breen (UK), Hebe Cremades (Argentina), Norma B. Crosby (Belgium), Robert J. Forsyth (UK), Antoinette B. Galvin (USA), Katya Y. Georgieva (Bulgaria), Sarah E. Gibson (USA), Janet U. Kozyra (USA), Ian R. Mann (Canada), Giannina Poletto (Italy), Kazunari Shibata (Japan), Richard Stamper (UK), and David F. Webb (USA).
Principal topics:

- science from the International Heliophysical Year – Global Campaign called the Whole Heliosphere Interval (WHI).
- new capabilities in observations and models to advance our understanding of the heliophysical system.
- WHI occurs during solar minimum,
- the primary science goals of WHI are to:
  - characterize the 3-D solar minimum heliosphere,
  - trace the effects of solar structure and activity through the solar wind to the Earth and other planetary systems, and to the outer boundary of the heliosphere.

Editors: Sarah E. Gibson & David F. Webb
Contact: Barbara J. Thompson <Barbara.J.Thompson@nasa.gov>
URL:

I.2.8. SPECIAL SESSIONS

SpS1 ***IR and Sub-mm Spectroscopy – a New Tool for Studying Stellar Evolution***
1.5 days, 3 - 5 August 2009
Coordinating Division: IV
SOC chairs: Glenn M. Wahlgren (USA), Hans Ulrich Käufl (Germany), and Florian Kerber (Germany).
SOC members: France Allard (France), Thomas R. Ayres (USA), Steven R. Federman (USA), Carol A. Grady (USA), Bengt Gustafsson (Sweden), Kenneth H. Hinkle (USA), John Lattanzio (Australia), Gillian Nave (USA), Livia Origlia (Italy), Peter Schilke (Germany), Jonathan Tennyson (UK), Stepan Urban (Czech Rep.), and Ewine F. van Dishoeck (Netherlands).

Principal topics:

- impacting stellar evolution with IR and sub-mm spectroscopy pre- and early main sequence stars
- ground-based instrumentation IR spectroscopy in the ELT era
- main sequence stars: physical properties from spectrum analysis
- atomic and molecular data for IR and sub-mm spectroscopy
- solid state physics for spectrum analysis
- evolved stars: properties and processes
- current and future airborne and space missions
- Earth's atmosphere and the IR sky.

Editors: Glenn M. Wahlgren, Hans Ulrich Käufl & Florian Kerber
Contact: Glenn M. Wahlgren <Glenn.M.Wahlgren@nasa.gov>
URL:

SpS2 ***The International Year of Astronomy 2009***
1.5 days, 3 - 5 August 2009
Coordinating Division: XII
SOC chair: Catherine J. Cesarsky (France).
SOC members: Yolanda Berenguer (UNESCO, France), Ian F. Corbett (IAU, UK), Dennis Crabtree (Canada), Susana E. Deustua (USA), Kevin Govender (South Africa), Mary Kay M. Hemenway (USA), Robert Hill (UK), Douglas Isbell (USA), Norio Kaifu (Japan), Lars Lindberg Christensen (Denmark, ESA/ESO), Claus Madsen (Denmark, ESO), Ian E. Robson (UK), and Pedro Russo (IAU, Portugal).
Principal topics:

- communicating astronomy to the public
- astronomy education
- cooperation and development
- IYA global projects (Cornerstones and Special Projects)
- IYA national activities
- astronomy and new media
- the impact and legacy of IYA

Editors: Catherine J. Cesarsky, Lars Lindberg Christensen & Pedro Russo
Contact: Pedro Russo <prusso@eso.org>
URL:

SpS3 ***Astronomy in Antarctica***
1.5 days, 6 - 7 August 2009
Coordinating Division: IX
SOC chair: Michael G. Burton (Australia).
SOC members: Carlos A. Abia (Spain), John E. Carlstrom (USA), Vincent Coudé du Foresto (France), Xiangqun Cui (China), Sebastián Gurovich (Argentina),

Takashi Ichikawa (Japan), James P. Lloyd (USA), Mark J. McCaughrean (UK), Gino Tosti (Italy), and Hans Zinnecker (Germany).
Principal topics:

- the current state of Antarctic astronomy, with winter-time facilities now operating at both South Pole and Dome C on the high plateau,
- plans for astronomical facilities at Domes A and F
- review of status of these facilities
- new science results, including results from the International Polar Year of 2007/08.
- grand design observatories, facilities that might be built in the future, once the new high plateau bases are well established.

Editor: Michael G. Burton
Contact: Michael G. Burton <m.burton@unsw.edu.au>
URL:

SpS4 ***Astronomy Education between Past and Future***
2.5 days, 6 - 10 August 2009
Coordinating Division: XII
SOC chairs: Rajesh Kochhar (India), Jean-Pierre de Greve (Belgium), and Edward F. Guinan (USA).
SOC members: John B. Hearnshaw (New Zealand), George K. Miley (Netherlands), Ian E. Robson (UK), Rosa M. Ros (Spain), Il Seong Nha (Rep. of Korea), Malcolm G. Smith (USA), and Antonio Videra (Brasil).
Principal topics:

- research and best practices in teaching and learning methodologies in sciences, specifically in physics
- astronomy as a trigger towards science education (including best practices in innovative astronomy teaching)
- cultural and historical astronomy: the importance of non-western views of the skies for astronomy teaching in both developing and developed countries
- teaching astronomy in developing countries
- innovative learning and training initiatives other than teaching
- the role of astronomy education at specific phases and ages, from age 4 to university/PhD
- the use of educational telescopes
- IAU sponsored education and development programs
- networking activities enhancing connectivity among young people in the International Astronomical Year
- the IAU decadal plan for world astronomy.

Editors: Rajesh Kochhar, Jean-Pierre de Greve, Magda G. Stavinschi & Edward F. Guinan
Contacts: Rajesh Kochhar <rkochhar2000@yahoo.com>
Jean-Pierre de Greve <jpdgreve@vub.ac.be>

URL:

SpS5 ***Accelerating the Rate of Astronomical Discovery***
2.5 days, 11 - 14 August 2009
Coordinating Division: XII
SOC chairs: Raymond P. Norris (Australia) and Clive L.N. Ruggles (UK).
SOC members: David H. DeVorkin (USA), Françoise Genova (France), Martin Harwit (USA), Bambang Hidayat (Indonesia), Rajesh Kochhar (India), Vicent J. Martinez-Gracia (Spain), Robert Smith (Canada), Magdalena G. Stavinschi (Romania), Virginia L.Trimble (USA), Sueli M.M. Viegas (Brasil), and Patricia A. Whitelock (South Africa).
Principal topics:

- the impact of concentrating resources on big instruments rather than small ones
- the impact of electronic access to data and publications - could we do it better?
- have we achieved the best way to allocate time on major telescopes?
- is astronomical progress limited by discrimination or by the 'Digital Divide'?
- what will be the impact of enormously large data sets?
- are our telescopes and their instrumentation approaching fundamental physical limits?
- how do we balance popular "bandwagons" against innovative but less popular ideas?
- do we have the optimal system for training young astronomers?
- do we need more cross-fertilisation between disciplines and fields?
- how should we optimize international collaboration, particularly on major missions?

Editors: Raymond P. Norris & Clive L.N. Ruggles
Contact: Raymond P. Norris <ray.norris@csiro.au>
URL:

SpS6 ***Planetary Systems as Potential Sites for Life***
1.5 days, 10 - 11 August 2009
Coordinating Division: III
SOC chair: Régis Courtin (France)
SOC members: David W. Latham (USA), Carlo Blanco (Italy), Alan P. Boss (USA), Guy J. Consolmagno (Vatican City), Cristiano B. Cosmovici (Italy), Pascale Foing Ehrenfreund (Netherlands), Leonid V. Ksanfomality (Russia), Luisa M. Lara (Spain), Michel Mayor (Switzerland), Melissa A. McGrath (USA), Karen J. Meech (USA), David Morrison (USA), John R. Spencer (USA), Viktor G. Tejfel (Kazakhstan), and Stephane Udry (Switzerland).
Principal topics:

- recent advances in Solar System sciences, Bioastronomy, and Extrasolar Planetology in connection with studying the conditions for the emergence of life on other worlds
- results from recent space missions investigating Mars and the satellites of the giant planets for environments potentially suitable for life
- the search for and characterization of extrasolar planets, and the search for life outside the Solar System
- space-based and/or laboratory experiments and simulations, as well as the analysis of extraterrestrial samples
- projects under development for the next decade
- outstanding figures in the development of Bioastronomy.

Editors: Régis Courtin, Alan P. Boss & Michel Mayor
Contact: Régis Courtin <regis.courtin@obspm.fr>
URL:

SpS7 Young Stars, Brown Dwarfs, and Protoplanetary Disks
2.5 days, 11 - 14 August 2009
Coordinating Division: VI
SOC chairs: Jane C. Gregório-Hetem (Brasil) and Silvia H.P. Alencar (Brasil).
SOC members: Francesca D'Antona (Italy), Nuria Calvet (USA), Gilles Chabrier (France), Eric D. Feigelson (USA), Sergei A. Lamzin (Russia), Susana Lizano (Mexico), Robert D. Mathieu (USA), Thierry Montmerle (France), Antonella Natta (Italy), Bo Reipurth (USA), Hsien Shang (China Taiwan), Michael Sterzik (Chile), Ewine F. van Dishoeck (Netherlands), and Hans Zinnecker (Germany).
Principal topics:

- properties of circumstellar disks
- accretion in brown dwarfs, T Tauri and Herbig Ae/Be stars
- jets and outflows from young stars
- angular momentum transport (throughout pre-main sequence evolution)
- planet formation and evolution
- brown dwarf and star formation and early evolution
- the role of magnetic fields in pre-main sequence evolution
- high-energy and eruptive phenomena in young stellar objects
- the role of binary and multiple systems in PMS evolution and planet formation/evolution
- young stars and their birthplaces in the solar neighborhood.

Editors: Jane C. Gregório-Hetem & Silvia H.P. Alencar
Contact: Jane C. Gregório-Hetem <jane@astro.iag.usp.br>
URL:

SpS8 ***The Galactic Plane – in Depth and Across the Spectrum***
2.5 days, 11 - 14 August 2009
Coordinating Division: VI
SOC chairs: Nicholas A. Walton (UK) and Augusto Damineli Neto(Brasil).
SOC members: Janet Drew (UK), Paul J. Groot (Netherlands), Myung Gyoon Lee (Rep. of Korea), Xiao-Wei Liu (China Nanjing), Eugene A. Magnier (USA), Sergio Molinari (Italy), Naomi M. McClure-Griffiths (Australia), Dante Minniti (Chile), Josep M. Paredes Poy (Spain), Rene Plume (Canada), Annie C.R. Robin (France), Patricia A. Whitelock (South Africa), and Barbara A. Whitney (USA).
Principal topics:

- Galactic Plane surveys: past, present and future
- getting the measure of the Milky Way
- the structure of the inner Galaxy
- the disk inside and outside the Solar Circle
- tracing chemical properties and gradients in the Galactic Plane
- disentangling the star formation process from disk substructure
- mapping star formation across the Galactic Plane
- the demography and life cycle of star clusters
- red giants and other evolved stars as tracers
- sampling the extreme phases and end-states of stellar evolution.

Editors: Janet E. Drew & Melvin G. Hoare
Contact: Nicholas A. Walton <naw@ast.cam.ac.uk>
URL :

SpS9 ***Marking the 400th Anniversary of Kepler's "Astronomia Nova"***
2.5 days, 11 - 14 August 2009
Coordinating Division: XII
SOC chair: Terence J. Mahoney (Tenerife, Spain).
SOC members: Stanislaw Bajtlik (Poland), Allan Chapman (UK), Judith V. Field (UK), Michael Geffert (Germany), Petr Hadravâ (Czech Republic), David G. Koch (USA), Rhonda Martens (Canada), Jay M. Pasachoff (USA), Thomas Posch (Austria), Bruce Stephenson (USA), Jill C. Tarter (USA), Jan Vondrâk (Czech Republic), and Jaroslaw Wlodarczyk (Poland).
Principal topics:

Kepler and astronomical thought in transition:

- Kepler and the philosophy of science
- the relation between Kepler's astrology and astronomy
- comparison of Kepler's and Pico's critiques of astrology
- Kepler and Galileo

The great synthesis, Kepler's multifaceted new astronomy:

- Kepler as the father of modern astronomy
- Kepler and Tycho
- Kepler's major works

- Kepler's revolutionizing of optics
- Kepler's mathematical astronomy

The laws of planetary motion:

- "Astronomia nova": Kepler at work
- Kepler's magnetic theory of planetary dynamics
- Kepler's cosmology, the 3rd law and cosmic harmony
- Kepler's journey to the moon

Editor: Terence J. Mahoney
Contact: Terence J. Mahoney <tjm@iac.es>
URL: http://www.iac.es/congreso/kepler2009

I.2.9. YOUNG ASTRONOMERS' EVENTS

Two specific Young Astronomers' Events are being planned during the IAU XXVII GA:

- a ***Young Astronomers' Lunch*** will be be held on Thursday 6 August, 11:00 – 14:00 hr. Pre-registration for this event is required through the IAU GA Registration web page;

- a ***Young Astronomers' Consulting Service*** office will be open during the GA, where young astronomers may meet each other and/or meet senior astronomers by arranged appointments to seek advice on their investigations and careers.

Please tick the corresponding box on the GA Registration web page if you are interested in participating.

Organizing Committee:
Jean-Pierre De Greve <jpdgreve@vub.ac.be> (chair)
Adriana Valio <asilva@craam.mackenzie.br> ; <adrivalio@gmail.com> (NOC)
Michal Dovciak <dovciak@astro.cas.cz>
Oddbjorn Engvold <oddbjorn.engvold@astro.uio.no>
Julieta Fierro <fierroju@servidor.unam.mx>
Martin George <martin@qvmag.tas.gov.au>
Michele Gerbaldi <gerbaldi@iap.fr>
Edward F. Guinan <edward.guinan@villanova.edu>
Bambang Hidayat <hidayatbambang@yahoo.com>
Melanie Johnston-Hollit <Melanie.JohnstonHollitt@utas.edu.au>
Barrie W. Jones <b.w.jones@open.ac.uk>
Rajesh Kochhar <rkochhar2000@yahoo.com>
Kam-Ching Leung <kleung@unlserve.unl.edu>
Laurence A. Marschall <marschal@gettysburg.edu>
George K. Miley <miley@strw.leidenuniv.nl>
Tracey J. Moore <T.J.Moore@open.ac.uk>

Jay M. Pasachoff <Jay.M.Pasachoff@williams.edu>
John R. Percy <john.percy@utoronto.ca>
Rosa Maria Ros <ros@mat.upc.edu>; <ros@ma4.upc.edu>
Magda Stavinschi <magda@aira.astro.ro> ; <magda_stavinschi@yahoo.fr>
James C. White <jwhite@gettysburg.edu>

Contact: Jean-Pierre De Greve <jpdgreve@vub.ac.be>
URL:

I.2.10. WOMEN IN ASTRONOMY LUNCH MEETING

The IAU EC Working Group on *the Status of Women in Astronomy* is arranging a *Women in Astronomy Lunch Meeting* at the IAU XXVII GA on Monday 10 August, 11:00 – 14:00 hr, open for all GA participants. This *Lunch Meeting* will have a number of round tables with chair persons; topics will be given for discussion. The aim is to improve the status of women in astronomy and to recommend actions that will improve the environment for all astronomers.

Pre-registration is required. Please tick the corresponding box on the GA Registration web page if you are interested in participating.

Organizing Committee:
Miriani G. Pastoriza, chair <mgp@if.ufrgs.br>
Zulema Abraham <zulema@astro.iag.usp.br>
Anne Green <agreen@physics.usyd.edu.au>
Sarah T. Maddison <smaddison@swin.edu.au>

Contact: Miriani G. Pastoriza <mgp@if.ufrgs.br>
URL:

I.3. ADMINISTRATIVE MATTERS, DEADLINES, MEETINGS

I.3.1. XXVII GENERAL ASSEMBLY

General Assembly, Session 1	Tuesday 04 August, 14:00-17:30 hr
General Assembly, Session 2	Thursday 13 August, 14:00-17:30 hr

I.3.2. NATIONAL MEMBERS

Deadlines 2008

Submission of Resolutions Type A (financial implications)	15 November
Submission of motions to amend Statutes and Bye-Laws	15 November

Deadlines 2009

Communication of motions to amend Statutes and Bye-Laws	5 February
Motions concerning the administration of the Union, not affecting the budget	15 February
Motions of a scientific character to be placed on the GA agenda	15 February
Nominations of new Individual Members due at the IAU Secretariat via the IAU website	15 March
Submission of Resolutions Type B (no financial implications)	15 May
Appointment of National Representatives	10 July
Appointment of Finance Committee Members	10 July
Appointment of Nomination Committee members	10 July

Meetings 2009

National Representatives

National Representatives Meeting	Monday 3 August, 14:00-14:45 hr
General Assembly, Session 1	Tuesday 4 August, 14:00-17:30 hr
National Representatives Meeting	Wednesday 12 August, 14:00-14:45 hr
General Assembly, Session 2	Thursday 13 August, 14:00-17:30 hr

Finance Committee

Finance Committee Meeting	Monday 3 August, 15:00-15:45 hr
General Assembly, Session 1	Tuesday 4 August, 14:00-17:30 hr
Finance Committee Meeting	Wednesday 12 August, 15:00-15:45 hr
General Assembly, Session 2	Thursday 13 August, 14:00-17:30 hr

Nominating Committee

Nominating Committee Meeting	Monday 3 August, 16:00-16:45 hr
General Assembly, Session 1	Tuesday 4 August, 14:00-17:30 hr
Nominating Committee Meeting	Wednesday 12 August, 16:00-16:45 hr
General Assembly, Session 2	Thursday 13 August, 14:00-17:30 hr

I.3.3. DIVISION PRESIDENTS

Deadlines 2009

Motions concerning the administration of the Union, not affecting the budget	15 February
Recommendations for creating, continuing, changing or discontinuing Commissions	15 February
Recommendations for creating, continuing, changing or discontinuing Working Groups	15 February
Submission of candidates for Division President, Vice-President and Organizing Committee for the next triennium	15 February
Nominations of new Individual Members due at the IAU Secretariat via the IAU website	15 March
Submission of Resolutions Type B (no financial implications)	15 May
Contributions for IAU Transactions XXVIIB due at the IAU Secretariat	1 October

Meetings 2009

Outgoing Division Presidents are invited to attend the:

86th Executive Committee Meeting	Sunday 2 August, 14:00-17:30 hr
86th Executive Committee Meeting	Monday 3 August, 11:00-12:30 hr
General Assembly, Session 1	Tuesday 4 August, 14:00-17:30 hr
86th Executive Committee Meeting	Wednesday 12 August, 09:00-12:30 hr
General Assembly, Session 2	Thursday 13 August, 14:00-17:30 hr

Incoming Division Presidents are invited to attend the:

General Assembly, Session 1	Tuesday 4 August, 14:00-17:30 hr
General Assembly, Session 2	Thursday 13 August, 14:00-17:30 hr
87th Executive Committee Meeting	Friday 14 August, 09:00-17:30 hr

I.3.4. COMMISSION PRESIDENTS

Deadlines 2009

Submission of candidates for Commission President, Vice-President and Organizing Committee for the next triennium	15 February
Submission of Resolutions Type B (no financial implications)	15 May

Meetings 2009

Outgoing Commission Presidents are invited to attend the:

Meeting of the Commission Presidents	Monday 3 August, 17:00-17:45 hr

General Assembly, Session 1	Tuesday 4 August, 14:00-17:30 hr
General Assembly, Session 2	Thursday 13 August, 14:00-17:30 hr

Incoming Commission Presidents are invited to attend the:

General Assembly, Session 1	Tuesday 4 August, 14:00-17:30 hr
Meeting of the Commission Presidents	Wednesday 12 August, 17:00-17:45 hr
General Assembly, Session 2	Thursday 13 August, 14:00-17:30 hr

I.3.5. CALENDAR OF BUSINESS MEETINGS

See IAU *Information Bulletin* 103, to be published in January 2009.

I.3.6. PROPOSALS TO CHANGE STATUTES AND BYE-LAWS

The draft revised IAU Statutes and Bye-Laws will be communicated to the National Members before 15 February 2009 and submitted to the vote of the National Member Representatives during Session 1 of the IAU XXVII GA in Rio de Janeiro, Brasil, on Tuesday 4 August 2009. The annotated Statutes and Bye-Laws will be presented in IAU *Information Bulletin* 103.

I.4. PRACTICAL INFORMATION

I.4.1. GENERAL ASSEMBLY ORGANIZERS

JZ Congressos

The IAU XXVII General Assembly will be administrated by JZ Congressos, who will be in charge of registration, exhibition, internet equipment, etc.:

JZ Congressos
R. Guilhermina Guinle, 272 / 2º and.
22270-060 Rio de Janeiro, RJ
Brazil
Tel: +55 21 2266-9150
Fax: +55 21 2266-9175
<astronomy2009@jz.com.br> <www.jz.com.br>

Blumar Incoming Tour Operator & DMC

Blumar Incoming Tour Operator & DMC will be in charge of arranging GA accommodations as well as tours of the city and the country:

Blumar Incoming Tour Operator & DMC
Av. Borges de Medeiros, 633, salas 405 a 408
22430-041 Rio de Janeiro, RJ
Brazil
Tel: +55 21 2142-9300, +55 21 7835-2833

Fax: +55 21 2511-3739
E-mail: <operacao@blumar.com.br>

For local contacts in Rio de Janeiro, see
<www.astronomy2009.com.br/contacts.html>.

I.4.2. GENERAL ASSEMBLY WEB SITE

Information, scientific programme, contacts, on-line forms and updates, regarding the IAU XXVII General Assembly will be available on the GA web site <www.astronomy2009.com.br/index.html>

I.4.3. GENERAL ASSEMBLY NEWSPAPER

Prof. Dr. João Evangelista Steiner is the Editor-in-Chief of the IAU XXVII General Assembly daily newspaper. Any proposal for communication in the GA newspaper should be sent to the following e-mail address:
<steiner@astro.iag.usp.br>

I.4.4. VENUE OF THE IAU XXVII GENERAL ASSEMBLY

The recently built Centro de Convenções SulAmérica, formerly known as "Rio Cidade Nova" and inaugurated in July 2007, will host the IAU XXVII General Assembly, from Monday 3 to Friday 14 of August, 2009.

Located in Cidade Nova, a central region of Rio de Janeiro, the complex occupies an area of 16 thousand square meters, wth almost 42 thousand square meters of conference space. It is easily reached from almost everywhere in Rio through the Rio de Janeiro city integrated transport system and the nearby Metro station Estácio-CidadeNova.

The premises of the Centro de Convenções SulAmérica include an historic three storey building called "Solar" that will be used as administrative headquarters during the GA. Construction of the building started in 1869. In 1907, the building was totally reconstructed and adapted to host the Children's Hospital of Santa Casa de Misericórdia. The façade is an historicist inspiration influenced by the Italian Palace architecture of the 16th Century. The house survived the radical urbanist interventions in the districts of Cidade Nova and Estácio during the 70's and the 80's, and on January 31, 1997, the building was put under government protection through a Municipal Decree.

The SulAmérica Convention Center is run by Transamérica Eventos.
Address:
Centro de Convenções SulAmérica

Av. Paulo de Frontin com Av. Pres. Vargas
Cidade Nova
20260-010 Rio de Janeiro
Brazil
Phone: 55 21 3293 6700
URL: <www.ccsulamerica.com.br>

For more information, see <www.astronomy2009.com.br/venue.html> .

I.4.5. VISA INFORMATION

A list of the tourism and business VISA regime for Brazilian citizens in the different countries is provided on the IAU General Assembly web page at <www.astronomy2009.com.brl>

Since the Brazilian authorities follow a reciprocity policy with respect to the consular and diplomatic affairs, this list can be used as a guide for citizens of foreign countries who wish to visit Brazil. However, when planning a trip, it is mandatory to confirm the validity of this information with the Brazilian diplomatic representation of the traveller's country of origin.

At present, citizens of the following countries may enter Brazil and stay for up to 60 or 90 days without needing a visa:

Andorra, Argentina, Austria, Bahamas, Barbados, Belgium, Bolivia, Bulgaria, Chili, Colombia, the Czech Republic, Costa Rica, Croatia, Czech Republic, Denmark, Ecuador, Finland, France, Germany, Greece, Guyana, Guatemala, Honduras, Hungary, Iceland, Ireland, Israel, Italy, Republic of Korea, Liechtenstein, Luxembourg, Macau, Malaysia, Malta, Morocco, Monaco, Namibia, Netherlands, New Zealand, Norway, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Romania, San Marino, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Suriname, Thailand, Trinidad and Tobago, Tunisia, Turkey, United Kingdom, Uruguay, Vatican, Venezuela.

This list may be subject to change. Participants are advised to check with the Brazilian embassy in their respective country. Information on commercial tourist sites is often outdated or inaccurate.

At present, citizens from all other countries do need a tourist visa to enter in Brazil. The tourist visa covers attendance at scientific conferences, seminars, or meetings. Tourist visa holders are not allowed to engage in any paid activity in Brazil, but they may receive per-diem allowances.

In order to request a tourist visa, it is necessary to contact the nearest Brazilian Consulate. A full official list of the Brazilian Embassies, Consulates, Vice-Consulates, Delegations, Missions and Offices around the world can be found at <www.mre.gov.br//ingles/endereco/endereco.asp>

American citizens should be aware that it might take more than one month to obtain a visa. For other citizens, it should usually take a couple of weeks or less. Please note that for ALL visitors, passports must be valid for at least six months, and a return ticket and proof of sufficient funds may be requested upon arrival.

For further information, see <www.astronomy2009.com.br>.

I.4.5.1 Personal invitation from the NOC for visa purposes

On request and for visa purposes only, an official personalized invitation can be issued by the NOC for IAU XXVII GA participants. Required information: full name, date of birth, place of birth, country of citizenship (country which issued your passport), passport number, date and place of issue of passport, and date of expiration of passport. Please inform the chair of the NOC of your request.

I.4.6. REGISTRATION

I.4.6.1 Participation

Attendance at the IAU XXVII General Assembly (GA2009) is automatically open to all Individual Members of the IAU. Professional astronomers who are not IAU-member are equally welcome to attend, upon invitation.

Invitations to professional astronomers who are not IAU-member to attend GA2009 will be issued by the IAU General Secretary, with copies to the Brazilian NOC of GA2009.

Please note that an invitation from the IAU General Secretary to attend GA2009 does not imply any financial commitment towards the invitee by the IAU Secretariat or by the Brazilian NOC.

Requests for invitation to GA2009 from professional astronomers who are not IAU-member should be directed to the chairperson or secretary of the National Committee for Astronomy in the country of residence (please consult <www.iau.org/administration/membership/national/nca>), or to the chairperson of the SOC of one of the GA2009 Symposia, Joint Discussions and Special Sessions (see <www.iau.org/science/meetings/future>) .
These chairpersons will forward the invitation requests with their recommendations to the IAU Secretariat.

Each GA2009 participant (IAU Individual Member or non-Member participant) may register accompanying guest(s). Registered guests are not allowed to attend the scientific sessions (except for the Invited Discourses), but otherwise will enjoy the same privileges as participants.

I.4.6.2 Registration Fee

The registration fees for the IAU XXVII General Assembly are as follows (in Brazilian Real – BRL):

	early 1 Nov. - 1 March (BRL)	**regular 2 March - 24 July (BRL)**	**on site 3 - 14 Aug. (BRL)**
IAU members & non-member participants	900	1000	1200
students & seniors	300	300	400
registered guest & children over 11 years	300	400	500
children up to 11 years	free	free	free

To apply for the student fee, the applicant must be under 35 years of age and a personalized letter, signed by the head of his/her university or institutional department, must be sent by fax or e-mail to the Conference Secretariat (JZ Congressos). The registration will be processed only after this letter has been received.

To apply for the senior fee, the applicant must be over 70 years of age and a copy of a valid ID is requested to be sent to the Conference Secretariat (JZ Congressos) by fax or e-mail. The registration will be processed only after this document has been received.

No registration will be confirmed until payment has been received.

I.4.6.3. How to register

Those interested in participating in the IAU XXVII General Assembly of the International Astronomical Union, 3-14 August 2009 in Rio de Janeiro, Brazil, can preregister on <www.fisica.ufmg.br/~iau2009/preregistration.html> in order to be included in the mailing list for receiving news and announcements.

The Registration Server will be online by 1 November 2008, together with the Abstract Server for the different meetings and events of the IAU XXVII General Assembly.

Participants can register on-line using the registration form provided at <www.astronomy2009.com.br/registration.html>. Participants who are unable to use this on-line form should contact the Conference Secretariat (JZ Congressos) for instructions on how to proceed. Registrations by telephone are not accepted.

Confirmation of registration
When the registration form and payment have been processed, the registrant will receive written confirmation by e-mail. This confirmation letter should be presented at the GA registration desk upon arrival in order to receive the conference material.

Registration cancellations policy
The Conference Secretariat must be notified of a cancellation of the registration in written form. The appropriate refunds will be made after the Conference. The following cancellation policy applies:
- cancellations before 3 July 2009:
    - full refund of the registration fee minus a handling fee of 20% on the payed value
- cancellations on or after 3 July 2009:
    - no refund

For further details, see <www.astronomy2009.com.br/registration.html> .

I.4.7. ACCOMMODATION

Matters concerning accommodation, tours and sightseeing in connection with the IAU XXVII General Assembly will be handled by the official GA Travel Agency, Blumar Incoming Tour Operator & DMC. In due time, it will be possible to make reservations through BLUMAR's reservation web site, dedicated specifically to the IAU XXVII General Assembly.

The NOC and Blumar will do their best to offer reduced rates for GA participants in hotels of all categories. Below are indicative price ranges for different hotel categories at the time of publication of this *Bulletin* (August 2008). Please note that we are still negotiating the best rates for the conference.

hotel category	**price range (BRL)**
5 stars	340 - 660
4 stars	246 - 390
3 stars	195 - 246
2 stars	127 - 170
1 star	100 - 140
hostels	30

For further information, see
<www.astronomy2009.com.br/accommodation.html> .

I.4.8. SOCIAL EVENTS

Interested participants may make arrangements using the Social and Tourist Programme on-line form at <www.astronomy2009.com.br>. The form should be submitted no later than June 1, 2009. After this date, requests can only be honoured on-site and depending on availability.

Opening Ceremony & Welcome Reception
The IAU XXVII GA Opening Ceremony will be held on Tuesday, August 4, 2009. The venue is still to be confirmed. The Opening Ceremony will start at 14:00 hr, immediately followed by Session 1 of the General Assembly. After this session, registered participants and guests are invited to join the welcome reception. This event is free of charge, but registration is mandatory, since a specific invitation will be issued and included in the Conference Material. Extra tickets will be available at a cost still to be defined.

Closing Banquet
The closing banquet is expected to take place at Pão de Acúçar (the Sugar Loaf mountain) on Wednesday, August 12, 2009. Registration for this event will be required, and further information will be given in due time.

I.4.9. TOURS

An interesting programme of one day, half-day, pre/post tours, etc., in and around Rio de Janeiro, is being prepared for the participants and their families and will be included in the on-line forms at <www.astronomy2009.com.br>

I.4.10. HOW TO MAKE PAYMENTS

Credit card payment will be accepted for all payments made for the IAU XXVII General Assembly. The credit cards accepted are VISA and Mastercard. Negotiations are under way in order to accept other credit cards.

Bank transfers will be accepted only in special cases, upon request to the Conference Secretariat, which will provide the necessary information. Please note that in this case, all bank charges must be fully covered by the participant(s).

I.4.11. HEALTH AND SECURITY

All participants are strongly recommended to arrange for medical insurance for the duration of their stay in Brasil. The IAU and the NOC will not accept liability for sickness or accidents.

I.4.12. IAU XXVII GA PRESS OFFICE

The Press Office for the IAU XXVII General Assembly will be responsible for the contact with the press and the media, providing information and material related to the meeting and to Astronomy in general.

The Press Offfice of the IAU XXVII General Assembly:

- Lars Lindberg Christensen (IAU Press Officer, international press)
- Cássio Leandro Dal Ri Barbosa (local press, NOC press contact)
- Raquel Yumi Shida (IAU Web Master)
- Pedro Russo (IYA2009 Coordinator)
- Lars Holm Nielsen (IAU Web Developer, technology, press photos)
- local assistants

Accreditation of the media will be done through a specific electronic form available at <www.astronomy2009.com.br/mediapress.html>. The deadline for submission of this form is July 24, 2009. A Confirmation Letter will be issued to accredited media and should be presented at the Registration Desk in order to collect the appropriate badge and material. After the above deadline, accreditation will be done only on-site.

For more information, see <www.astronomy2009.com.br/mediapress.html> .

I.4.13. GENERAL INFORMATION ABOUT BRASIL

Full country name	República Federativa do Brasil
Area	8,5 million km^2
Motto	*Ordem e Progresso* (Portuguese), *"Order and Progress"*
Population (2008 estimate)	187.4 million
Capital	Brasília (15º45' S, 47º57' W)
Language	Portuguese
Government	Presidential Federal Republic
President	Luis Inácio Lula da Silva
GDP (2007 estimate)	USD 1804 trillion
per capita	USD 11 873
Currency, exchange rate (August 2008)	Brazilian Real ("R$"), USD 1 = R$ 1.65
Electricity	110 - 220 V (bring adaptor)
Police alarm phone number	190 or 3399 7170 for foreigners

Average climate Rio de Janeiro in August

Temperature	27º C (day) - 18º C (night)
Sunshine	10 hours per day
Rain	4 days per month

Time zone

Rio de Janeiro	GMT minus three hours

Tudo bem !

PART II **IAU Information Bulletin No. 102**

II.1. EVENTS AND DEADLINES

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Proposals for IAU Symposia in 2010
should reach the Assistant General Secretary
via the IAU Proposal Web Server
<http://solarphys.uio.no/IAU>
before 1 December 2008

Letters-of-Intent should be submitted to the IAU web page
<www.iau.org/science/meetings/proposals/loi>
before 15 September 2008

See: <www.iau.org/science/meetings>

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2008

July 1-22	**IAU International School for Young Astronomers (PG-ISYA)**, *Istanbul, Turkey*
July 28-Aug 1	**IAU S256**, ***The Magellanic System: Stars, Gas, and Galaxies***, Keele, UK
Aug 3-6	**APRIM 2008**, ***10th Asian-Pacific Regional IAU Meeting***, *Kunming, Yunnan, China Nanjing*
Sept 15	Due date for Letters-of-Intent proposing IAU Symposia in 2010
Sept 15-19	**IAU S257**, ***Universal Heliophysical Processes***, *Ionnina, Greece*
Sept 29-Oct. 2	***400 Years of Astronomical Telescopes – A Review of History, Science and Technology,*** *International Conference, Noordwijk, Netherlands*
Oct 13-17	**IAU S258**, ***The Ages of Stars***, *Baltimore, MD, USA*
Nov 1	Due date for contributions to IAU IB 103
Nov 1	Due date for Letters-of-Intent proposing to host the IAU XXIX General Assembly in 2015
Nov 1	Opening of registration web site for IAU XXVII GA in Rio de Janeiro, 3-14 August
Nov 3-7	**IAU S259**, ***Cosmic Magnetic Fields: from Planets, to Stars and Galaxies***, *Puerto Santiago, Tenerife, Spain*
Dec 1	Due date for proposals for IAU Symposia in 2010
Dec 31	Deadline for nominations for the Peter and Patricia Gruber Foundation Cosmology Prize 2009

2009

Jan 15-16	***Opening Ceremony International Year of Astronomy 2009***, UNESCO Hq, Paris, France
Jan 23-27	**IAU S260, *The Role of Astronomy in Society and Culture*,** *Paris, France*
Feb 1	Due date for agenda items and documents for Officers' Meeting and 85th Executive Committee Meeting, April 6-8, 2009
Mar 1	Deadline for applications for the Peter and Patricia Gruber Foundation Fellowship 2009
Apr 1	Due date for bid books proposing to host the IAU XXIX General Assembly in 2015
April 6-8	IAU Officers' Meeting and 85th Executive Committee Meeting, Paris, France
April 27-May 1	**IAU S261, *Relativity in fundamental astronomy – dynamics, reference frames and data analysis,*** *Virginia Beach, VA, USA*
May 1	Due date for contributions to IAU IB 104
May 1	Due date for agenda items and documents for 86th IAU Executive Committee Meeting, August 2, 2009 in Rio de Janeiro
June 15	Due date for agenda items and documents for 87th IAU Executive Committee Meeting, August 14, 2009
July	***Astronomical Instruments from the Antikythera Mechanism to the de Dondi's Astrarium,*** *Budapest, Hungary*
July 25-29	***Dynamic solar corona and its impact on space weather***, International Conference in *Suzhou, Jiangsu province, China*
Aug 3-14	**IAU XXVII General Assembly**, *Rio de Janeiro, Brasil,* with associated Invited Discourses, Symposia, Joint Discussions and Special Sessions, Division/Commission/WG Business Meetings, and Executive Committee meetings EC86 and EC87
Sept 15	Due date for Letters-of-Intent proposing IAU Symposia in 2011
Sept 28-Oct 3	***Astronomy and its Instruments Before and After Galileo***, *Venice, San Servolo Isle, Italia*
Nov 1	Due date for contributions to IAU IB 105
Nov 1	Due date for agenda items and documents for Officers' Meeting, January 2010
Nov. 9-13	I**AU S268, *Light elements in the Universe** , Geneva, Switzerland*
Dec 1	Due date for proposals for IAU Symposia in 2011
Dec	***International School for Young Astronomers 2009***, *St Augustine, Trinidad & Tobago, West Indies*
Dec 31	Deadline for nominations for the Peter and Patricia Gruber Foundation Cosmology Prize 2010

2012

Aug 20-31	**IAU XXVIII General Assembly**, *Beijing, China*

II.2. IAU EXECUTIVE COMMITTEE

II.2.1. IAU Officers' Meeting 2008. *Brief report*

The 2008 IAU Officers' meeting took place on 29-31 January 2008, at the IAU Secretariat, Paris, France. Present were Catherine J. Cesarsky, President, Robert Williams, President-Elect, Karel A. van der Hucht, General Secretary, Ian F. Corbett, Assistant General Secretary, and Paul G. Murdin, chair of the IAU Finance Sub-Committee.

The meeting was dominated by the sudden death of the IAU Executive Assistant Monique Léger-Orine on 22 January, 2008, in hospital in Paris. Since she was to retire at the end of 2008, a vacancy announcement had already been published and a few candidates had applied. Mme Vivien A. Reuter was selected and appointed as the new Executive Assistant, effective 1 March 2008. The GS decided to be present at the IAU Secretariat full time during the months February and March 2008.

The Officers took note of the progress reports on the refurbishment of IAU data base and web site, to be completed around May 2008.

On the IAU XXVII General Assembly preparations: the Officers took note of the report of the GS on the visit of the IAU delegation (C.J. Cesarsky, R. Williams, K.A. van der Hucht, and M. Orine) to Rio de Janeiro, 20-24 August 2007, and of the progress report of the chair of the IAU XXVII GA NOC, Daniela Lazzaro.

The President, in her capacity as chair of the EC Working Group on the International Year of Astronomy 2009, informed the Officers of the progress of the IYA2009 preparations. It is particularly gratifying that the UN General Assembly adopted a Resolution on 19 December 2007 declaring 2009 the International Year of Astronomy (UN-A/RES/62/200).

The Officers took note of the report by the GS of his visit to the Norwegian Academy of Science and Letters, 3-4 December 2007 to explore possibilities of providing IAU cooperation and expertise to the NASL in their activities related to the Kavli Prizes.

Because of the tragic events just before the Officers' Meeting, it was decided to cancel the annual IAU reception in the Observatoire de Paris.

II.2.2. IAU Executive Committee Meeting 84. *Brief report*

The IAU 84th Executive Committee meeting (EC84) took place in Oslo, Norway, 28-30 May 2008, and was attended by the Executive Committee, the Division presidents (Div.IX represented by the its V-P), the chair of the IAU Finance Sub-Committee Paul G. Murdin, the co-chair of the NOC of the IAU XXVII GA Daniela Lazzaro, and the IAU Executive Assistant Mme Vivien A. Reuter.

The meeting, organized by past IAU General Secretary Oddbjørn Engvold, was held at the Norwegian Academy of Science and Letters and was hosted by Prof. Ole Didrik Larum, President, Professor Reidun Sirevåg, Secretary General, and Mr. Øyvind Sørensen, Chief Executive of the Det Norske Videnskaps-Akademi; Prof. Per Barth Lilje, chair, and Prof. Oddbjørn Engvold of the Institute of Theoretical Physics of the University of Oslo; and Mr. Birger Kruse, director of the Faculty of Mathematics and Natural Science of the University of Oslo, Norway.

Many agenda items for EC84 had been prepared at the IAU Officer's Meeting 2008, and its recommendations were mostly accepted.

On recommendation of IAU Division III, the EC accepted the name *plutoid* for transneptunian dwarf planets similar to Pluto.

The EC expressed its satisfaction with the new IAU web site, linked to the new IAU data base. The Oversight Committee had provided very useful input. In the course of 2008 additional tools will be introduced.

Vice-President Bob Williams presented an updated proposal for improvements of the IAU Statutes and Bye-Laws, and slightly revised IAU Working Rules. The latter to be put immediately on the IAU web pages, the former to be submitted to the IAU XXVII GA.

Daniela Lazzaro, co-chair of the NOC for the IAU XXVII GA in Rio de Janeiro, 3-14 August 2009, presented a detailed progress report of the preparations for the GA. The six IAU Vice-Presidents, after having received input from all EC members and Division presidents, made the selection of the four Invited Discourses, to be presented at the GA. The IAU Division Presidents added the finishing touch to the selection of the scientific meetings to be presented at the GA: six symposia, sixteen Joint Discussions and nine Special Sessions. The EC accepted their recommendations.

The President, in her capacity as chair of the EC-WG on the International Year of Astronomy 2009, informed the Officers of the further progress of the IYA2009 preparations. Notably, fund raising efforts have become a major focus, comprising some 25% of the activities of the IYA2009 secretariat in Garching.

The EC discussed the draft Strategic Plan for the IAU Education and Development Programs 2010-2020, written by IAU V-P George K. Miley. A final version of the Plan can be expected towards the end of 2008.

During the EC84 meeting, the IAU President signed a memorandum of Agreement with the President of the Norwegian Academy of Science and Letters on cooperation with respect to the selection of candidates for the Kavli Prize in Astrophysics, and with respect to co-sponsoring by the NASL of the IAU International Schools for Young Astronomers.

It was decided to postpone the next IAU Officers' Meeting to April 2009, and to combine this with an additional EC Meeting, EC85, in Paris, France, in order to discuss the final preparations for the GA.

II.3. IAU GENERAL ASSEMBLIES

II.3.1. IAU XXVII General Assembly, 3 - 14 August 2009, Rio de Janeiro, Brasil

See **PART I**. For recent information and details on registration, visit the IAU XXVII GA web site: <www.astronomy2009.com.br/index.html>.

II.3.2. IAU XXVIII General Assembly, 20-31 August 2012, Beijing, China Nanjing

The web site of this General Assembly has been registered as:

< www.astronomy2012.com/ >. The site will open in due time.

II.3.3. IAU XXIX General Assembly, 2015. Deadlines for Letters-of-Intent and Proposals to Host

The IAU Executive Committee solicits proposals for hosting the IAU XXIX General Assembly in July-August 2015. Rules and guidelines are available at: <www.iau.org/administration/meetings/hosting_ga/>.

Letters-of-Intent, to be sent to Karel A. van der Hucht, IAU General Secretary (<iau@iap.fr>, copy to <k.a.van.der.hucht@sron.nl>), are welcome before 1 November 2008.

Complete bid books should reach the IAU General Secretary before the deadline of 1 April 2009.

II.4. SCIENTIFIC MEETINGS

II.4.1. IAU SYMPOSIA in 2008 (see details in IAU IB 101, January 2008)

IAU S257 ***Universal Heliophysical Processes***
15 - 19 September 2008, Ionnina, Greece

Contact: Nat Gopalswamy <gopals@ssedmail.gsfc.nasa.gov>
Local contact: Alexander Nindos <anindos@cc.uoi.gr>
URL: <http://iau257.uoi.gr/>

IAU S258 ***The Ages of Stars***
13 - 17 October 2008, Baltimore, MD, USA

Contact: David R. Soderblom <drs@stsci.edu>
URL: <www.stsci.edu/institute/conference/iau258>

IAU S259 ***Cosmic Magnetic Fields: from Planets, to Stars and Galaxies***

3 - 7 November 2008, Puerto Santiago, Tenerife, Spain

Contact: Klaus G. Strassmeier <kstrassmeier@aip.de>
Local contact: John E. Beckman <jeb@iac.es>
URL: <www.aip.de/IAUS259/>

II.4.2. IAU SYMPOSIA in 2009

IAU S260 ***The Role of Astronomy in Society and Culture***
Date and place: 19 - 23 January 2009, UNESCO, Paris, France
Coordinating Division: XII
SOC chair: David Valls-Gabaud (France).
SOC members: Jean Audouze (France), Juan A. Belmonte (Spain), Beatriz Barbuy (Brasil), Alec Boksenberg (UK), Catherine J. Cesarsky (France), Dennis Crabtree (Canada), Walter Erdelen (UNESCO, France), Roger Ferlet (France), George Martin (Australia), Owen Gingerich (USA), Toshihiro Handa (Japan), Lawrence M. Krauss (USA), Edwin C. Krupp (USA), George K. Miley (Netherlands), Philippe Morel (France), Carl Pennypacker (USA), Dominique Proust (France), Lord Martin J. Rees (UK), Magda G. Stavinschi (Romania), Silvia Torres-Peimbert (Mexico), Patricia A. Whitelock (South Africa), and Gang Zhao (China Nanjing).
LOC chair: Dominique Proust (Obs. de Paris).
LOC members: Brigitte Bourdon (Obs. de Paris), Yolanda Berenger (UNESCO), Régis Courtin (LESIA, Obs. de Paris), Suzanne Faye (Lycee Chaptal, Paris), Sabine Kimmel (GEPI, Obs. de Paris), Annick Oger (GEPI, Obs. de Paris), Sylvestre Taburet (GEPI, Obs. de Paris), David Valls-Gabaud (GEPI, Obs. de Paris), and Emmanuel Vergnaud (Obs. de Paris).
Principal topics:

- education and teaching of astronomy at all levels

- astronomy in culture and the culture of Astronomy
- astronomy in the information society
- science policies and international collaborations
- astronomy and the arts
- astronomy as a tool for development
- environmental issues
- public understanding of astronomy
- the importance of amateur astronomers
- outreach and mass media.

Editors: David Valls-Gabaud & Alec Boksenberg
Contact: David Valls-Gabaud <david.valls-gabaud@obspm.fr>
URL: <http://iaus260.obspm.fr>

IAU S261 ***Relativity in Fundamental Astronomy***
Date and place: 27 April -1 May 2009, Virginia Beach, VA, USA
Coordinating Division: I
SOC chairs: Sergei A. Klioner (Germany) and Kennneth P. Seidelmann (USA).
SOC members: Nicole Capitaine (France), S. Antonio Elipe (Spain), Sylvio Ferraz Mello (Brazil), Toshio Fukushima (Japan), William M. Folkner (USA), Kenneth J. Johnston (USA), François Mignard (France), Andrea Milani (Italy), Wei-Tou Ni (China Nanjing), Gérard Petit (France), Michael H. Soffel (Germany), David Vokrouhlicky (Czech Republic), and Clifford M. Will (USA).
LOC chair: Michael Efroimsky (US Naval Observatory, USA).
LOC members: John Bangert, Alice Monet, and George Kaplan (all USNO).
Principal topics:

- astronomical reference frames in the relativistic framework
- relativistic modeling of observational data
- astronomical tests of relativity
- relativistic dynamical modeling
- relativity in astrodynamics and space navigation
- modern observational techniques in fundamental astronomy
- time measurement and time scales
- astronomical constants and units of measurements.

Editors: Sergei A. Klioner, Kennneth P. Seidelmann, & Michael H. Soffel
Contact: Sergei A. Klioner <sergei.klioner@tu-dresden.de>
URL:

IAU S262 through S267, to be held during the IAU XXVII GA in Rio de Janeiro, Brasil, 3-14 August 209: see PART I of this *Information Bulletin.*

IAU S268 ***Light Elements in the Universe***
Date and place: 9 -13 November 2009, Geneva, Switzerland
Coordinating Division: IV
SOC chairs: Corinne Charbonnel (Switzerland) and Monica Tosi (Italy)
SOC members: Beatriz Barbuy (Brasil), Yuri Izotov (Ukraine), Taka Kajino

(Japan), David L. Lambert (USA), John Lattanzio (Australia), Paolo Molaro (Italy), H. Warren Moos (USA), Francesca Primas (Germany), Robert T. Rood (USA), and Suzanne Talon (Canada).
LOC chair: Corinne Charbonnel.
LOC members: Christina Chiappini, Mirka Dessauges, Chantal Tacoy, and Andreas Lampart (all Geneva).

Principal topics:

- results from the recent experiments on cosmic microwave background anisotropies
- primordial nucleosynthesis (standard and non-standard)
- LiBeB production and associated astrophysical sites
- measurements of the primordial D, 3,4He, and 7Li abundances
- measurements of 6Li, Be and B
- stellar knowledge to and from light elements
- production and destruction of light elements in stars
- evolution of the light elements in the Galaxy
- evolution of the light elements in the solar neighborhood
- spallation processes and the early galactic evolution.

Editors: Corinne Charbonnel, Monica Tosi & Francesca Primas
Contact: Corinne Charbonnel <corinne.charbonnel@obs.unige.ch>
URL:

For an overview of all IAU scientific meetings, see:
< www.iau.org/science/meetings/ >.

II.4.3. Regional IAU Meetings in 2008

II.4.3.1 MEARIM 2008

This *1st Middle-East Africa Regional IAU Meeting*, 5-10 April 2008 in Cairo, Egypt, was the first of its kind in this region. It attracted 121 participants from 40 countries. There were three main scientific topics: extragalactic astrophysics, high-energy astrophysics, and solar physics. Each had some excellent reviews and presentations, and scientists from these different communities were really talking to each other. There were also papers on scattered topics (stars, asteroids, interstellar chemistry) and many participants presented the observing facilities in their countries. In addition, there were sessions on education and on IYA2009, especially in Africa. Finally, there were discussions on the further development of astronomy in the region. It was most satisfying that so many Middle Eastern countries were represented and collaborated in this Regional IAU Meeting. The meeting participants agreed to initiate an IAU Working Group, coined Middle East and Africa Working Group, to stimulate and develop education in astronomy in the Middle East and Africa, with Prof. Ahmed Hady as chair, Prof. Philip A. Charles as co-chair, and members from 12 Middle Eastern and African countries. South Africa volunteered to organize the next MEARIM, in 2011. Report: < www.mearim.cu.edu.eg/>.

II.4.3.2 APRIM 2008 *10th Asian-Pacific Regional IAU Meeting*

3 - 6 August 2008, Kunming, Yunnan, China Nanjing

Scientific Organizing Committee:
Brian J. Boyle (Australia), Gregory G. Fahlman (Canada), Leonardo Bronfman (Chile), John B. Hearnshaw (New Zealand), John P. Huchra (USA), Satoru Ikeuchi (Japan), Norio Kaifu (Japan), Iraida S. Kim (Russian Federation), Sun Kwok (China Nanjing), Hyung Mok Lee (Korea RP), Yan Li (China Nanjing), Hakim L. Malasan (Indonesia), Shin Mineshige (Japan), Jayant Vishnu Narlikar (India), Premana W. Premadi (Indonesia), Russ Taylor (Canada), Shuang Nan Zhang (China Nanjing) & Gang Zhao (Chair, China Nanjing).

Local Organizing Committee:
Jzhanwen Han, Jun Lin, Zhong Liu & Jiangcheng Wang.

Proceedings' Editors: Shuang Nan Zhang, Yan Li & Qing Juan Yu.

Contact: Jiancheng Wang <j.c.wang@public.km.yn.cn>, <aprim@ynao.ac.cn>
URL: <http://aprim.ynao.ac.cn>

II.4.4. Other meetings of astrophysical interest

Joint European and National Astronomy Meeting - JENAM 2008 "New Challenges to European Astronomy"
2 - 12 September 2008, Vienna, Austria

Contact: Gerhard Hensler <hensler@astro.univie.ac.at>
URL: <www.univie.ac.at/jenam2008 >

The Invention of the Dutch Telescope - Its Origin and Impact on Science, Culture and Society, 1550 - 1650
25 - 27 September 2008, Middelburg, the Netherlands

Contact: <Huib.Zuidervaart@huygensinstituut.knaw.nl>
URL: <www.roac.nl>

400 Years of Astronomical Telescopes - A Review of History, Science and Technology
29 September - 2 October 2008
ESA-ESTeC, Noordwijk, the Netherlands
Co-sponsored by the IAU

Contact: Bernhard Brandl <brandl@strw.leidenuniv.nl>
URL: < www.400yearsoftelescopes.org >

Astronomical Instruments from the Antikythera Mechanism to the de Dondi's Astrarium
May/June 2009
Islands of Kythera and Antikythera, Greece
Co-sponsored by the IAU

Contact: Efthymios Nicolaidis <e.nicolaidis@dhstweb.org>
URL:

Astronomy and its Instruments before and after Galileo
28 September 2009 - 3 October 2009, Venice, Italy
Co-sponsored by the IAU

Contact: Luisa Pigatto <luisa.pigatto@oapd.inaf.it>
URL: < http://web.oapd.inaf.it/venice2009/index.php >

Mathematics and Astronomy, a Joint Long Journey
23 - 27 November 2009, Madrid, Spain
Co-sponsored by the IAU

Contact: Rosa M. Ros < ros@ma4.upc.edu >
URL: <tbd >

For other meetings of astrophysical interest, see the International Astronomy Meetings List, maintained by Liz Bryson of the Canada-France-Hawaii Telescope Corporation: <www3.cadc-ccda.hia-iha.nrc-cnrc.gc.ca/meetings/>.

II.5. IAU PUBLICATIONS

II.5.1. IAU Highlights of Astronomy

Highlights of Astronomy, Volume 13

AS PRESENTED AT THE XXVth GENERAL ASSEMBLY OF THE IAU

Sydney, Australia, 13-26 July 2003
Ed. Oddbjørn Engvold
(San Francisco: ASP) ISBN: 1-58381-189-3, 2006

Highlights of Astronomy, Volume 14

AS PRESENTED AT THE XXVIth GENERAL ASSEMBLY OF THE IAU

Prague, Czech Republic, 14-25 August 2006
Ed. Karel A. van der Hucht
(Cambridge: CUP) ISBN: 978-0-521-89683-2, 2007
URL: < http://journals.cambridge.org/action/displayIssue?jid=IAU&volumeId=2&issueId=14 >

II.5.2. IAU Transactions

Transactions of the IAU, Volume XXVB

PROCEEDINGS OF THE XXVth GENERAL ASSEMBLY OF THE IAU

Sydney, Australia, 13 - 26 July 2003
Ed. Oddbjørn Engvold
(San Francisco: ASP) ISBN: 978-1-58381-647-9, 2007

Transactions of the IAU, Volume XXVIA

REPORTS ON ASTRONOMY 2003-2006

Ed. Oddbjørn Engvold
(Cambridge: CUP) ISBN: 0-521-85604-3, 2007
URL: <http://journals.cambridge.org/action/displayIssue?jid=IAU&volumeId=1&issueId=T26A>

Transactions of the IAU, Volume XXVIB

PROCEEDINGS OF THE XXVIth GENERAL ASSEMBLY OF THE IAU

Prague, Czech Republic, 14 - 25 August 2006
Ed.: Karel A. van der Hucht
(Cambridge: CUP) (due December 2008)

Transactions of the IAU, Volume XXVIIA

REPORTS ON ASTRONOMY 2006-2009

Ed. Karel A. van der Hucht
(Cambridge: CUP) (due March 2009)
URL:

II.5.3. IAU Symposium Proceedings, published in 2008

As of 2004, starting with IAU S222, the IAU Symposium Series is being published by Cambridge University Press, Cambridge, UK (CUP).
E-version, see: <http://journals.cambridge.org/action/displayJournal?jid=IAU>.
Print, see: <www.cambridge.org/uk/series/sSeries.asp?code=IAUP>.

IAU S242 ***Astrophysical Masers and their Environments***
12 - 16 March 2007, Alice Springs, Australia
Eds. Jessica M. Chapman & Willem A. Baan
(Cambridge: CUP) ISBN: 978-0-521-87464-9 (January 2008)

IAU S243 ***Star-Disk Interaction in Young Stars***
21-25 May 2007, Grenoble, France
Eds. Jérôme Bouvier & Immo Appenzeller
(Cambridge: CUP) ISBN: 978-0-521-87465-6 (November 2007)

IAU S244 ***Dark Galaxies and Lost Baryons***
25-29 June 2007, Cardiff, UK
Eds. Jonathan I. Davies & Michael D. Disney
(Cambridge: CUP) ISBN: 978-521-87466-3 (February 2008)

IAU S245 ***Formation and Evolution of Galaxy Bulges***
16 - 20 July 2007, Oxford, UK
Eds. Martin G. Bureau, Evangelia Athanassoula & Beatriz Barbuy
(Cambridge: CUP) ISBN: 978-0-521-87467-0 (July 2008)

IAU S246 ***Dynamical Evolution of Dense Stellar Systems***
5 - 9 September 2007, Capri, Italy
Eds. Enrico Vesperini, Miroslav Giersz & Alison I. Sills
(Cambridge: CUP) ISBN: 978-0-521-87468-7 (May 2008)

IAU S247 ***Waves and Oscillations in the Solar Atmosphere: Heating and Magneto-Seismology***
17 - 21 September 2007, Porlamar, Isla de Margarita, Venezuela
Eds. Robert Erdélyi & César A. Mendoza-Briceño
(Cambridge: CUP) ISBN: 978-0-521-87469-4 (May 2008)

IAU S248 ***A Giant Step: from Milli- to Micro-arcsecond Astrometry***
15 - 19 October 2007, Shanghai, China Nanjing
Eds. Wenjing Jin, Imants Platais & Michael A.C. Perryman
(Cambridge: CUP) ISBN: 978-0-521-87470-0 (July 2008)

IAU S249 ***Exoplanets: Detection, Formation and Dynamics***
22 - 26 October 2007, Suzhou, China Nanjing
Eds. Yi-Sui Sun, Sylvio Ferraz Mello, & Ji-Lin Zhou
(Cambridge: CUP) ISBN: 978-0-521-87471-7 (May 2008)

IAU S250 ***Massive Stars as Cosmic Engines***
10 - 14 December 2007, Kauai, Hawaii, USA
Eds. Fabio Bresolin, Paul A. Crowther & Joachim Puls
(Cambridge: CUP) ISBN: 978-0-521-87472-4 (June 2008)

For a complete list of IAU Symposium Proceedings, see
<www.iau.org/Symposia_Colloquia.122.0.html>.

II.5.4. Other IAU-related Publications

Comet/Asteroid Impacts and Human Society. An Interdisciplinary Approach
Peter Bobrowsky and Hans Rickman, eds., 2007
(Berlin, Heidelberg: Springer Verlag) ISBN-13: 978-3-540-32709-7

Astronomy for the Developing World
John Hearnshaw and Peter Martinez, eds., 2007
Proceedings of Special Session 5 of the IAU XXVIth General Assembly, Prague, Czech Republic, 2006,
(Cambridge: CUP), ISBN: 978-0521-87657-5

Proceedings 14th SEAC Archaeoastronomical Conference
Rhodes, Greece, 2006
Ioannis Liritzis, ed.
Mediterranean Archaeology & Archaeometry, vol. 6, No.3, 2006
<www.rhodes.aegean.gr/maa_journal/issues2006c.html>.

II.6. THE IAU AND THE PETER & PATRICIA GRUBER FOUNDATION

II.6.1. Gruber Cosmology Prizes

Information on the annual Gruber Cosmology Prize is available at <www.iau.org/PETER_AND_PATRICIA_GRUBER_FOUN.98.0.html>.

II.6.1.1 Gruber Cosmology Prize 2008

The Gruber Cosmology Prize 2008 will be awarded to J. Richard Bond, director of the Canadian Institute for Advanced Research Cosmology and Gravity Program, during a ceremony at the Harvard-Smithsonian Center for Astrophysics, Cambridge, USA, 17 September 2008. Bond is being honoured for ground breaking theoretical work on structure formation and evolution of the Universe. See <www.iau.org/public_press/news/release/iau0805/>.

II.6.1.2 Gruber Cosmology Prize 2009

The Gruber Cosmology Prize 2009 will be awarded during the Inaugural Ceremony of the IAU XXVII General Assembly in Rio de Janeiro, 3 August 2009. Nominations of candidates for the Gruber Cosmology Prize 2009 can be submitted up to 31 December 2008. Nomination information is available at: <www.gruberprizes.org/Nominations/Cosmology.php>. General information on the annual Gruber Cosmology Prize is available at <www.iau.org/PETER_AND_PATRICIA_GRUBER_FOUN.98.0.html>.

II.6.2. PPGF Fellowships

With the aim to promote the science of cosmology and other branches of astronomy, the Peter & Patricia Gruber Foundation has created the PPGF Fellowship Programme. Funded by the PPGF, one Fellowship will be awarded every year, the next one in 2009. A Fellowship amounts to US$50,000 and will be given as a stipend to cover travel, subsistence and research expenses during a postdoctoral appointment for a period which is typically of one year duration, but may be extended to two years. The Fellowship will be awarded to an extremely promising, young astrophysicist, working in any field of astrophysics, either theoretical, observational or experimental. There are no limitations on nationality, but preference will be given to applicants from countries in difficult economic conditions. For more details, see: <www.iau.org/grants_prizes/gruber_foundation/fellowships/> .

II.6.2.1 PPGF Fellowship 2008

The recipient of the PPGF Fellowship 2008 is Dr. Karen L. Masters (United States). She will spend her fellowship at the Institute of Cosmology and Gravitation, University of Portsmouth, UK.

II.6.2.2 PPGF Fellowship 2009

The deadline of application for the PPGF Fellowship 2009 is 1 March 2008. Instructions for application are available at the IAU web page: <www.iau.org/PETER_AND_PATRICIA_GRUBER_FOUN.98.0.html>

II.7. THE IAU, THE NORWEGIAN ACADEMY OF SCIENCE & LETTERS, AND THE KAVLI PRIZE IN ASTROPHYSICS

II.7.1. Kavli Prizes

The Kavli Prizes are awarded every other year to one or more leaders in the areas of astrophysics, nano science and neuro science. Winners receive a US$1,000,000 prize as well as a medal and a diploma in recognition of their cutting-edge research. The Prizes have been established in order to recognise outstanding scientific research, honour highly creative scientists, promote public understanding of scientists and their work, and foster international cooperation among scientists. The first Kavli Prizes were given in 2008.

The Kavli Prize in Astrophysics is awarded for outstanding achievement in advancing our knowledge and understanding of the origin, evolution, and properties of the universe. It will include the fields of cosmology, astrophysics, astronomy, planetary science, solar physics, space science, astrobiology, astronomical and astrophysical instrumentation, and particle astrophysics.

On 29 May 2008, the Norwegian Academy of Science and Letters and the International Astronomical Union agreed to cooperate on future Kavli Prizes in Astrophysics**.**

II.7.2. Kavli Prize in Astrophysics 2008 recipients

The Kavli Prize 2008 recipients are Maarten Schmidt (California Institute of Technology, CA, USA) and Donald Lynden-Bell (Institute of Astronomy, Cambridge University, UK). The prize was jointly given "for their seminal contributions to understanding the nature of quasars." The prizes will be awarded at a ceremony in Oslo, Norway, in September 2008.

II.7.3. Kavli Prize in Astrophysics 2010

Beginning in 2010, the IAU and the NASL will collaborate on choosing the members of the Kavli Prize selection committee. The Academy will remain responsible for the announcement of the prize and the nomination of the winners; however, they will seek advice from the Kavli Foundation and the IAU. The IAU will also announce the names of the winners through its IAU Information Bulletin and on its web site. The agreement was signed on 29 May by the President of the NASL, Prof. Ole Didrik Laerum, and the President of the IAU, Dr. Catherine J. Cesarsky.

II.7.4. Kavli Prize in Astrophysics nominations

Nominations for the Kavli Prize in Astrophysics are open to everyone; however, individuals cannot nominate themselves. The prize can be awarded to a single exceptional individual or to a group of individuals who have contributed jointly to the research. An individual cannot be awarded the prize posthumously.

Beginning with the next prize in 2010, the Norwegian Academy will seek advice from the International Astronomical Union in order to establish a balanced prize committee, with respect to the various fields of Astrophysics, to select the Kavli Prize in Astrophysics winners.

The committee will be comprised of an international consortium of five leaders in astrophysics chosen by the Norwegian Academy with the advice of the IAU and based on recommendations made by the Max Planck Society in Germany, the National Academy of Sciences in the United States, the Norwegian Academy of Science and Letters, and the Royal Society in the United Kingdom.

Developments in the Kavli Prize in Astrophysics will be posted on the IAU web site <www.iau.org/grants_prizes/kavli_prize/>.

II.7.5. The IAU International Schools for Young Astronomers and the Norwegian Academy of Science and Letters

For the benefit of countries and regions that need support in development of astrophysical education and research, the NASL will co-sponsor one IAU International School for Astronomy (ISYA) every year, beginning in 2009. The financial support by the NASL per year is US$ 30,000. The curriculum and venue for an IAU ISYA will be determined by the IAU Division XII / Commission 46 Program Group for ISYA, together with the Local Organizer of the ISYA, and will be overseen by the IAU Vice-President in charge of IAU educational programs. Appropriate procedures for the announcement of the IAU ISYAs will be developed by the NASL and the IAU. Announcement and application information for the IAU ISYAs will be published in the IAU *Information Bulletin* and made available on the IAU web site.

Each IAU ISYA will invite earlier Kavli Laureates as one main speaker at each International Schools for Young Astronomers. For all information material about the IAU ISYA, it will be stated the school is sponsored by the Kavli Prize/the NASL.

For more information on Kavli Prizes, see <www.kavliprize.no/>.

For more information on Kavli Prize nominations, see <www.kavliprize.no/artikkel/vis.html?tid=27289>

II. 8. REPORTS OF IAU DIVISIONS, COMMISSIONS, WORKING GROUPS, AND PROGRAM GROUPS

II.8.1. EC WG *International Year of Astronomy 2009 (IYA2009)*

The International Year of Astronomy 2009 (IYA2009) is a global collaboration between nations and organisations for peaceful purposes – the search for our cosmic origin, a common heritage that connects everyone. The science of astronomy represents millennia of collaborations across all boundaries: geographic, gender, age, culture and race, in accordance with the principles of the UN Charter. This report outlines the status of the principal projects and activities that make up the IYA2009.

Participating Nations and Organisations

As of 12 August 2008, an impressive 122 National Nodes, representing 118 countries and 26 organisations, have signed up to participate in the IYA2009. This is an unprecedented network of engaged astronomy communicators and educators. A total of around 140 nations are expected to join the IYA2009 before the Year starts. Please check the full list on the IYA2009 website: <www.astronomy2009.org/content/view/356/94/>.

The IAU welcomes suggestions for so-called S*ingle Points of Contact* from countries that are not as yet involved. The IYA2009 Secretariat is particularly keen to establish contact with the following countries, based on the report on the state of astronomy development by country, compiled by John Hearnshaw (IAU Commission 46: PG - Worldwide Development of Astronomy [1]): Albania, Andorra, Azerbaijan, Brunei, Barbados, Korea DPR, Lebanon, Liechtenstein, Mauritius, Monaco and San Marino.

Astronomy, education and science outreach related organisations are also welcome to participate in the IYA2009. So far 26 such organisations have signed up. Please check the full list on the IYA2009 website:
<www.astronomy2009.org/index.php/?option=com_content&view=article&id=360> .

Organisational Associates

The IYA2009 Organisational Associates are the organisations, institutions and agencies related to astronomy, space science and natural science that support the global coordination of IYA2009 financially. Please check the full list on the IYA2009 website: <www.astronomy2009.org/iya2009-partners/org-associates.html> .

Global Sponsors

Global Sponsors contribute financially to support the preparation, implementation and evaluation of IYA2009 activities. ThalesAlenia Space and Celestron have already signed up as global sponsors.

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1 <http://iau46.obspm.fr/spip.php?article53&lang=enspip.php?article53&artsuite=0#sommaire_1>

Media Partners
The IYA2009 Secretariat is working towards establishing a network of media partners that will support and promote IYA2009 activities by providing coverage and publicity for the global and international projects. So far, we have had positive replies from: *Planetarian* - Journal of the International Planetarium Society; *Sky & Telescope; Astronomy Now Ireland; Astronomy Now; Physics World and Cosmos Magazine.*

Resources
Over the past few months, the Secretariat has generated an abundance of resources to spread word of the IYA2009 among members of the general population. These range from trailers to brochures to presentations, many of which are easily accessible through the IYA2009 website. Some of these online resources include: IYA2009 Trailer, IYA2009 Brochures, IYA2009 Power Point Presentations and IYA2009 Logo and Branding. To view these resources and more, please visit: <www.astronomy2009.org/resources-mainmenu-47.html>.

IYA2009 Cornerstone Projects
The International Year of Astronomy 2009 is supported by eleven Cornerstone projects. These global programmes are based on specific themes that collectively represent the means to achieve the IYA2009's primary goals. The Cornerstone projects are key to the success of IYA2009. Several Cornerstones are underway and have dedicated websites:

- 100 Hours of Astronomy <www.100hoursofastronomy.org>
- The Galileoscope <www.astronomy2009.org/cornerstone-projects-mainmenu-80/the-galileoscope-mainmenu-83.html>
- Cosmic Diary <www.cosmicdiary.org>
- Portal to the Universe <www.portaltotheuniverse.org>
- She is an Astronomer <www.sheisanastronomer.org>
- Dark Skies Awareness <www.darkskiesawareness.org>
- Astronomy and World Heritage <http://whc.unesco.org/pg.cfm?cid=281&id_group=21&s=home>
- Galileo Teacher Training Program <www.galileoteachers.org>
- Universe Awareness <www.unawe.org>
- From Earth to the Universe <www.fromearthtotheuniverse.org>
- Developing Astronomy Globally <www.developingastronomy.org>

IYA2009 Special Task Groups

- **Opening Ceremony:** This ceremony will take place on 15-16 January 2009 at UNESCO Headquarters in Paris, France.
- **EU 7th Framework Programme:** This task group investigates possible European Commission calls for proposals within the framework of the 7th Research and Development Framework Programme (FP7).

- **Kepler:** This Group will celebrate the 400th anniversary of Kepler's *Astronomia Nova*, the cornerstone of modern astronomy, in the launch year of NASA's Kepler mission to seek Earth-sized extrasolar planets.
- **New Year's Eve Events:** The main objective of this Special Task Group is to announce that 2009 is the International Year of Astronomy on 31 December 2008.
- **Solar Physics:** This Special Task Group aims to communicate the particular relation of the Sun to the rest of the Universe, and thereby the place of solar science in astronomy.
- **Philately:** This Special Task Group will create and maintain a global philatelic checklist of postal authority releases generated in celebration of the IYA2009 and/or astronomy in general.
- **Evaluation:** IYA2009 is an excellent opportunity to increase public understanding and awareness of astronomy. But will it achieve its objectives? What lessons will we learn?
- **New Media:** This Task Group provides online astronomy experiences where people work, play and learn; creates content to expose people to astronomy; distributes content for active and passive channels; and uses a diverse suite of technologies to reach people on multiple platforms and in a range of online settings.
- **Galileo:** The aim of this task group is to raise Galileo Galilei's public profile through intra-community communication, formal and informal education and public outreach.
- **Extrasolar Planets:** This Task Group will operate in an area that is both easy for the general public to understand and one of the greatest scientific adventures of the 21st century: extrasolar planets and the search for life on these planets. The Task Group will create and maintain <www.exoplanet2009.org>, an international, multilingual website.
- **Closing Ceremony:** As the IYA2009 comes to an end, we will join in a celebration of astronomy and astronomical experiences.

Conclusion

1 January 2009 will mark the beginning of the IYA2009 in the eyes of the public. However, this immense worldwide science outreach and education event began more than six years earlier, with IAU's initiative in 2003. The IYA2009 aims to unite nations under the umbrella of astronomy and science, while at the same time acknowledging cultural differences and national and regional particularities. Never before has such a network of scientists, amateur astronomers, educators, journalists and scientific institutions come together. When the IYA2009 officially kicks off in Paris on 15 January 2009, it is estimated that more than 5000 people will be directly involved in the organisation of IYA2009 activities across the globe.

For more detailed information on current actions and on-going planning of the IAU EC Working Group on IYA2009, see: <www.astronomy2009.org/>.

Pedro Russo,IAU IYA2009 Coordinator <prusso@eso.org>
Mariana Barrosa, IAU IYA2009 Coordination Assistant <mbarrosa@eso.org>
Lars Lindberg Christensen, IAU IYA2009 EC WG Secretary, IAU Press Officer <lars@eso.org> Garching-bei-München, Germany, 18 August 2008

II.8.2. Div.I/WG *Numerical Standards in Fundamental Astronomy*

The IAU Working Group for Numerical Standards of Fundamental Astronomy (NSFA) continued to work towards compiling a list of Current Best Estimates of conventional numerical values for use in fundamental astronomy. It is anticipated that a list of estimates as well as a draft IAU Recommendation will be presented at the Journées 2008 "Systèmes de référence spatio-temporels," to be held in Dresden, Germany 22-24 September 2008.

Brian J. Luzum, chair of the Working Group, 10 April 2008
U.S. Naval Observatory, Washingington DC, USA <bjl@maia.usno.navy.mil>

II.8.3. Div.I/Comm.8/WG *Densification of the Optical Reference Frame*

Jean Souchay et al. submitted a paper to A&A regarding LQAC. LQAC = Large Quasar Astrometric Catalogue with 113,666 entries, including radio and optical data with cross references to 2MASS, GSC2.3 and USNO-B1 to obtain best available positions of currently know QSOs, merging 10 radio and redshift catalogs. This is a joint project mainly between Paris Observatory and Observatorio National, Rio de Janeiro, Brazil. To obtain a preprint of the paper and catalog data, please see the link <ftp://syrte.obspm.fr/pub/LQAC> . An attempt was made to derive absolute magnitudes of all QSOs from the combined data (radio, IR, optical).

Norbert Zacharias, chair of the Working Group, 9 April 2008
US Naval Observatory Washington, DC 20392, USA <nz@usno.navy.mil>

II.8.4. Division III *Planetary Systems Sciences*

Issues of concern:

* Naming of putative dwarf planets. Vote on proposed protocol.
* Formation of Task Groups to assess the hydrostatic equilibrium and clearing out of orbital zones for dwarf planets. Seeking advice from the EC about what we need to achieve by Rio.
* Finding another term for dwarf planet.
* Future funding of the MPC.

Edward L.G. Bowell, president of the Division, 13 April 2008
Lowell Observatory, Flagstaff, USA <ebowell@lowell.edu>

II.8.5. Div.III/Comm.20
Positions and Motions of Minor Planets, Comets, and Satellites

We have set up a committee to discuss rules for discovery credit of minor bodies that might involve orbit computers. The problem appears as complex, we expect to come up with a proposal for the next GA. We have besides sponsored the applications for the realization of some symposia next year. In the first place, we can mention "Icy Bodies in the Solar System" presented by the undersigned which is intended to take place during the incoming IAU GA. We have also supported the proposals "Mathematics and Astronomy - A Long Journey" to be held in Madrid in November, 2009, proposed by Rosa Ros and Manuel de Leon, and "The Role of Astronomy in Society and Culture" to be held in Paris in January, 2009, proposed by David Valls-Gabaud.

Julio A. Fernández, president of the Commission, 14 April 2008
Montevideo 11400, Uruguay <julio@fisica.edu.uy>

II.8.6. Div.III/Commission 51 ***Bioastronomy***

The primary activity of IAU Commission 51 (C51) is to organize a Bioastronomy meeting every three years. Bioastronomy 2007 was held last year in San Juan, Puerto Rico. At the San Juan meeting, C51 decided to plan to hold the next Bioastronomy meeting in conjunction with the International Astrobiology Society (ISSOL). The motivation for having a joint meeting is to try to ensure the continued growth of bioastronomy and related fields without holding competing meetings at different times and different locations. The current plan is to hold the first joint meeting in 2011, three years after the next ISSOL meeting in Florence, Italy in 2008. The dates and venue for this meeting remain to be determined. Antonio Lazcano, President of ISSOL, and I invite expressions of interest from institutions that would be willing to host the first joint ISSOL/C51 meeting in 2011. Please send us (<alar@hp.fciencias.unam.mx> and <boss@dtm.ciw.edu>) your ideas for having such a joint meeting. We anticipate having a meeting with a single, unified program of talks and events for a total of perhaps 500 participants. We hope to make a decision about the venue during the ISSOL meeting in Florence in August, 2008, so expressions of interest should be received prior to August 1, 2008. Web pages for C51 are located at: <www.dtm.ciw.edu/boss/c51index.html>.

Alan P. Boss, president of the Commission, 25 March 2008
Dept. of Terrestrial Magnetism, Carnegie Institution of Washington, Washington DC, USA
<boss@dtm.ciw.edu>

II.8.7. Div.VI/Comm.34/WG ***Astrochemistry***

The working group on astrochemistry planned and organized the highly successful symposium on "Astrochemistry – Recent Successes and Current Challenges" (IAU Symposium 231), held at Asilomar, California, USA in August

2005. The volume of the proceedings, edited by Darek Lis, Geoffrey Blake, and Eric Herbst, is a valuable addition to the field of astrochemistry.

Currently the working group is starting to prepare for the next symposium in the astrochemistry series, planned to be held in southern Europe in either 2010 or 2011. President Ewine van Dishoeck and Secretary Eric Herbst have been stimulating other interim meetings in the field of astrochemistry and have also been searching for gifted young speakers for the next IAU Symposium. Within the next several years, both the Herschel Space Observatory and the Atacama Large Millimeter Array (ALMA) will help to revolutionize the field of astrochemistry by dramatically improving the spatial resolution of small objects such as protoplanetary disks, vastly increasing the intensity of molecular spectral signals, and greatly enlarging the region of the electromagnetic spectrum available to study molecules. We trust that our next IAU Symposium will be bursting with new information and analysis.

Eric Herbst, secretary of the Working Group, 27 March 2008
Columbus, Ohia, USA <herbst@mps.ohio-state.edu>

II.8.8. Div.IX/WG *Site Testing Instruments*

Site-testing is a world-wide activity driven mainly by the projects of large telescopes (such as the Thirty Meter Telescope and the European Extremely Large Telescope). This is also a way to enter into the world of astronomy for some developing countries. Site-testing is both international and global by its nature, promoting cooperation between countries. However, data coming from different groups are often not directly comparable. This is where the IAU comes in. Developing a set of standard definitions (e.g., what is photometric night, a clear night?) and standard methods is an urgent task.

Division IX decided in 2006 to create a Working Group on site-testing instruments. The focus is not on assembling the site data, but on disseminating the information on instruments and their correct usage. This was implemented in the web site <www.ctio.noao.edu/science/iauSite/> where the specialists can find each other, get or post the information. The site is not centralized - pages covering different techniques are maintained by different people. Today, there are 35 registered participants, many of those not IAU members.

Two international conferences on site testing in 2007 (not sponsored by IAU, by the way) provided sufficient opportunities for communication and networking. During the past year, there was essentially no activity in the WG: many techniques still lack coverage on the web, there were no requests directed to the WG. It is too early yet to declare that the newly created WG is useless. Rather, the community of site-testers is not used to work under the IAU umbrella and does not perceive yet the need for standardization. Hopefully, this attitude will change in the near future.

Andrei Tokovinin, chair of the Working Group, 16 April 2008
Cerro Tololo Inter-American Observatory, Chile <atokovinin@ctio.noao.edu>

II.8.9. Div.X/Comm.40 *Radio Astronomy*

(1) Radio astronomy has been a very vibrant and productive area in the world of astronomy since it was born. During the past triennium, radio astronomy witnessed enormous scientific achievements and relevant R&D. Commission 40, the only commission in Division X, is the largest one, having a total number of 962. Division X will not coordinate any GA Symposium or JD in the Rio GA in 2009. We would like to organize a larger commission meeting of 3 or 4 sessions in a larger meeting room, allowing least 80 more attendees. The program would be:

- Report of Division X/Commission 40
- Report of WGs
- Report from radio astronomical observatories
- Highlights of researches: HI detection, pulsar and transient, spectral lines, Galactic and extragalactic objects, AGNs, the Galactic Center, etc.
- Megascience facilities: ALMA, SKA and its pathfinders, LMT, space radio programs, and etc. This will be concentrated on radio instrumentation, avoiding possible overlaps with SS7.

(2) WG Historic Radio Astronomy with Division XII, 7 sessions.
Science Meeting #1 (4 sessions)
Science Meeting #2 (2 sessions)
WG Business Meeting (1 session)

This WG has been very active since it was formed in 2003, tracking and monitoring the history of radio astronomy – its surviving historically-significant facilities and their scientific achievements. This WG meeting, we believe, well fits the IYA.

(3) WG Astrophysically Important Spectral Lines, 2 sessions.
This WG meeting will concentrate on a list of lines between 1,000 and 3,000 GHz. This list is urgently useful to a provisional agenda item toward the World Radio-communication Conference in 2011 (WRC-11) of the International Telecommunication Union (ITU).

(4) GVWG Global VLBI, 3 sessions.
Very Long Baseline Interferometry (VLBI) has greatly contributed to high-resolution astrophysics and accurate geodesy, as well as to space explorations like Huygens and number of lunar space projects. This WG meeting will direct attention to e-VLBI technology, the science and technology of VSOP2 project, and recent R&D in the field.

We are very glad to hear that our colleagues from EVN/JIVVE are happy to contribute to a special session entitled something like "VLBI and radio astronomy segments of science mission in Solar System." We would like have Leonid Gurvits of ASTRON coordinating this. And we are sure that teams of Selene and Chang'E-1 will provide us with very interesting presentations at the meeting.

(5) IUCAF & WG Interference Mitigation, 2 sessions:
This WG meeting will discuss the technological solutions, regulatory and institutional innovations to mitigate the interference, and especially the radio quiet zones establishment for the new radio telescopes due to the rapid development of telecommunication services. Introductions to the relevant issues are supposed to be made by the two chairs. Two countries short-listed to site the SKA, Australia and South Africa, have authorized the project to establish the world largest Radio Quiet Zone. We expect to learn from their experiences in legislation process, and the stories in negotiations and coordination.

Rendong Nan, president of the Division/Commission, 15 April 2008
National Astronomical Observatories, CAS, Beijing, China <nrd@bao.ac.cn>

II.8.10. Div.XII/Comm.5/WG *Libraries - Open Access* - State of the Art

What is Open Access?

According to Wikipedia, Open Access (OA) is "free, immediate, permanent, full-text online access for any user, web-wide, to digital scientific and scholarly material, primarily research articles published in peer-reviewed journals. An open-access article has limited copyright and licensing restrictions which means anyone, anywhere, with access to the Internet may read, download, copy, and distribute that article." <http://en.wikipedia.org/wiki/Open_access>

Open access does not automatically mean universal access. Some impediments continue to exist such as access limited to members affiliated with an institution, language barriers, accessibility barriers, connectivity barriers (Suber, Open Access Overview).

Open Access *vs.* Open Access Publishing

Open access itself is often confused with open access publishing. While the latter refers to materials available to everybody without subscription fee, the former involves authors self-archiving on their own web pages, at an institutional repository or at central repositories like astro-ph/arXiv.

Author self-archiving is also called the "green" road to OA. Many publishers grant their authors the right to self-archive their papers on their own or through a repository's website; some permit self-archiving of final versions, with or without formatting or editing (see the publisher copyright and self-archiving policies (SHERPA RoMEO) at <www.sherpa.ac.uk/romeo.php> for more information).

However, self-archiving by individual authors easily neglects two crucial topics: retrieval via a central access point, and preservation. Archives like the astro-ph/arXiv or university repositories such as the University of California's eScholarship repository, geared toward greater retrieval and storage, fulfil these essential requirements better.

The list of open access archives or repositories has increased greatly in recent years and the Directory of Open Access Journals (DOAJ) makes finding journals from these sources easier. It provides a list of "free, full text, quality controlled scientific and scholarly journals." However, often these journals do not (yet) have high impact factors; hence scientists, in particular young ones whose career advancements partly depend on highly evaluated publications, prefer to publish in established journals.

Variations in publishers' approaches

The word "free" (of charge) refers only to the readers of OA articles; serious OA advocates do not claim that the *production* of open access literature is free of costs, even though many argue that it is less expensive to produce than conventionally published literature (Suber, Open Access Overview). In the end, the costs associated with publication have to be paid by someone.

At present, publishers are experimenting with a large variety of approaches towards open access publishing:

- Sponsorship: Journals are funded by institutions. There are no author charges; all content is free to read.

  Example: PubMed Central (PMC), the National Library of Medicine (NLM) / National Institutes of Health (NIH) free digital archive of biomedical and life sciences journal literature.
- Hybrid model: Authors can pay to make their articles OA. If the author decides not to pay, his/her article is only accessible via a subscription. The subscription fee may be reduced according to the fraction of OA articles.
- Examples: Springer ("Springer Open Choice"), Blackwell ("OnlineOpen"), American Physics Society (APS, "Free to Read"), Elsevier ("Sponsored Articles"). Prices range from approximately EUR 700 (APS) to EUR 3,000 (Springer) per article.
- Author-pays model: All content is free to read. After acceptance, authors pay a fee to the journals for processing their articles. Examples: *New Journal of Physics*, published by the Institute of Physics Publishing (IOP); *PMC Physics A*, published by BioMed Central
- Institutional membership + page charges: All papers are immediately made freely available at the publisher's website upon publication; authors from member institutions pay lower page charges. Example: *Nucleic Acids Research (NAR)*, published by Oxford University Press.
- Time-limited access: Selected articles are made available free of charge for everybody. This type of service is typically financed by the publisher as a "teaser" to attract new subscribers.
  Examples: EDP Sciences "Latest Articles" (full-text of the most recent issues of some journals available free of charge upon registration for

non-subscribers); "IOP Select" (open access of articles published within the last 30 days)

- Delayed open access: Access is free for all after a given time. Examples: This model is currently used by the major astronomy publishers.
- Immediate open access: Journals that grant immediate open access are listed in the Directory of Open Access Journals (DOAJ). As of January 2008, 12 astronomy titles are listed, among them the *Information Bulletin on Variable Stars* (published by the Konkoly Observatory), the *Journal of Astrophysics and Astronomy* (Indian Academy of Sciences), *Revista Mexicana de Astronomía y Astrofísica* (Universidad Nacional Autónoma de México) and *Astrophysics and Space Sciences Transactions* (*ASTRA*, Copernicus Publications).

See <www.doaj.org/doaj?func=subject&cpid=56> for a complete listing.

The situation in astronomy

As has been stated in previous documents, the OA situation in astronomy is quite favourable compared to other subject areas. This is largely due to the fact that the main journals are published on behalf of learned societies that level out the (within limits understandable) economic interests of publishers, and the reality that the vast majority of authors submit their papers to the astro-ph/arXiv preprint repository.

Funding of the major astronomy journals ("core journals") is typically shared by the authors (i.e., their institutions) through page-charges and by the readers (their libraries) via an access fee (subscription). For *A&A*, income partly comes from the member states.

All publishers of core astronomy journals apply a policy of delayed open access:

- *ApJ*/*ApJS* and *PASP*, published by the University of Chicago Press (UCP) on behalf of the American Astronomical Society (AAS), is OA after 2 years
- *AJ*, published by IOP on behalf of the AAS as of January 2008, is OA after 2 years
- *A&A*, published by EDP Sciences on behalf of ESO, is OA after 3 years
- *MNRAS,* published by Blackwell on behalf of the Royal Astronomical Society, is OA after 3 years.

The *A&A* Board of Directors as well as the AAS are monitoring open access trends, but do not intend to modify their policies at this time. The current call for tender for the publishing of *A&A*, to be issued in the course of 2008, reiterates that articles older than three years shall be generally available; publishers are also invited to present further ideas for promoting open access. The AAS continues to apply a business model whereby authors and readers

share the costs; delayed open access to publications is applied after two years. This policy does not only apply to the previous publisher of AAS journals, University of Chicago Press, but also to the new publisher, IOP, as of 2008.

Commercial publishers such as Springer and Elsevier typically do not follow this example. With the exception of medical journals that are included in the (OA-only) PubMed Central, Springer (publisher of journals like *Astronomy and Astrophysics Reviews* and *Optics & Spectroscopy*) does not currently have a policy of OA after a specific time. Likewise, *Icarus, New Astronomy, New Astronomy Reviews, Earth and Planetary Science Letters* and *Chinese Astronomy and Astrophysics*, published by Elsevier, are not available through delayed OA. Commercial publishers typically use other approaches such as the Hybrid model (discussed earlier) towards open access. Author self-archiving is permitted for all above-mentioned publications.

The situation is quite mixed with regard to book series. The *ESO Astrophysics Symposia* are currently published by Springer through a subscription-based model without delayed OA. The same approach has been chosen by EDP Sciences, publisher of the *EAS Publications Series,* and by Cambridge University Press (CUP) for the *Space Telescope Science Institute Symposium Series*. All content is available only to subscribers.

At ESO, considerations are currently ongoing to produce open-access, electronic-only conference proceedings with optional print-on-demand. This could be either done in-house by setting up a repository, or through a commercial publisher. A decision will be taken in the course of 2008.

Since 2004, CUP has also been the official publisher for International Astronomical Union (IAU) publications. The agreement between the IAU and CUP states that electronic files of *IAU symposia* are to be deposited with the NASA ADS within 18 months of publication of the proceedings volume. This clause will also be included in the new version that is currently being negotiated for the years 2009-2013.

The Astronomical Society of the Pacific (ASP) was the previous publisher of IAU publications. They are now best known as publishers of the *ASP Conference Series*. The ASP maintains all current CS e-books on its website for a minimum of three years, at which time they become public domain and are available directly through the ADS.

Other developments

The number of institutional repositories throughout the world is increasing rapidly. Entries in the OpenDOAR (Directory of Open Access Repositories, <www.opendoar.org/>) crossed the 1,000 mark in January 2008. A few examples from Europe: More than 110 university repositories exist in Germany, the second highest number after the U.S. In France, all universities, major higher education schools and major research institutes have signed a common protocol to build the Hyperarticles Online (HAL) archive system, their common platform to host the national research output. All 14 Dutch universities have signed the

Berlin Declaration on Open Access, a major international statement on open access <http://oa.mpg.de/openaccess-berlin/berlindeclaration.html>, as have the Royal Netherlands Academy of Arts & Sciences and the SURF Foundation; all repositories are made accessible through the DAREnet gateway. There are more than 100 OA repositories n the UK, approx. 11% of the entries listed in the OpenDOAR (Source: DRIVER Portal, <www.driver-support.eu/en/national/>).

European Commission (EC)

On December 17, 2008, the European Commission issued a mandate for open access. The ERC (European Research Council) Scientific Council released its *Guidelines for Open Access* in which it states that "all peer-reviewed publications from ERC-funded research projects be deposited on publication into an appropriate research repository where available, such as PubMed Central, ArXiv or an institutional repository, and subsequently made Open Access within 6 months of publication." The OA policy refers to articles as well as to data <http://erc.europa.eu/pdf/ScC_Guidelines_Open_Access_revised_Dec07_FINAL.pdf>.

The mandate was enthusiastically welcomed by open access advocates (see for instance comments by Peter Suber, Open Access News, <www.earlham.edu/~peters/fos/2008/01/oa-mandate-from-european-research.html>).

While there are open access mandates at public funding agencies in Austria, Belgium, France, Germany, Scotland, Switzerland, and the UK, as well as OA recommendations in other European countries, this is the first EU-wide open access mandate, and it ties in very well with the mandate ordered by Congress and the U.S. President in December 2007 (see below).

The EC is funding a number of OA-related projects, among them DRIVER (Digital Repository Infrastructure Vision for European Research) which aims to organise and build a virtual, European scale network of existing institutional repositories from the Netherlands, the United Kingdom, Germany, France and Belgium, and to assess and implement state-of-the-art technology, which manages the physically distributed repositories as one large scale virtual content resource. DRIVER is funded under the European Commission's 6th Framework Programme <www.driver-repository.eu>.

The U.S.

On December 26, 2007, President Bush signed a law that directs the National Institutes of Health (NIH) to provide the public with open online access to findings from its funded research. This is the first time the U.S. government has mandated public access to research funded by a major agency.

The provision directs the NIH to change its existing Public Access Policy, implemented as a voluntary measure in 2005, so that participation is required for agency-funded investigators. Researchers will now be required to deposit electronic copies of their peer-reviewed manuscripts into the National Library of Medicine's online archive, PubMed Central. Full texts of the articles will be publicly available and searchable online in PubMed Central no later than 12

months after publication in a journal ("Public Access Mandate Made Law", Alliance for Taxpayer Access press release, December 26, 2007).

As this law raises the awareness of scientists of open access and makes depositing research in publicly available archives mandatory, it can be expected that the (up to now somewhat reluctant) use of institutional repositories will increase.

CERN

During recent years, CERN has become one of the main players regarding open access among the community of high energy physics (HEP). They are promoting open access through the so-called SCOAP^3 (Sponsoring Consortium for Open Access Publishing in Particle Physics) consortium. This initiative aims to convert high-quality HEP journals to open access. The concept foresees that funding bodies and libraries redirect subscription money to the SCOAP^3 consortium which pays centrally for the peer-review service; articles will be free to read for everybody (see "Towards open access publishing in high energy physics," Report of the SCOAP^3 Working Party, 2007). Financing is to be distributed yearly according to a "fair-share" model, based on the distribution of HEP articles per country, accounting for co-authorship.

Approx. 90% of HEP articles appear in only six peer-reviewed journals, among them *Physical Review D* (published by the American Physical Society), *Physics Letters B* and *Nuclear Physics B* (both published by Elsevier), *Journal of High Energy Physics* (SISSA/IOP) and *European Physical Journal C* (Springer). These are the first ones the SCOAP^3 initiators hope to convert to OA.

CERN, together with DESY (Deutsches Elektronen-Synchrotron, Germany), is currently in the process of gathering signatures of interested European as well as U.S. participants, among them Fermilab, SLAC (Stanford Linear Accelerator) and the UC Berkeley.

However, the SCOAP^3 approach does not only find support. Critics argue that in the long run, funding bodies will not sponsor publications that are freely available, and that the proposal will mainly benefit the commercial publishers and put the non-profits at substantial risk.

References and URLs:

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Directory of Open Access Journals (DOAJ), <www.doaj.org/>. Astronomy journals: <www.doaj.org/doaj?func=subject&cpid=56> [last viewed Jan. 14, 2008]
DRIVER – Digital Repository Infrastructure Vision for European Research: <www.driver-repository.eu/> [last viewed Jan. 16, 2008]
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Towards open access publishing in high energy physics. Report of the SCOAP³ Working Party, 19 Apr 2007, ISBN 978-92-9083-292-8:
<www.scoap3.org/files/Scoap3WPReport.pdf> [last viewed Jan. 16, 2008]

Uta Grothkopf, chair of the Working group, January 2008
together with Chris Erdmann, ESO Library, Garching, BRD <esolib@eso.org>

II.8.11. Div.XII/Comm.5/WG *Libraries* - Manifesto

Correspondence to the Editors of "The Observatory"

Declaration Concerning the Evolving Role of Libraries in Research Centres

The following declaration reflects the concerns of its drafters at the increasing invisibility of research libraries *vis-à-vis* recent accelerated changes in publishing and reader-access technology. It was drafted subsequent to the colloquium *Future Professional Communication in Astronomy,* held at the *Palais des Academies* in Brussels on 2007 June 10-13, although it does not derive directly from that meeting.

The declaration, after a period of consultation and discussion with astronomers and research centre librarians worldwide, will be presented to the International Astronomical Union through its Commission 5 (Documentation and Astronomical Data), part of Division XII (Union-Wide Activities), with the request that it be considered for adoption as official IAU policy. We hope this important issue will generate discussion among the readership of *The Observatory* and would welcome any support for the declaration or comments on its contents.

Yours faithfully,
T. J. Mahoney <tjm@iac.es>, 2007 July 27
Instituto de Astrofísica de Canarias, E-38200 La Laguna, Tenerife, Spain

Declaration Concerning the Evolving Role of Libraries in Research Centres

We call on the astronomical community worldwide to address the importance of libraries and their evolving role within research centres on the grounds that the technology for generating and sharing information is useless if there is no way to locate, filter, organize and access it.

Astronomy has a history dating back to Antiquity and libraries have served as repositories of research and cultural heritage for many centuries; however, the current pace of technological change and development has led to libraries' effectively becoming invisible in the day-to-day running of research centres. The advent of electronic publishing has led to a drastic reassessment of the best ways to promote the communication and storage of research results. The librarian's role in these circumstances combines new with traditional tasks of information management. These tasks include:

- The acquisition of new publications to ensure the fullest possible coverage of subject areas.
- Making information available to patrons wherever and whenever required.
- Archiving sufficient printed and online material to ensure the continuity of the astronomical record from Antiquity to the present day. Electronic publications are of too recent an origin to compete, in terms of completeness, with the traditional library. In spite of the great efforts to digitize old publications, not everything is on the web, nor is it likely to be in the future.
- Providing scholarly access to information resources in all media and in all formats, both physically available and accessed remotely on the Internet.
- Identifying, retrieving, organizing, evaluating, repackaging, filtering and providing electronic access to digital information sources.
- Facilitating easy access through the purchase of licences and other software.
- Applying expert knowledge and familiarity with information resources alongside a specialized subject knowledge, thereby allowing information to be delivered to patrons in a timely and preferred manner.
- Using administrative expertise to create and manage convenient, accessible and cost-effective information services (aligned with strategic directions of organization); i.e. enhancing access through the ability to identify and link patrons to their required information needs.

The ease with which today's research workers access online databases and bibliographical resources can easily hide from view the efforts of librarians in providing these facilities. We therefore call on librarians to adopt a more proactive stance in making their contribution known to the research communities they serve (e.g. through library tours, seminars, courses, etc.). Libraries tend not to be overmanned or to occupy excessive space within research centres, so it is essential that librarians resist misguided attempts at cutting staffing levels and allocating valuable library space to other purposes. Librarians are being asked to perform ever more tasks as part of their duties: they cannot therefore be expected to do more work in less space or with fewer staff.

The main astronomical research journals have tripled in volume and price over the past decade, but this increase in published output and costs has not been addressed by the allocation of library budgets, which have remained static over this period. We call on funding agencies to take the increased volume and cost of astronomical journals into account. We also urge research centres to take into account the rise in both published output and subscription prices when distributing their research budgets. The question is

one not solely of funding at source but also of the relative importance given by research centres to the essential role of libraries.

T.J. Mahoney (Instituto de Astrofísica de Canarias), K. Morean (Royal Observatory Edinburgh), S. Davis (South African Astronomical Observatory), G. Coetzer (Hartebeesthoek Radio Astronomy Observatory), P. Vonfile (Strasbourg Astronomical Observatory), M. Gómez (Instituto de Astrofísica de Canarias), U. Grothkopf (European Southern Observatory), M. Hurn (The Observatories, Cambridge University), M. Bishop (National Radio Astronomy Observatory), D. Coletti (Harvard-Smithsonian Center for Astrophysics), S. Bosken (U.S. Naval Observatory), B. Corbin (U.S. Naval Observatory, retired), J. Lagerstrom (Space Telescope Science Institute), S. Stevens-Rayburn (Space Telescope Science Institute, retired), and E. Bouton (Archive, National Radio Astronomy Observatory)

II.9. IAU EDUCATIONAL ACTIVITIES

II.9.1. Div.XII/Comm.46/PG
International Schools for Young Astronomers

ISYA seeks the participation of young astronomers mainly, but not exclusively, from astronomically developing countries. Participants should generally have finished first degree studies. ISYA seeks to broaden the participants' perspective on astronomy by lectures from an international faculty on selected topics of astronomy, seminars, practical exercises and observations, and exchange of experiences.

II.9.1.1. Visits to Central Asia, Uzbekistan and Kazakhstan

Kam-Ching Leung and Young-Woon Kang of South Korea visited these two countries during the summer of 2007.

Uzbekistan

Duration: June 22 to 23 and 26 to July 2, 2007
Cities visited: Tashkent, Samarkand, and Bukhara

The Astronomical Institute is located in Tashkent. Young-Woon Kang & myself met with the Director Dr. Shuhrat A. Ehgamberdiev. He is a very well organized and well spoken person with good command of English. There is a small observatory near the city of Tashkent which could be used for Young School if we wished. The major observatory is on a very high mountain some distance from Samarkand but a new observatory with a small telescope will be built in the next year or two near Samarkand which could be used for Young School. It was suggested that the School could be housed at one of the new colleges (3 years old) we visited. Uzbek has many new colleges in different cities. The college has modern classrooms, lecture halls, a computing class room with at least 12 computers with internet access, dormitories, indoor and outdoor swimming pools, soccer field, etc. We were told there are similar colleges in Tashkent if we would like to have the School there. Samarkand is an old city with many historical sites. The major observatory has exceptional seeing - typical would be 0.5" and average of better than 1". The biggest telescope is 1.5m. Because of the unusual good seeing conditions, they have many cooperative research projects with countries around the world. Many supply CCD, computer, research funds, etc. The Institutes have a graduate program. Due to the collapse of the Soviet Union, the younger astronomer and students do not seem to have been exposed to many modern courses as compared to students in the US or Western Europe and they don't have much of a library as is found in many countries in Central Asia. They young astronomers we met have a good command of English because they have been out of the country partly due to their many cooperative projects. The few that we met have their own laptops.

The summer temperature ranges from 40 to 55 C degrees! It is recommended the School should avoid the summer months (spring or fall would be good). However, it is very dry, desert, one doesn't feel too badly. It cools down at night. Food is relatively cheap. There are not many taxies and no meters but one can flag down cars on the street. One has to bargain for a price. If you do not speak Uzbek or Russian you will be charged to the hilt!

A tough 4 hours car ride between Samarkand and Tashkent. We took that with no air conditioning since even for new cars they take it out so that the car can go faster! Most drivers are crazy! It is about one hour by plane not too expensive.

Kazakhstan

Almaty, June 24-26, 2007

We met Director Leonid M. Chchin and Emmanuil Vilkoviskiy (who I made contact with before my visit). In Almaty we stayed in a former solarium from the Soviet days that had been converted to a sort of resort hotel up at the mountain where the observatory is located. It takes a walk in the mountain between the hotel and the observatory of about 15 minutes but it rained the day before and we were advised not to walk. It was suggested that the hotel could be used for student and lecturer housing. We did not find that the facility was good and the food was not great either. There is a lecture hall at the observatory that could serve as the lecture hall for the School. We didn't see many computers around but were told that they have internet connection. Again they lack library facilities. Most of the older astronomers we met are from of Soviet era and we did not get to meet any younger astronomers.

A major observatory built with a Soviet 1m and other smaller telescopes is quite a way from the city. The drive up is very tough even with a 4 wheel drive. It will take bus type transportation to take students up there. We wonder if it may be dangerous with a bus or those roads. The observatory site has the most beautiful surroundings with white cap mountains even in mid summer. The observatory director would like to have the school there. It is very isolated place for a three weeks stay unless one really likes this isolation. One would not get a feeling of the people and the culture of the country staying up there. The rooms that we saw were not good but we were informed that they are refurnishing the dormitory. We were told that there is competition between the observatory near the city and the high mountain observatory to host the School.

It is suggested that the School should be located in a city campus of a university or college with good lecture room, computing facility, etc, not in those facilities shown to us. The people we met seem to be less dynamic than those people we met in Uzbekistan. However, a School there would be most helpful to them.

Recommendations after site visit.

Before Leung set foot in Central Asia, he thought the most likely country to host a School would be Kazakhstan because its oil riches. However, we were told that oil money has not supported basic sciences at all. It would take a better facility than what I saw to host an ISYA. There is certainly a need for a School there in the future.

It seems the people at the Uzbek Institute might have better thought out the possibilities and are better prepared to apply for an ISYA. The facility shown to us seems to be much more suitable than those in Kazakhstan. It was suggested to them to work on a proposal for the School to follow the Turkey School (2008).

Timing.

Since 2009 is the International Year of Astronomy as well as the IAU General Assembly, it would be an exception to have an ISYA in the same year. Uzbekistan astronomers thought it would be useful and supportive to suggest to their government that an ISYA would be their International Year project.

Subsequent development.

Uzbekistan

Professor requested a sample of past proposal and J-P De Grave followed up by sending a copy of an old proposal. Since the tentative date would not take place before 2010 there has been no activity on the Uzbek front.

Kazakhstan

There was several communications with Vilkoviskiy since the visit by Leung. We decided to advise them to look into our TAD program for the time being. We requested Edward G Guinan co-chair of TAD to make contact with Vilkoviskiy. We understand that they are working towards a TAD for 2008.

We are very optimistic that we will have good astronomy development in Central Asia in the very near future

Vietnam

We have been working with Dr. Nguyen Quynh Lan, a former student of Thai ISYA, on an ISYA no sooner than 2010. She was suggesting a school on Cosmology. In light of the facility available, we are not sure a school with cosmology concentration would be what they need at this stage of development. We intend to work with her closely to a school in Vietnam in the future.

Korea

There is general feeling that North Korea may be opening up to the rest of the world. Leung met with two North Korean (women) in Yunnan Observatory, China. There were three participated at the Malaysian ISYA. On the

encouragement of Edward Guinan and others at the Malaysian school two N Koreans expressed their interest in attending the 8th Pacific Rim Conference on Stellar Astrophysics, Phuket, Thailand, in May 2008. At this point, we are not sure if the LOC can come up with financial support in case their government would not fund their participation to Phuket. In any case we will work closely with Boonrucksar Soonthorntum the Chair of LOC on this matter. Professor Young Woon Kang of South Korea would happy to help out to work on a joint (South-North) co-sponsorship for a Korean ISYA in the future. It would be great if the government of North Korea would support this idea and have part of the school take place in North Korea! We understand that this project is only in form of an idea and have no idea that this would materialized at all!

Jean-Pierre De Greve, chair, & Kam-Ching Leung, vice-chair of the Program Group, VUB, Brussels, Belgium, & Lincoln, NE, USA, 29 November 2007
<jpdgreve@vub.ac.be> & <kleung@unlserve.unl.edu>

II.9.1.2. 30th ISYA, 2008, in Turkey

ISYA 2008 took place in Istanbul, Turkey, 1-22 July 2008.
See <www.yuzyilisil.k12.tr/isya2008/>.

II.9.1.3. 31th ISYA, 2009, in Trinidad & Tobago

ISYA 2009 will take place in St Augustine, Trinidad & Tobago, at the University of the West Indies (UWI) in December 2009.
Contacts: Dr. J.-P. DeGreve, chair PG-ISYA <degreve <jpdgreve@vub.ac.be>
Dr. Shirin Haque, chair ISYA2009 LOC <shirin.haque@gmail.com>

II.10. MEMBERSHIP OF THE IAU

II.10.1. DECEASED MEMBERS

The Union is saddened to learn that the following members and former members passed away, as far as reported to the IAU Secretariat:

Jürgen BLUNCK (19..-2008), Germany, 3 July 2008
Fatma S. BOYDAG-YILDIZDOGDU (1946-2007), Turkey, 30 November 2007
Sukru BOZKURT (1937-1995), Turkey, 30 August 1995
Kwan-yu CHEN (1932-2007), United States, 26 November 2007
Arthur C. CLARKE (1917-2008), Sri Lanka, 19 March 2008
A. Yener ERTAN (1952-2005), Turkey, 2005
Charles FEHRENBACH (1914-2008), France, 9 January 2008
John W. FIROR (1928-2007), United States, 5 November 2007
Brian FITTON (1936), United Kingdom
Giuseppe FORTI (1939-2007), Italy, 2 July 2007
Oivind HAUGE (1925), Norway
Sezai HAZER (1924-1983), Turkey, 1983
Johannes R.W. HEINTZE (19..-2005), Netherlands, 12 January 2005
Jacques HENRARD (1940-2008), Belgium, 21 March 2008
Roel HOEKSTRA (1939-2005), Netherlands, 2005
Lars E.B. JOHANSSON (1945-2008), Sweden, 15 March 2008
Bozidar JOVANOVIC (1932-2008), Serbia, 15 February 2008
Marin Petrov KALINKOV (1935-2005), Bulgaria, 2 November 2005
Adnan KIRAL (1919-2004), Turkey, 29 May 2004
Monique LÉGER-ORINE (1943-2008), France, 22 January 2008
Alla G. MASSEVICH (1918-2008), Russian Federation, 6 May 2008
Arpad PAL (1929-2006), Romania, 21 July 2006
David PINGREE (1933-2005), United States, 11 November 2005
Josef POPELAR (1938-2008), Canada, May 2008
Irina PREDEANU (1941-2007), Romania, 11 April 2007
Izold PUSTYLNIK (1938-2008), Estonia, 2 May 2008
Norman J. RUMSEY (1923-2008), New Zealand, 9 January 2007
Helmut SCHEFFLER (1928-2008), Germany, 1 June 2008
Nedka Marinova SPASSOVA (1945-2003), Bulgaria, 29 March 2003
René TATON (1915-2004), France, 9 August 2004
Emilia TIFREA (1929-2007), Romania, 5 July 2007
Pierre VALIRON (1953-2008), France, 31 August 2008
Theo WALRAVEN (1916-2008), Netherlands, 13 January 2008
Bengt E. WESTERLUND (1922-2008), Sweden, 6 June 2008
Vladimir I. ZHUKOV (1948-2004), Russian Federation, 26 December, 2004

II.11. NEWS FROM INTERNATIONAL ORGANIZATIONS WITH REPRESENTATIVES OF THE IAU

II.11.1. *BIPM Consultative Committee for Units* (CCU)

The Consultative Committee for Units (CCU) of the *Comité international des poids et mesures* (CIPM), in which IAU has a representative, had two main activities in the last four years: (i) preparing the 8th edition of the SI Brochure, (ii) revising the definitions of some of the base units.

The 8th edition of the SI Brochure was published in May 2006. It can be ordered at the *Bureau international des poids et mesures* (BIPM), or can be downloaded as a pdf file on the BIPM website <www.bipm.org/en/home/>. The Concise Summary of the SI is also available as a four A4 pages (in French and English) as well as a pocket version.

The astronomical unit, which is specifically for use in astronomy, appears in the 8th edition of the SI Brochure in Table 7 providing "Non-SI units whose values in SI units must be obtained experimentally". Note that the status of that unit may change in the future as there are currently joint discussions among IAU Commission 52 « Relativity in Fundamental Astronomy » and IAU Working Group « Numerical Standards for Fundamental Astronomy » (NSFA) on a possible simplification of the system of astronomical units.

The issue of revising the definitions of some of the base units has been discussed by the CCU in particular during its 18th meeting (11-13 June 2007) at BIPM. The CCU advise after that meeting is such that: (i) the kilogram, ampere, kelvin and mole should be redefined to fix the values of the Planck constant h, the elementary charge e, the Boltzmann constant k, and the Avogadro constant N_A, respectively; (ii) these changes should await resolution of the present discrepancy between watt balance results for h and the silicon crystal density results for N_A; (iii) the changes should be made simultaneously, and should be based on the latest values of the fundamental constants to preserve continuity; (iv) the words for each new definition should be considered carefully over the next two years, along with the mises en pratique to go with each definition. Before its final recommendations, the CCU will continue to advance the discussion of the choice between redefining the kilogram to fix h or to fix the mass of the carbon 12 atom, and the choice between redefining the ampere to fix e or retaining the present definition.

Nicole Capitaine, IAU Representative in the CCU, 17 April 2008
Observatoire de Paris, France, <nicole.capitaine@obspm.fr>

II.11.2. *Federation of Astronomical and Geophysical Services* (FAGS)

The Federation of Astronomical and Geophysical Analysis Services (FAGS) is one of the ICSU (International Council for Science) interdisciplinary bodies. It was established fifty years ago within the framework of the 1957-1958 International Geophysical Year (IGY). Its principal purpose has been to encourage the analysis of observational data likely to be of long-term value in astronomy, geophysics and related sciences. In 2008, FAGS includes 12 Permanent Services, each operating under the authority of one or more of the interested Scientific Unions: the International Astronomical Union (IAU), International Union of Geodesy and Geophysics (IUGG) and Union Radio-Scientifique Internationale (URSI). The current FAGS services whose parent Union is IAU are CDS (Centre de données astronomiques de Strasbourg), IERS (International Earth Rotation and Reference systems Service), ISES (International Space Environment Service), IVS

(International VLBI Service for geodesy and astrometry), SIDC (Solar Influences Data Analysis Service) and QBSA (Quaterly Bulletin on Solar Activity). During the recent years, FAGS Services have played major roles in international programmes associated with various topics (i.e., the astronomical Virtual Observatory, space weather, sea and land level changes, International Polar Year, International Electronic Year, the Intergovernmental Panel on Climate Change, etc.) and several FAGS Services (i.e. IGS, IERS, IVS and PSMSL) have been closely involved in the development of the Global Geodetic Observing System (GGOS) of the International Association of Geodesy. These activities provide excellent examples of the value of astronomical and geophysical time series information.

The Federation of services is administered by the FAGS Council, which is composed of two representatives of each of the supporting Unions, the Secretary and the past Secretary of FAGS. Funding of FAGS, which has decreased dramatically during the last years, comes currently only from the Unions and is most commonly used by the services for publication of reports, outreach to scientists and training courses for scientists, technologists and students, with specific actions in developing countries.

During the period 2006-2008, the FAGS Council had to address the restructuring of the organization prompted by ICSU requirements. First, in response to the ICSU proposals, it was recommended that FAGS would not to continue to be an ICSU body from 2005. Therefore, the FAGS Council with Service Directors and Unions General Secretaries studied several alternatives for the future including its rebirth as a virtual Centre under the auspices of UNESCO, or to create an ad hoc committee across the three Unions. However, during the ICSU 28th General Assembly, China, 18-22 October, 2005, the recommendations to eliminate FAGS as an ICSU IB were put to the Assembly, but it was not accepted and it was decided *"To extend ICSU's sponsorship of FAGS for a period of 3 years, during which the FAGS panel will continue to fulfil its role of coordination among the Services, while ICSU examines integration of this function within its activities in data and information."* This decision resulted from strong actions of the IAU, IUGG and URSI who submitted this alternative to the ICSU General Assembly and thus received a strong majority of votes among both the National Member and Union delegates of ICSU. Consequently, FAGS retained its Interdisciplinary Body status for a further three years.

Several meetings were organized in order to re-consider the future of FAGS with the new situation. FAGS Council meetings were held in March 2006 at Paris Observatory and April 2007 at ICSU with the Service Directors, the Unions and the ICSU Representative and a FAGS General Committee meeting (with in addition the Chairs of the Service Directing Boards) was held in July 2007 during the time of the 24th IUGG GA in Perugia (Italy). A FAGS "White Paper" was prepared to provide the FAGS views on the prospects for a future grouping of astronomical and geophysical data analysis services in the framework of the new arrangements within ICSU for data coordination. This "White Paper" was formally provided to ICSU in July 2007. It reviewed the current FAGS strengths and weakness and the links with the other ICSU interdisciplinary bodies on scientific data and information, namely the World Data System (WDC) and the Committee on Data for Science and Technology (CODATA). The paper made a proposal for a future ICSU grouping of services adapted to the modern astronomical and geophysical services and that could (i) be a benefit for the Services and the Unions, (ii) fit the WDC and CODATA evolution and the current ICSU strategic plan. That proposal was discussed with the WDC and CODATA representatives.

In last 2006 the ICSU ad-hoc Strategic Committee on Information and Data (SCID) was established by ICSU, according to the ICSU Strategic Plan 2006-2011, in order to achieve

the recommendations of the Priority Area Assessments PAA on Scientific Data and Information. The SDIC terms of reference specified that SCID should guide and oversee the reform of the WDC system and FAGS. SCID membership includes two FAGS representatives (Ruth Neilan and N. Capitaine), one CODATA representative (R. Norris) and one WDC representative (B. Minster) .Three SCID meetings were held in Paris during the period July 2007 to February 2008. Critical inputs to these meetings included the FAGS white paper and a report from a 2007 meeting of WDC directors and also the CODATA strategic plan. The draft report of the SCID was circulated to all ICSU Members and Interdisciplinary Bodies for comment and the final draft report submitted to the CSPR in April 2008. The main SCID proposals are to be presented to the ICSU General Assembly in October 2008. One of the major recommendations of the SCID report is "*that a new World Data Services system be created (as an ICSU Interdisciplinary Body), incorporating the WDCs and FAGS as well as other 'state of the art' data centres and services. This new structure or system must be designed clearly to support ICSU's mission and objectives, ensuring the long-term stewardship and provision of quality-assessed data and data services to the international science community and other stakeholders".*

The SCID report is therefore an important document which will affect the future of FAGS.

It should be noted that part of the future strategies for FAGS will be how to secure the necessary resources to support the coordination roles and those inter-service activities that are outside the scope of the individual services budgets.

Nicole Capitaine & Ray Norris, IAU Representatives in the FAGS Council, 19 April 2008
Observatoire de Paris, France <nicole.capitaine@obspm.fr >
CSIRO Australia Telescope National Facility, Australia <Ray.Norris@csiro.au>

II.11.3. *International Earth Rotation and Reference Systems Service* (IERS)

According to the Terms of Reference, the International Earth Rotation and Reference Systems Service (IERS) accomplishes its mission through various components, namely the *Technique Centers*, *Product Centers*, *Combination Centers*, *Analysis Coordinator*, *Central Bureau* and *Working Groups*. There are currently four *Technique Centers* (TC), six *Product Centers,* three ITRS *Combination Centers,* plus a number of *Combination Research Centers*, and four *Working groups*. The IERS *Techniques Centers*, which correspond to all the techniques contributing to the IERS, are autonomous independent services cooperating with the IERS that are responsible for developing and organizing the activities in each contributing observational technique. The IVS (International VLBI service for geodesy and astrometry) is for Very Long Baseline Interferometry observations on extragalactic radiosources. The ILRS (International laser ranging service) is for laser ranging observations on artificial satellites and the Moon. The IGS (International GNSS Service) is for observations with the GNSS systems and IDS (International DORIS Service) for observations with the DORIS system. The IERS *Product Centers* are the following. The *Earth Orientation Center* is responsible for monitoring Earth orientation parameters (EOP) including long term consistency, publications for time dissemination and leap second announcement. The *Rapid Service/Prediction Center* is responsible for publication of semi-weekly bulletins of preliminary and predicted Earth orientation parameters. The *Conventions Center*, under the guidance of the IERS Conventions Editorial Board, is responsible for the maintenance of the IERS conventional models, constants and standards. The *ICRS Cente*r is responsible for the maintenance of the ICRS/ICRF

(International Celestial Reference System/Frame). The *ITRS Center* is responsible for the maintenance of the ITRS/ITRF (International Terrestrial Reference System/Frame), including network coordination; it is also responsible to provide the *ITRS Combination Centers* with specifications, and to evaluate their respective results. The *Global Geophysical Fluids Center* is responsible for providing relevant geophysical data sets and related computational results to the scientific community.

The IERS Directing Board exercises general control over the activities of the service. It is composed of representatives from each of the IERS components and representatives of IAU, IAG/IUGG and FAGS. The DB is used to meet twice per year in order to review the work of its various components, to discuss issues relevant to IERS products, publications and workshops and to decide on future plans. In 2007, the first DB meeting was held in Vienna during the time of the European Geosciences Union meeting while the second one was in San Francisco during the time of the fall AGU (American Geophysical Union) meeting.

The major issues discussed by the IERS DB in 2007 aimed at selecting the best way of the future realizations of the ITRF, the ICRF and the EOPs, at defining new IERS products for the future, at proposing new ways of data analysis and at improving the coordination between geophysical data sets.

Regarding ITRF, the DB looked into:

- evaluations of the accuracy of the ITRF2005,
- the differences in the computation strategies of IGN (Institut Géographique National) and DGFI (Deutsches Geodätisches Forschungsinstitut) and their effects on the ITRF solution,
- the impact of local ties on the ITRF and the activities of the IERS Working group on co-location,
- the future realization of the ITRF2009,which will be based on new, improved and extended data series from the IERS techniques services,
- the interaction between IERS and inter-commission study groups and working groups of IAG (International Association of Geodesy) Commission 1 (Reference frames), and IAG Services.

Regarding the ICRF, the DB looked into:

- the progress in the work of the IERS/IVS Working Group on the "Second realization of International Celestial Reference Frame (ITRF)" and its coordination with the corresponding IAU working group that is intended to propose the new ICRF realisation to the IAU General Assembly in 2009,
- the updated tasks for the ICRS/ICRF product centre assigned to USNO and Paris Observatory.

Regarding the EOPs, the DB looked into:

- the responsibilities of the *Rapid Service/Prediction Center* and the *Earth Orientation Center*, the former being responsible for providing Earth orientation parameters on a rapid turnaround basis, primarily for real-time users and the latter being in charge of providing the final high IERS series,
- the reduction of the data latency with more automated data pipeline and expected improvements from the IERS Working Group on Prediction,

- the extended web service offered by the EOP Center to compute Earth orientation parameter for any epoch and the matrix of Earth orientation parameters to link the ICRF with the ITRF.

Regarding new products for the future, the DB looked into:

- future EO products based on the intra-technique combinations of the IERS Technique Centers (multi-year solutions, weekly solutions, daily solutions and predictions),
- proposed refinements for a combination of VLBI Intensive Sessions (e-VLBI) with GPS rapid products to obtain highly precise rapid EOP solutions,
- the recommendations of the Unified Analysis Workshop (Beach Resort Monterey, Califonia, December 5 -7, 2007) for extension to other parameter types and representations,
- the recommendations of the IERS Conventions workshop (BIPM, Sèvres, France, September 20-21, 2007) for the next issues of the IERS Conventions to be published in 2009; these include classification of models, criteria for choosing models, treatment of specific effects and evaluation of existing and proposed new models,
- the activities of GGOS (Global Geodetic Observing System) and calls for proposals for its new components: GGOS Coordinating Office, GGOS Communications and Network "Bureau", GGOS Conventions, Models & Analysis "Bureau", GGOS Space and Satellite Mission "Bureau."

Regarding the coordination between geophysical data sets, possibilities for a re-organization of the IERS Global Geophysical Fluids Center were discussed.

The IERS Annual Report (AR) 2005 was printed and distributed in October and November 2007. To accelerate the completion and keep the AR close to the reported year, the IERS DB decided that the AR 2006 will be published in April 2008 and that the deadline for the AR 2007 will be May 31, 2008.

Nicole Capitaine, IAU Representative in the IERS DB, 20 April 2008
Observatoire de Paris, France, <nicole.capitaine@obspm.fr>

II.11.4. ***Committee on Data for Science and Technology*** (CODATA)

In astronomy, we are well aware of the changing nature, volume, and complexity of astronomical data. Most of us are aware that next generation instruments, with Terabyte databases, are going to present enormous challenges to the way that we process data, and our current ways of managing astronomical databases will probably no longer work. So there are a number of initiatives within the astronomical community, most notably the Virtual Observatory, which aim to address these. However, many astronomers are not aware that similar challenges are being met in other disciplines (e.g. geosciences, life sciences, etc.) and that similar solutions are being sought. As a result, astronomy has much to gain from cross-fertilisation with other disciplines.

CODATA, the ICSU Committee on Data for Science and Technology, is the cross-disciplinary forum in which such issues are addressed. Given the rapidly-changing nature of data and its management, it is not surprising that CODATA is in a process of reinvigoration, and is exploring ways in which it can deliver greater value to science.

In its recently-released Draft Strategic Plan, CODATA identifies a number of ways in which this might be achieved. The plan identifies three strategic CODATA initiatives, including the Global Information Commons for Science Initiative (GICSI), and identifies a number of ways of achieving greater engagement with the broader scientific community. It also recognises the success of existing CODATA activities such as the Data Science Journal, the Task Groups, and the biennial CODATA conferences, and proposes ways in which these might be made even more effective. CODATA has also adopted a new Mission Statement to reflect these changes.

In conjunction with these new initiatives, CODATA membership is growing. Australia and Ireland have just become members of CODATA, as has the International Union of Geodesy and Geophysics (IUGG).

Another important development has been the release of the Draft Report of ICSU's Strategic Committee on Information and Data (SCID), whose members included three astronomers. Recommendations of this report include:

- Support for the CODATA Strategic Plan, and a recommendation that CODATA focus on its strategic initiatives.
- A proposed restructuring of the Federation of Astronomical and Geophysical data analysis Services (FAGS) and World Data Center system (WDC) into a new body, the World Data Services (WDS). A measure of success of this new body will be the value that it delivers to bodies such as the existing astronomical data centres and the Virtual Observatory.
- A proposed restructuring of ICSU activities, to enable ICSU to assert a strategic leadership role on behalf of the global scientific community in relation to the policies, management and stewardship of scientific data and information, including the establishment of a new body to work closely with CODATA and WDS.

The next CODATA Conference will take place in Kiev, Ukraine, in October 2008. It is proposed that the conference will include a one-day session on "Astronomical Data and the Virtual Observatory" and also a meeting of FAGS and WDC representatives to discuss the establishment of the new WDS.

Ray Norris, IAU Representative in CODATA, 17April 2008
CSIRO Australia Telescope National Facility, Australia <*Ray.Norris@csiro.au*>

II.11.5. ***Committee on Space Research*** (COSPAR)

The Committee on Space Research (COSPAR), established by the International Council for Science in 1958, will celebrate its 50th anniversary in 2008.
COSPAR's objectives are to promote international scientific research in space, with emphasis on the exchange of results, information and opinions, and to provide a forum, open to all scientists, for the discussion of problems that may affect scientific space research. These objectives are achieved through the organization of biennial Scientific Assemblies, publications and other means.

COSPAR has 44 national institution members and 13 Scientific Union members (including IAU).

General Assemblies
COSPAR held its 36th Scientific Assembly in Beijing, China in July 2006 with a participation of 2407 persons, 80 scientific events, covering all branches of space

research (including Astronomy through Commissions B, C, D, and E) with interdisciplinary lectures (among which lectures on Gamma Ray Bursts, the Cassini-Huyghens mission, and the early history of Mars), a Space Agency Round Table and two special lunch presentations (one devoted to the Bepi-Colombo mission to Mercury). COSPAR also proposed to have the landing site of the Huygens probe on Titan named after Hubert Curien, who was President of CNES, of the ESA Council and French Minister of Research and Space.

The next Scientific Assembly will take place in Montreal, Canada on 13-20 July 2008 (program available at <www.cospar2008.org/>). Its format is the same as the Beijing Assembly and will include a celebration of the 50th anniversary of COSPAR : half day of high level presentations will highlight the importance of space research and international cooperation over the past fifty years and for the future. One can note the high number of sessions (and high pressure on oral talks) in the field of Astronomy.

During this Assembly, COSPAR will award the 2008 COSPAR Space Science Award to Professor Gloeckler and Professor Pounds (former Vice-President of the International Astronomical Union).

Note that the 38th COSPAR Scientific Assembly will be held in Bremen, Germany on 18-25 July 2010 and the 39th Assembly in Mysore, India in 2012.

Other activities

COSPAR has undergone a process of *'Reflection on its Future'*. A COSPAR Scientific Advisory Committee (CSAC) has been formed with the following mandate:

- to review the evolution of space research and the international context over the time frame of twenty years,
- to compile the visions of the main space organizations,
- to advise COSPAR how to best fulfill its mission and respond to the needs of the science community and of society,
- to analyze and suggest new approaches to international cooperation, and
- to analyze the way COSPAR executes its vision and suggest improvements /modifications to its structure and the possible setting-up of new tools.

The CSAC membership includes the Scientific Commission (SC) Chairs, which evidences the pre-eminence of science in COSPAR and responds to the need to improve communication between Commissions and the Bureau.

COSPAR has also set up a Panel on Exploration that would provide consensual views of the international scientific community as guidelines for future activities such as lunar missions.

COSPAR's program of Capacity Building has been reinforced. Regional workshops were organized in Brazil (astronomy), India (astronomy), China (magnetospheric physics) and South Africa (astronomy) in 2001 to 2005. In 2007 two workshops were held: on Solar-Terrestrial Interactions (in Romania) and on Planetary Science (in Montevideo). All Workshops were co-sponsored and financially supported by relevant Scientific Unions (IAU). For those participants who answered an evaluation questionnaire (50%), the workshop was considered as having been positive for their careers.

The idea is to proceed with these regional workshops with the help of the 13 International Scientific Unions which include IAU. COSPAR is seeking to build relationships with various United Nations Offices, the Academy of Sciences for the

Developing World (TWAS) and others in order to ensure a stronger participation by developing country scientists in the Assemblies.

On 21 March 2007, IAF and COSPAR celebrated the 50th anniversary of the launch of Sputnik 1 (October 4, 1957), the 50th anniversary of the establishment of the International Geophysical Year, and the 40th anniversary of the Treaty on the Peaceful Uses of Outer Space.

In summary, the IAU contribution to COSPAR can be manifold: proposals for award nominations, for nomination of officers to be elected in 2008, proposals or co-sponsorships of future capacity building workshops, co-sponsorship of Scientific Assemblies, etc.

Publications
Advances in Space Research (ASR) is now a fully refereed journal covering all areas of space research. *Space Research Today* provides COSPAR Associates and others with articles on current topics in space research by practitioners in the field, information on meetings, COSPAR and space-related news. It is issued three times a year.

COSPAR contribution to The International Year of Astronomy 2009 (IYA2009)
COSPAR is one of the organizational nodes of this initiative, headed by Prof. Jean Audouze (Institut d'Astrophysique de Paris, 98 bis bd. Arago, Telephone: +33 1 44 32 80 65, Fax: +33 1 44 32 80 01, E-mail: <audouze@iap.fr>).

COSPAR will participate in the inaugural conference at UNESCO and will co-organize the final symposium proposed by J. Audouze, to be held at UNESCO at the end of 2009. COSPAR's web site: <www.cosparhq.cnes.fr/>

Jean-Claude Vial, IAU Representative to COSPAR, 14 April 2008
Institut d'Astrophysique Spatiale, Paris, France <jean-claude.vial@ias.u-psud.fr>

II.11.6. **International Council for Science** (ICSU)

ICSU <www.icsu.org> sets out its mission as "*to strengthen international science for the benefit of society*" and its 'vision' as "*a world where science is used for the benefit of all, excellence in science is valued and scientific knowledge is effectively linked to policy-making. In such a world, universal and equitable access to high quality scientific data and information is a reality and all countries have the scientific capacity to use these and to contribute to generating the new knowledge that is necessary to establish their own development pathways in a sustainable manner.*" At its 28th General Assembly in China in 2005, ICSU approved a Strategic Plan for the period 2006-2011 which set out a series of goals in the areas of "International Research Collaboration," "Science for Policy," and "The Universality of Science." From this it produced an ambitious implementation plan against which progress could be monitored. This is being watched closely by ICSU members.

There were several events in 2007/8 of relevance to the IAU. A brief summary is given here.

1. Data and Information.

This is obviously an area of vital importance in astronomy. There are several 'players' of significance within the ICSU framework. The first is CODATA <www.codata.org>, a cross-disciplinary body which coordinates data issues across all of science. Then there is

the World Data Centre (WDC) and the Federation of Astronomical and Geophysical Services (FAGS). The final version of the FAGS White paper was completed in July 2007 following the FAGS General Meeting held in Perugia on 2 July 2007.

To "facilitate a new coordinated approach to scientific data and information that ensures equitable access to quality data" ICSU established a Strategic Committee on Information and Science (SCID). Three of its 13 members are astronomers.

The first meeting of the ICSU SCID Committee was held at ICSU in Paris in July 2007. There was a detailed discussion of the past and current status of WDCs, FAGS and CODATA and on the need for reinforcing the links between them. The proposals of the FAGS White paper were considered in a very positive way by the Committee. The 2nd SCID meeting took place in Paris in November 2007 and the 3rd SCID meeting took place in February 2008. A draft report and recommendations has been produced and is being actively discussed with the interested communities. The draft recommendations are seen as potentially of benefit to astronomy.

The current draft is not in a form suitable for general circulation, as it may need revision following further discussions. SCID will report to the ICSU CSPR and the ICSU decision will be taken at the ICSU General Assembly in October 2008.

2. Relations between ICSU Executive and Unions

The Geo-Unions (with support from other unions) urged greater Union consultation and involvement in ICSU actions and decisions. The ICSU Executive took the unions' concerns very seriously, and discussed appropriate actions. The Geo-Unions met at the IAP in February 2008 and discussed a range of issues related to ICSU. This meeting ended with a very constructive meeting with Catherine Brechignac, the President Elect of ICSU.

3. ICSU Dues Structure

ICSU has two classes of member – national and unions. The national members provide more than 90% of the ICSU budget, and consequently can exert more influence on the ICSU Executive than the union membership. At the same time the overall dues structure is somewhat out of date. The ICSU Executive Board WG on Dues Structure reported in August 2007 and the report was discussed by the IAU Officers. The IAU responded by saying that it could accept and support most of the recommendations but that it had serious concerns about the methodology of assessing Union dues based on "declared operating expenses" over a rolling three year period, and that further thought and study must be given to the question of 'weighted voting' based on contributions.

The IAU was one of the first Unions to respond: subsequent responses from other unions were supportive of the IAU position on both the calculation of dues and the need to protect the Unions from being outvoted on (at least) scientific and financial issues. At their meeting in February 2008 the seven Geo-Unions fully supported the position of the IAU, and a letter was sent to the Executive of ICSU in the name of all the Geo-Unions giving unanimous support to what is, in effect, the IAU position. The current proposals, if adopted, would be broadly financially neutral for the IAU.

The question of dues is intimately linked to the added value (to both Unions and National Members) of ICSU, and its actual value for money. The ICSU Executive is charged with proposing a method for establishing and evaluating its value to its members, and presenting it for adoption at the 2008 ICSU GA.

4. Grants

The Grants Programme has been reinstated for 2008. The closing date was 1 March 2008. IAU did not submit or join any proposal, but there is a Geo-Union proposal in the Earth Sciences area. The money available is modest.

5. Natural Hazards

The WG on Hazards continues its work, and produced revised draft report early in March 2008, which has been circulated within IAU (including the members of the EC Advisory Committee on Hazards of Near-Earth Objects) for comment. The IAU has already succeeded in improving the coverage of Near Earth Objects in the draft. The WG is to produce a revised report for discussion by CSPR at the end of April 2008.

6. Committee for Scientific Planning and Review (CSPR)

The IAU President, Catherine J. Cesarsky, is an *ad hominem* member of CSPR, and the minutes of CSPR meetings are available on the ICSU web site at <www.icsu.org/2_resourcecentre/RESOURCE_list_base.php4?rub=35>.

7. WG on Publication Ethics

The Executive Board has set up a WG on Publication Ethics. This is important to the IAU, as a publisher of scientific papers, and the WG has one member from the IAU. The aim is "to produce a universal set of ethical guidelines covering issues, such as authorship, peer-review, the role of editors, conflicts of interest, etc. Many bodies, including some Unions, have already done a lot of work on these topics and the idea is to try and harmonize these different efforts and produce a common set of guidelines." A first draft document has been produced and circulated to the WG for comments. A revised version should be available by end April 2008.

8. Freedom, Responsibility and the Universality of Science

The Committee on Freedom and Responsibility in the conduct of Science (CFRS) <www.icsu.org/2_resourcecentre/RESOURCE_list_base.php4?rub=51> was set up in 2006 and has produced a draft booklet providing a brief overview of issues relating to the freedom to conduct science and the responsibilities of scientists. It will be presented for adoption at the General Assembly in October 2008.

9. International Year of Astronomy

At its last Executive Committee Meeting, ICSU voted to endorse the IYA2009, which is in line with its involvement in International Polar Year.
< www.icsu.org/9_latestnews/latest_33.html >

10. Executive Director of ICSU

Thomas Rosswall retires at the end of January 2009. He will be succeeded by Professor Deliang Chen, an internationally renowned climate researcher.
< www.icsu.org/9_latestnews/latest_32.html >

11. 29th ICSU General Assembly

This will take place in Maputo, Mozambique, from 21 – 24 October 2008, following a week of scientific sessions concentrating on 'Science in Africa' organised by the ICSU Regional Office for Africa. There are important issues of direct interest to IAU to be

discussed at the GA, where the IAU will be represented by the Assistant General Secretary. Various inter-union meetings will take place before the GA.

Ian F. Corbett, IAU AGS, IAU Representative to COSPAR, 9 April 2008
<icorbett@eso.org>

II.11.7. ***Inter-Union Commission on Frequency Allocation for Radio Astronomy and Space Research*** (IUCAF)

1. INTRODUCTION

The Scientific Committee on Frequency Allocations for Radio Astronomy and Space Science, IUCAF, was formed in 1960 by its sponsoring Scientific Unions, COSPAR, the IAU, and URSI. Its brief is to study and coordinate the requirements of radio frequency allocations for passive (i.e., non-emitting) radio sciences, such as radio astronomy, space research and remote sensing, in order to make these requirements known to the national and international bodies that allocate frequencies. IUCAF operates as a standing inter-disciplinary committee under the auspices of ICSU, the International Council for Science. IUCAF is a Sector Member of the International Telecommunication Union (ITU).

2. MEMBERSHIP

At the end of 2007 the composition of membership for IUCAF was:

URSI: S. Reising (Com F, USA), U. Shankar (Com J, India), W. Swartz (Com G, USA), A. Tzioumis (Com J, Australia), and W. van Driel (Com J, chair, France);

IAU: H. Chung (Korea), D.T. Emerson (USA), M. Ohishi (Japan), and K.F. Tapping (Canada);

COSPAR: J. Romney (USA);

at large: W.A. Baan (Netherlands), and K. Ruf (Germany).

No replacement has yet been found for the IAU representative Jim Cohen, who passed away in November 2006.

IUCAF also has a group of Correspondents, in order to improve its global geographic representation and for issues on spectrum regulation concerning astronomical observations in the optical and infrared domains.

3. INTERNATIONAL MEETINGS

During the period of January to December 2007, its Members and Correspondents represented IUCAF in the following international meetings:

February ITU-R Working Party 7D (radio astronomy) in Geneva, Switzerland
ITU-R Conference Preparatory Meeting in Geneva, Switzerland

September Space Frequency Coordination Group meeting SFCG-27 in Maspalomas, Spain

October ITU World Radiocommunication Conference WRC-07 in Geneva, Switzerland

Additionally, many IUCAF members and Correspondents participated in numerous national or regional meetings (including CORF, CRAF, RAFCAP, the FCC etc.), dealing

with spectrum management issues, such as the preparation of input documents to various ITU fora.

3.1. IUCAF business meetings

During 2007 IUCAF had a face-to-face committee meeting before each of the ITU meetings listed above, with the purpose of discussing issues on the agenda of the meetings in preparation for the public sessions. During these ITU sessions ad-hoc meetings of IUCAF were held to discuss further its strategy. Also discussed was other IUCAF business, such as action plans for future workshops and summer schools or initiatives and future contributions to international spectrum management meetings. Although such face-to-face meetings have been convenient and effective, throughout the year much IUCAF business is undertaken via e-mail communications between the members and correspondents.

4. CONTACT WITH THE SPONSORING UNIONS AND ICSU

IUCAF maintains regular contact with its supporting Scientific Unions and with ICSU. The Unions play a strong supporting role for IUCAF and the membership is greatly encouraged by their support.

Pursuing its brief, IUCAF continued its activities towards strengthening its links with other passive radio science communities, in particular in space science, and defining a concerted strategy in common spectrum management issues. For the 2008 COSPAR Scientific Assembly, IUCAF has been organizing Scientific Event E110 on "Spectrum Management and COSPAR: Keeping Passive Radio Observations Free of Interference."

The IUCAF Chair is a member of the Organizing Committee of IAU Commission 50 on the Protection of Existing and Potential Observatory Sites, IUCAF member A. Tzioumis is Chair of the Working Group on Radio Frequency Interference of IAU Division X (radio astronomy), and IUCAF member M. Ohishi chairs the Working Group on Astrophysically Important Spectral Lines of Division X.

For the 2008 URSI Scientific Assembly, IUCAF has been organizing its open meeting during session J07, and IUCAF members have been actively involved in the organization of the session on Solar Power Satellites. In 2007, IUCAF members also actively participated in national URSI meetings.

5. PROTECTING THE PASSIVE RADIO SCIENCE SERVICES

At the ITU, the work in the various Working Parties of interest to IUCAF was focused largely on the preparations for WRC-07, the ITU World Radiocommunication Conference, which lasted for 4 weeks, from October 22nd to November 16nd, in Geneva, Switzerland. WRC-07 was attended by well over 3000 delegates from over a 180 nations and accredited organizations, including 7 IUCAF members and correspondents, and 9 other astronomers and astronomical spectrum managers.

The main goal of a WRC is the revision of the ITU Radio Regulations, which define the worldwide framework for spectrum management, including protection criteria for the radio astronomy service from unwanted emissions into its allocated frequency bands. WRCs are held every 3 to 4 years, and its agenda items are adopted at the previous WRC.

Of greatest relevance to IUCAF was an agenda item on the protection of the radio astronomy service and the Earth exploration-satellite (passive) service from unwanted emissions of active services in adjacent and nearby bands. This has resulted in an update of the tables of threshold levels used for consultation between the passive and active

radio services in Resolutions 738 and 739. Of particular, and long-standing, concern to IUCAF was the case of the 1610.6-1613.8 MHz band, which contains important spectral lines of the interstellar OH molecule. It was decided that "The protection of the radio astronomy service in the 1 610.6-1 613.8 MHz band is ensured and will continue to be in accordance with the bilateral agreement between the Russian Federation, the notifying administration of the GLONASS/GLONASS-M system, and IUCAF, and subsequent bilateral agreements with other administrations."

Among the preliminary agenda items adopted for the next WRC in 2011, the one most relevant to radio astronomy concerns the use of the radio spectrum between 275 and 3000 GHz. No allocations for the use of this frequency band will be made at WRC-11, but the radio astronomy community has to identify a list of specific bands of interest.

IUCAF member M. Ohishi is Chair of ITU-R Working Party 7D (radio astronomy) and in 2007 IUCAF member H. Chung was named Vice-chair of ITU-R Study Group 7 (Science Services).

6. IUCAF-SPONSORED MEETINGS

In 2007, IUCAF worked towards the organization of two future international meetings: Scientific Event E110 on "Keeping Passive Radio Observations Free of Interference" at the 2008 COSPAR Scientific Assembly in Montreal, and the 2009 Summer School on Spectrum Management for Passive Radio Sciences, planned to be held in Korea.

7. PUBLICATIONS AND REPORTS

IUCAF has a permanent web address, <www.iucaf.org>, where the latest updates on the organization's activities are made available. All contributions to IUCAF-sponsored meetings are made available on this website.

8. CONCLUSION

IUCAF interests and activities range from preserving what has been achieved through regulatory measures or mitigation techniques, to looking far into the future of high frequency use and giant radio telescope use. Current priorities, which will certainly keep us busy through the next years, include the use of satellite down-links close in frequency to the radio astronomy bands, the coordination of the operation in shared bands of radio observatories and powerful transmissions from downward-looking satellite radars, the possible detrimental effects of ultra-wide band (UWB) transmissions and high-frequency power line communications (HF-PLC) on all passive services, and studies on the operational conditions that will allow the successful operation of future giant radio telescopes.

IUCAF is grateful for the moral and financial support that has been given for these continuing efforts by ICSU, COSPAR, the IAU, and URSI during the recent years. IUCAF also recognizes the support given by radio astronomy observatories, universities and national funding agencies to individual members in order to participate in the work of IUCAF.

Wim van Driel, IAU Representative to IUCAF, 22 April 2008
Meudon, France, <*iucafchair@iucaf.org*>

II.11.8. *International Union of Pure and Applied Physics* (IUPAP)

The Astrophysics Commission (C19) of IUPAP will be presenting its second Young Physicist's Prize at the December, 2008 Texas Symposium in Vancouver. The IAU kindly announced the opportunity to nominate in its previous IB, and we received several truly outstanding nominations. The Commission is in the process of voting (by the same Borda rules that IAU DPs sometimes use to pick symposia for support).

IUPAP will provide some support for travel for scientists from poorer and more remote countries to participate in the December symposium and would be able to provide something for one of the 2009 Symposia in Brazil, if a relevant Symposium is selected. IUPAP will hold its next General Assembly in Japan in October (hosted by incoming president, Sukekatsu Ushioda) and will at that time elect new members for all its commissions. There is a limit of one member per country, and 12 total. If you are interested in representing your country on C19, please contact your IUPAP adhering organization (which is usually a National Academy and the same as your IAU adhering organization). Our group is too small to envisage any way of implementing any of the many good ideas for the IYA that were put forward when about half the commission met in Prague in 2006, but several ideas (like the 100 hours of astronomy for April 2009) have come from several sources and are now part of the official program.

The Commission on Astrophysics (C19) is pleased to announce that its 2008 Young Physicist's Prize will be awarded to Eiichiro Komatsu of the University of Texas, Austin, USA.

Because the pool of nominees was truly outstanding this year, the Commission on Astrophysics has designated two recipients of Honorable Mention for the young physicist's prize, which, sadly, cannot include a medal or cash award. These are: Dr. Marta Volonteri, who received her PhD in 2003 from the University of Milan and is now assistant professor at the University of Michigan, for work of the evolution of black holes in the early universe, especially re-ionization by mini-quasars, powered by intermediate mass black holes; and Dr. Sarah Gallagher, who received her PhD in 2002 from Pennsylvania State University and is about to take up an assistant professorship at the University of Western Ontario, for studies of highly absorbed quasars, especially the dense material that makes many broad absorption line (BAL) QSOs weak in X-rays.

Virginia Trimble, IAU Representative to IUPAP/C19, 28 March 2008
<vtrimble@astro.umd.edu>

II.11.9. *International VLBI Services for Astronomy and Geodesy* (IVS)
Annual Report for 2007

1. Overview of IVS

The International VLBI Service for Geodesy and Astrometry (IVS) is an international collaboration of organizations that operate or support Very Long Baseline Interferometry (VLBI) components. The goals of the IVS are:

- to provide a service to support geodetic, geophysical and astrometric research and operational activities,
- to promote research and development activities in all aspects of the geodetic and astrometric VLBI technique, and
- to interact with the community of users of VLBI products and to integrate VLBI into a global Earth observing system.

IVS is an approved service of the International Association of Geodesy and of the International Astronomical Union; it is a member of the Federation of Astronomical and Geophysical Data Analysis Services. IVS comprises 72 components, representing 38 organizations in 17 countries, with the following facilities: 27 network stations, 3 operation centers, 6 correlators, 6 data centers, 22 analysis centers, 7 technology development centers, and 1 coordinating center.
The major products that IVS provides to the scientific community are:

- a terrestrial reference frame (TRF)
- the International Celestial Reference (ICRF)
- Earth Orientation Parameters (EOP)

All IVS data and products are archived in data centers and are publicly available for research in related areas of geodesy, geophysics and astrometry. More information can be found on the IVS Web site at <http://ivscc.gsfc.nasa.gov>.

2. Analysis activities during 2007

On January 1, 2007, a new combination process for the two IVS EOP series (rapid and quarterly solutions) was made operational. Routine combinations of IVS are now being made exclusively on the basis of datum-free normal equations in SINEX format. In 2007, five IVS Analysis Centers (BKG, DGFI, GSFC, IAA and USNO) contributed to the IVS combined products by providing such input. The rapid solution is updated twice a week, as soon as the SINEX files of the five IVS Analysis Centers are available, while the quarterly solution is updated every three months.

The advantage of the new combination strategy is that one common terrestrial reference frame (e.g. ITRF2005) is applied after the combined datum-free normal matrix is generated. Thus, it is guaranteed that an identical datum is used in the combination process for all input series. After datum definition, the combined system of normal equations is solved (inverted) and the full set of EOP (pole components, UT1−UTC, and their time derivatives, as well as two nutation offsets in $d\psi$, $d\varepsilon$ with respect to the IAU2000A model) are extracted. Nutation offsets in the X, Y paradigm are routinely generated through a standard transformation process. The weighted RMS differences between the individual IVS Analysis Centers and the combined products have been reduced from roughly 80–100 μas to 50–60 μas in all components with this new combination strategy.

At the same time, the combined SINEX files (datum-free normal equations) are also available on the Web for further combination with other techniques. At present, this is done on an experimental basis only, but the IERS Analysis Coordinator is strongly pushing towards such a routine process.

3. Activities of Working Groups and Committees

ICRF-2. The joint IERS/IVS Working Group on the next realization of the ICRF, which was formed after the 2006 IAU General Assembly, started its work during 2007. Its aim is to generate the second realization of the ICRF from VLBI observations of extra-galactic radio sources, consistent with the current realization of the ITRF and EOP data products. The goal is to present the second ICRF to relevant authoritative bodies (IERS and IVS), and submit the revised ICRF to the IAU Division I Working Group on the second realization of the ICRF for adoption at the 2009 IAU General Assembly. In 2007, the work focused on generating time series of radio source coordinates so that the most stable sources may be identified for the realization of the frame.

VLBI Data Structures. At the 18th Directing Board meeting held in September 2007 at Bonn University, IVS Working Group 4 on VLBI Data Structures was formed. The Working Group will examine the data structure currently used in VLBI data processing and investigate what data structure is likely to be needed in the future. It will design a data structure that meets current and anticipated requirements for individual VLBI sessions including a cataloging, archiving and distribution system. Further, it will prepare the transition capability through conversion of the current data structure as well as cataloging and archiving software to the new system.

VLBI2010. The VLBI2010 Committee continued its work on designing and implementing the next generation VLBI system. The work concentrated on Monte Carlo simulations to investigate the performance of network configurations, schedules and observing scenarios, and on the broadband delay approach. The broadband approach involves the use of broadband feeds (2–15 GHz) and multiple IF channels to reliably resolve RF phase, even at low signal-to-noise ratios. It will enable extremely precise delay measurements to be made while using comparatively small and cost effective 12-m class antennas. The lower cost of these antennas will make replacement of existing, old antennas and the addition of new stations more affordable.

4. Meetings and publications

Two *IVS Directing Board* meetings were held during 2007, one in February in Wettzell, Germany, and the other in September in Bonn, Germany. At the Wettzell meeting, the Board elected Harald Schuh from Vienna University of Technology, Vienna, Austria as the new chair of the IVS replacing the outgoing chair Wolfgang Schlüter.

In April/May 2007, IVS held its fourth *Technical Operations Workshop (TOW)* at MIT Haystack Observatory, Westford, MA, USA. This four-day meeting was tailored to the technical staff of the stations giving hands-on training and problem resolution in VLBI operations. It was attended by about 60 people from 14 countries. All teaching material was compiled in a notebook, which was distributed at the meeting and is also available online.

The eighth *IVS Analysis Workshop* was held at the Vienna University of Technology, Vienna, Austria, on April 14, 2007, in connection with the 18th European VLBI for Geodesy and Astrometry (EVGA) Working Meeting. The workshop was attended by about 40 participants. Presentations and discussions focused on details of VLBI analysis and modeling, especially in the framework of operational routine solutions.

The sixth *International e-VLBI Workshop* was held at Max-Planck-Institut für Radioastronomie, Bonn, Germany, bringing together geodetic/astrometric and astronomical users and experts in wideband networks. The meeting attracted some 60 scientists from around the world, with various backgrounds but with the common interest of developing and using electronic transfer of VLBI data from the telescopes to the correlators.

IVS published its *2006 Annual Report* in April 2007. Three *newsletter* issues, which keep the community informed about IVS activities, were also published, in April, August, and December 2007. In June 2007, a *Special Issue* on Very Long Baseline Interferometry of the *Journal of Geodesy* was published, providing information about the state-of-the-art in VLBI research to a broader community.

Patrick Charlot, IAU Representative to IVS, 19 April 2008
Bordeaux Observatory, France <Patrick.Charlot@obs.u-bordeaux1.fr>

II.11.10. *Scientific Committee on Problems of Environment* (SCOPE)

SCOPE (Scientific Committee on Problems of the Environment) continued in 2007 to be highly focused on environmental issues, particularly those of biodiversity. As yet SCOPE has not taken any steps to look at issues raised on those effects of light pollution that have been identified as impacting animals (including human beings) and plants.

In 2007 SCOPE has published 2 SCOPE Books (Island Press) namely,
- Sustainability Indicators (valuable for understanding Indicators but hard going)
- Communication Science (does not offer the astronomical community much that is new)

I have asked the SCOPE Executive Secretary if SCOPE has any view on possible collaboration with IAU during 2009 Year of Astronomy.

Derek McNally, IAU Representative to SCOPE, 15 April 2008
Hatfield, UK <D.McNally@herts.ac.uk>

II.11.11. *Scientific Committee on Solar-Terrestrial Physics* (SCOSTEP)

1. International symposium

The primary scientific activity of the Scientific Committee on Solar-Terrestrial Physics (SCOSTEP) is the CAWSES (Climate and Weather of the Sun-Earth System) program, which started in 2004. The CAWSES program has four basic themes: 1) Solar Influence on Climate, 2) Space weather science and applications, 3) Atmospheric Coupling Processes, and 4) Space climatology.

Since the CAWSES program is coming to a close in a year's time, it was decided to hold a symposium so that research performed over the past four years under various CAWSES themes can be reviewed under one roof. The meeting was convened by T. Tsuda, R. Fujii, K. Shibata (all from Japan), and M. Geller (USA) at Kyoto University, Japan during October 23-27, 2007. The symposium consisted of four types of presentations: Tutorial lectures (12), key-note speeches (15), invited talks (40), contributed talks (100) and poster contributions (226), thus totalling close to 400. In all there were 427 participants, about half of them Japan (412) and the rest from 21 different countries. It was decided that a book consisting of the tutorial and key-note talks will be published soon after the symposium.

2. Outreach Activities

SCOSTEP/CAWSES has undertaken an effort to popularize solar-terrestrial science to the general public by promoting the "cartoon books" initiated by the Solar-terrestrial Environment Laboratory in Nagoya, Japan. Efforts are underway to translate the comic books into more than a dozen different languages. SCOSTEP/CAWSES has underwritten the cost of the copyright, so individuals can translate the books in any language after signing an agreement with SCOSTEP.

3. SCOSTEP Bureau Meeting

The SCOSTEP bureau meeting was held starting at 9 AM on October 28, 2007 in Kyoto, Japan. Nat Gopalswamy attended the meeting as the IAU member of the bureau. The meeting was chaired by SCOSTEP president R. Vincent (Australia) elected during the Perugia meeting on July 8 2007. The following decisions were made.

a. The 12th Solar Terrestrial Physics (STP 12) will be held in conjunction with the COSPAR General Assembly, to be held in Berlin, Germany during July 18-25, 2010. There was equally good proposal from Hungary, which was not selected. However, if the Hungarian proposers (Dr. A. Ludmany) would like to hold the European International Heliophysical Year School, SCOSTEP will cosponsor it with financial support.

b. The current CAWSES program ends at the end of 2008. During the SCOSTEP Bureau meeting held in Perugia, Italy in July 2007, it was decided that the CAWES program will be extended to another five years starting in 2009 under the name, "CAWES II". Detailed goals, objectives and implementation plans are being drafted. It was decided that the final draft will be available by November 19, 2007 for the SCOSTEP Bureau to review.

c. In addition to the comic-book activity, SCOSTEP will support activities related to the solar eclipses which provide excellent opportunities to inform the public of the many facets of the Sun and its influence on Earth.

d. It was decided that SCOSTEP should approach countries that are not currently members to encourage them to become SCOSTEP members.

e. The Bureau endorsed the scientific campaign "Whole Heliosphere Interval" to be conducted by the International Heliosphysical Year (IHY) program during March 20 – April 16, 2008. The campaign will consider all aspects of the Sun-Heliosphere system starting from the solar interior, and extending through the heliosphere, past geospace and interplanetary space, and out to the local interstellar medium.

Nat Gopalswamy, IAU Representative to SCOSTEP, 30 October 2007
NASA/GSFC, Greenbelt MD, USA <gopals@ssedmail.gsfc.nasa.gov>

II.11.12. *Activities related to the IHY Program*

The International Heliophysical Year (IHY) is an international program of scientific research and collaboration to understand the external drivers of the space environment and climate. It began this year, the 50th anniversary of the International Geophysical Year. The IHY involves utilizing the existing assets from space and ground as a distributed Great Observatory and the deployment of new instrumentation, new observations from the ground and in space, and public and student education. The IHY officially was launched in February 2007 with a "kick-off" ceremony and workshop in Vienna. Many IHY activities, both scientific and educational, have occurred since then.

Within the IAU, coordination of IHY activities is within the Solar and Heliosphere Division (II), with Don Melrose, President. David Webb is the IAU representative to the IHY and Nat Gopalswamy is the chair of the IHY subgroup within the IAU Working Group for International Collaboration on Space Weather (ICSW). Hans Haubold leads the IHY effort for the United Nations under the auspices of COPUOS and the U.N. Basic Space Science program.

IHY science is organized through science working groups and observing campaigns called Coordinated Investigation Programs (CIPs). An important CIP campaign is the Whole Heliosphere Interval (WHI) that occurred over one solar rotation, from 20 March - 16 April 2008. WHI is an international coordinated observing and modeling effort to characterize the 3-D interconnected solar-heliospheric-planetary system. Another part of IHY science is the cooperative initiative with the UNBSS program, through which the

IHY assists in deploying arrays of small instruments to make global measurements. Currently 15 instrument concepts are being developed or deployed. These include a network of radio telescopes to observe CME-related radio bursts, chains of magnetometer arrays to observed magnetic activity, and hundreds of GPS receivers to observe the ionosphere. These systems have been discussed at annual IHY-U.N. UNBSS workshops in the United Arab Emirates, Bangalore, India and Tokyo, Japan. The next workshop, to include the first results from IHY programs, will be held June 2-6, 2008 in Sozopol, Bulgaria. The last workshop is planned for 2009. The IAU is a cosponsor of all of these meetings.

Many scientific meetings and workshops related to IHY were held in 2007 and early 2008 in countries including India, Germany, Bulgaria, Austria, Mexico, Italy, Russia. The World Space Week was celebrated worldwide in October 2007 with the Sputnik 50th Anniversary Celebration and Symposium. The Second IHY SCINDA Workshop and IHY-Africa Space Weather Science and Education Workshop were held in Addis Ababa, Ethiopia in November 2007. The first WHI workshop is scheduled for Aug. 25-29, 2008 in Boulder, CO, USA. IAU Symposium 257, involving IHY science topics and called "Universal Heliophysical Processes," is scheduled for Sept. 15-19, 2008 in Ioannina, Greece. See: <http://iau257.uoi.gr/>. The SOC chairs are N. Gopalswamy, D. Webb and K. Shibata, and the LOC chair is A. Nindos. An AGU Chapman Conference on Universal Processes will be held in Savannah, GA, USA, Nov. 10-14, 2008.

IHY Outreach activities include spreading knowledge of space science and exploration to the public and inspiring the next generation of space scientists, and these are led by Cristina Rabello-Soares. There are now outreach coordinators in 25 countries. In Thailand an IHY booth was set up by the Thai IHY group during the annual Science and Technology Fair in Bang Na August 8-19, 2007 that was attended by about 1 million students. The Center for Science Education at the University of California, Berkeley, and the Stanford Solar Center sponsored special web-based activities to celebrate World Space Week and the 50th Anniversary of the Sputnik Launch, October 2007. They also hosted an IHY Space Weather Monitor workshop at the IHY-Africa Space Weather Science and Education Workshop in Ethiopia in Nov. 2007. They demonstrated Sudden Ionospheric Disturbance instruments that track changes to the Earth's ionosphere caused by solar activity. These are targeted to high school students, and are being distributed world-wide as part of the IHY International Education Program. IHY also supported the Geophysical Information for Teachers (GIFT) Workshop: "The International Heliophysical Year" at Addis Ababa, Ethiopia, on Nov. 10, 2007. More recent events included Solar Week 2008 and NASA's Sun-Earth Day in March 2008 and the annual Yuri's Night Space Party on April 12, 2008. An exhibit established at Goddard Space Flight Center in Greenbelt, MD, USA called Sunworks is a touring art exhibit on the Sun. It was first in Vienna last year for the start of the IHY activities, and is currently touring the U.S.

Part of the IHY Outreach effort is the IHY Schools Program which is assisting with 6 schools in 2007-2009. The purpose of these schools is to educate students about heliophysics and Universal Processes. Updated information on the schools program.is at: <http://ihy2007.org/outreach/ihy_schools.shtml>. The first school was held in July-August 2007 and co-sponsored by NASA's Living With a Star program and IHY as the North America IHY School. 34 students attended the school, 14 from countries outside the U.S., with 25 lecturers and lab coordinators participating. The 1st Asia-Pacific School was held at the Indian Institute of Astrophysics (IIA), Bangalore, India, December 10-22, 2007. It was an intensive two-week course on heliophysics topics with about 50 students attending. The 1st IHY Latin America School, held February 14-20, 2008, was organized

by CRAAM and held at the Presbyterian Mackenzie University in São Paulo, Brazil. About 80 students attended.

The organization of the remaining three IHY Schools is proceeding as follows. The 4th school, for Africa and Europe, will be held at the Centre for Basic Space Science, National Space Research and Development Agency (NASRDA), the University of Nigeria, Nsukka., Nigeria on Nov. 10-22, 2008. The 2nd Asia-Pacific school is planned for October 20-31, 2008 in Beijing, China, and the 3rd Asia- Pacific school in March 2009 on Langkawi Island in Malaysia.

Finally, the IHY Gold History initiative has the goals of identifying and recognizing participants in the first IGY, preserving memoirs, etc. of historical significance for the IGY, making them available to historians and researchers, spreading awareness of the history of geophysics, and planning special events. The first of these was the "IGY+50" Celebration at the IUGG meeting in Perugia, Italy, July 2-13, 2007. During the IHY session at the 2007 Solar Extreme Events meeting in Athens Greece, Nat Gopalswamy presented an overview talk on IHY activities.

David F. Webb, IAU Representative to for the IHY, 14 May 2008

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INTERNATIONAL ASTRONOMICAL UNION
UNION ASTRONOMIQUE INTERNATIONALE

The mission of the International Astronomical Union (IAU), founded in 1919, is to promote and safeguard the science of astronomy in all its aspects through international cooperation. The IAU, through its scientific bodies — 12 Divisions, 40 Commissions and some 76 Working and Program Groups, which cover the whole spectrum of astronomy — wishes to promote and coordinate international cooperation in astronomy. As of September 2006, the IAU has 9700 individual members in 87 countries. Of those, 64 countries are National Member. The IAU is member of the International Council for Science (ICSU).

The organization of scientific meetings is the IAU's key activity. Every year the IAU sponsors nine international Symposia. The *IAU Symposium Proceedings* series is the flagship of the IAU publications. Every three years the IAU has its General Assembly, during which six of the IAU Symposia of that year are incorporated in the scientific programme of that GA. A GA further offers some 25 Joint Discussions and Special Sessions, the proceedings of which are published in the *Highlights of Astronomy* series. The reports of the GA Business Meetings are published in the *Transactions of the IAU - B* series. All IAU proceedings are published by Cambridge University Press.

Among the other tasks of the IAU are the definition of fundamental astronomical and physical constants; unambiguous astronomical nomenclature; promotion of educational activities in astronomy; and early informal discussions on the possibilities for future international large-scale facilities. Furthermore, the IAU is the sole internationally recognized authority for giving designations and names to celestial bodies and their surface features.

The IAU works to promote astronomical education and research in developing countries through its Program Groups on International Schools for Young Astronomers (ISYA), on Teaching for Astronomy Development (TAD), and on World Wide Development of Astronomy (WWDA), as well as through joint educational activities with COSPAR and UNESCO.

The IAU web site provides on-line information on the Union's activities and links to the web sites of the IAU Divisions, Commissions, Working Groups, and Program Groups. Contact with the IAU membership is maintained through this Information Bulletin, published twice per year, with a paper version and an e-version available via the IAU web site.

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