IAGA

News

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IAGA, the International Association of Geomagnetism and Aeronomy, is the premier international scientific association promoting the study of terrestrial and planetary magnetism and space physics

In this Issue

IAGA on the Web

Information on IAGA is regularly updated at the IAGA site: http://www.iugg.org/IAGA/

Foreword

This issue of IAGA News contains, in addition to the President's message, also an announcement of the primary event for 2011, namely the XXV IUGG General Assembly, *Earth on the Edge: Science for a Sustainable Planet.*

The issue also contains activity reports, obituaries of deceased IAGA scientists, and some general information about IAGA. IAGA News in the present form consists partly of brief summaries of news items and the reader may find more details at the IAGA website (www.iugg.org/IAGA/).

IAGA News is distributed to the National Correspondents in the Member Countries, to all IAGA officers and to IAGA scientists who attended recent IAGA assemblies. Many scientists interested in IAGA activities are probably not reached with this original distribution, so it would be appreciated if you, the reader, would forward IAGA News to persons you know of, who are interested in IAGA but may not be on our distribution list. If you are uncertain, it is better that they get more than one copy of IAGA News than none. National policy makers and leaders, whose decisions affect the activities of IAGA scientists, also need to be informed about IAGA so, please, forward IAGA News to such persons in your country as well.

Mioara Mandea
Secretary General

MESSAGE FROM THE PRESIDENT:

2010 is the first full year of duty of our new Secretary General and it has been a very busy year with the planning of the XXV General Assembly of IUGG in Melbourne. This time the planning is even more complicated because the reduced meeting days of six for IAGA has to be incorporated in a reduced ten day IUGG General Assembly with all the Union and Joint symposia.

I wish to acknowledge the great efforts of our new Secretary General and the many other individuals who are responsible for planning the meeting. I look forward to an exciting and successful Assembly and I hope to see many of you there in spite of the financial crisis, the effect of which still seems of concern to many of you.

However, in my last New Year's message as President of IAGA I urge you to contribute to the advancement of our science by participating in the IUGG General Assembly. IUGG science is regarded more and more crucial for understanding our Planet, its resources, its power, and its limitations.

New developments of science very often take place in the areas between the disciplines, and the structure of IUGG with strong scientific associations responsible for the development of their respective scientific disciplines provides exactly the framework for the cross-disciplinary interaction that is needed for advancing our science and to contribute to making our scientific results applicable to the society at large.

The IUGG General Assemblies should therefore ideally be much more than just the sum of a bunch of separate and isolated symposia. But in order for the cross-fertilisation to be successful, the science within the disciplines has to be advanced to the highest possible level. This can only be done by making sure that the needs of the scientists regarding the scientific content and level of their respective scientific disciplines is satisfied, also at IUGG General Assemblies. The strong working groups in many of the IAGA divisions comprise the most vital core of IAGA and it is crucial to keep this core active in promoting the science issues.

The development of IAGA as a scientific association into its present form is based on the concept of global observations, both from the ground and from spacecraft. This development had a major push during the International Geophysical Year 1957-58, which by the way was also the time of launch of the first scientific satellites. Since then the development of our science has been enormous and exploration of the unknown has been a major driver. Many of those scientists that pioneered the development of our science 50 years ago are no longer among us. And in 2010 two of the great pioneers of our science passed away. Both of them were IAGA Presidents and both of them were Honorary Members of IAGA. Both Valery Troitskaya and Keith Cole will be missed, but they will never be forgotten.

Best wishes to everyone for 2011.

Eigil Friis-Christensen
President

PREPARATIONS FOR THE XXV IUGG GENERAL ASSEMBLY IN MELBOURNE 2011

TIME AND PLACE

IAGA's General Assembly in 2011 will be part of the IUGG Assembly but will take place in the second part of the IUGG Assembly, i.e. from 2 July to 7 July rather than occupying the full ten days of 28 June - 7 July. The scientific sessions will take place at the new Melbourne Convention and Exhibition Centre, completed in late 2009.

Local Organizing Committee

IUGG has been invited to Melbourne by the Australian and New Zealand scientific communities under the aegis of the Organising Committee for the 2011 International Union of Geodesy and Geophysics (IUGG) General Assembly under the chairmanship of Prof. Ray Cas, Monash University.

Assembly web site: www.iugg2011.com

Scientific Programme

The IAGA is deeply involved in the scientific programme, leading 6 of the 12 Union symposia and 5 Joint symposia. The Joint Symposia that are being led by IAGA are coded J-A01 – J-A05 (the IAGA sessions are indicated by the letter A (Aeronomy, Geomagnetism)) and cover a wide range of themes of concern to the International Association of Geomagnetism and Aeronomy and other Associations. A description of all symposia can be found in the Second Circular and at the Assembly web site (address above).

The Local Organizing Committee and Scientific Program Committee of the XXV IUGG General Assembly announced the following revised abstract submissions dates:

- 17 January 2011, due date for abstract submission in the case of application for a travel grant award; and
- 1 February 2011, due date for abstract submission.

Other important dates to be marked in your calendar:

- 28 March 2011, due date for notification of paper acceptance and successful grant application;
- 11 April 2011, early bird registration deadline.

All abstracts (oral or poster presentation) must be submitted by the author presenting the paper, even if the author is not the first author. The presenting author is responsible for submitting the abstract and paying the abstract submission fee. All presenters are limited to two oral presentations, except for the eight invited Union Plenary Lecturers, who may present two oral presentations in addition to their Union lectures. For all abstract submission and registration details, and the scientific program outline, go to: www.iugg2011.com

Other Meetings During the Assembly

The highest level of IAGA leadership, the Conference of Delegates of the IAGA Member Countries (CoD), and all component bodies of IAGA, will hold their business meetings during the Assembly. For the divisions, commissions and working groups the two most important agenda points for their business meetings are the election of candidates for the new leadership for the next four-year period and planning of the scientific programme for the next IAGA Scientific Assembly in Mérida, Mexico, in 2013. As the IAGA Assembly is only six days long, the one and a half hour long lunches will be used for many business meetings, and others will be held in the evenings in order to avoid collisions with the scientific sessions. Only the CoD meetings and some EC meetings will have to partly use scientific session time.

Decisions by EC during 2010

Selection of Venue for the next scientific assembly In 2013

The Conference of Delegates at the IAGA Scientific Assembly in Sopron 2009 decided that the next IAGA Scientific assembly should take place in a developing country. The Executive Committee should present all feasible alternatives for the National Bodies of the Member Countries with a recommendation of which to choose. The voting would be done by e-mail.

The 2013 IAGA site selection committee, consisting of László Szarka (Hungary), Maria Jula Orgeira (Argentina) and the Secretary General has worked on the two applications that were received, from India and Mexico. Both bids have been fully compliant with the result of the voting among the Delegates (in Sopron), that the meeting should take place in a developing country ("non-mainstream" country). Both bids have done appreciable work to prepare the IAGA 2013 venue. Both countries have involved large efforts to host the geomagnetic community,

and the quality of the proposed sites has been reflected by the votes of the National Correspondents. With nearly 70% response in the electronic voting, the vote has been valid. Even if the difference in between the two bids was not large, a winner was found and it was Mexico. The Local Organizing Committee, lead by Harald Böhnel, has already started the preparation for the next IAGA Assembly.

IAGA SUPPORT OF TOPICAL MEETINGS IN 2011

EC decided to support the following topical meetings in 2011: 4th IAGA/ICMA/CAWSES-II "Vertical Coupling in the Atmosphere-Ionosphere System" and IAGA-3: "Heliospheric Physics during a deep solar minimum, with an amount of USD1500 each, and the IAGA-3 High Energy Particle Precipitation in the Atmosphere and the Second Latin-American Association of Paleomagmetism-Geomagnetism, with an amount of USD1200.

VALUE FOR THE GYROMAGNETIC CONSTANT

The International Council for Science: Committee on Data for Science and Technology adopted a new value for the gyromagnetic constant in 2006 (CODATA 2006). The new value is $\gamma p' = 2.675153362 \cdot 10^8$ T-1s-11 (Rev. Mod. Phys. Vol 80, 2008). In order to comply with international standards IAGA adopts the new value to replace the value adopted in 1991 for geomagnetic measurements from 2010 on. Observatories and instrument manufacturers should implement the new value as soon as possible. The difference between the old and new constants, however, amounts to only 15 pT in 50 000 nT and thus is within the noise level of most of the present day observatory measurements, therefore it can be safely adopted without problem even if immediate implementation by all observatories at the same time cannot be guaranteed.

http://www.iugg.org/IAGA/iaga_pages/pubs_prods/Products_services.htm

IAGA ENDORSED INDICES OF MAGNETIC ACTIVITY

Magnetic indices describe the activity level of external magnetic fields. IAGA endorsed indices follow strict quality standards defined by working group V-DAT. The information on currently endorsed IAGA indices, like e.g. Kp and Dst, can be found at the working group's website:

http://www.ngdc.noaa.gov/IAGA/vdat/

In 2010 the EC decided that the adoption of new indices endorsed by IAGA is done according to the Index Criteria for endorsement of indices by IAGA as defined on the IAGA web:

http://www.iugg.org/IAGA/iaga_pages/pubs_prods/Products_services.htm

IAGA LOGO

As seen on the top front side of this IAGA News, the EC in 2010 decided to introduce a new digital and modernized IAGA logo. The new IAGA logo has been designed by a team led by László Szarka (Hungary).

THREE NEW SATELLITES SOON IN ORBIT TO MEASURE THE GEOMAGNETIC FIELD.

The Earth's magnetic field is one of the most basic parameters for many of the science disciplines within IAGA. During the successful "International Decade of Geopotential Field Research" declared by an IUGG resolution at the IUGG General Assembly in Birmingham in 1999, the European Space Agency in 2004 selected the Swarm-mission consisting of three satellites as the 5th mission in the Earth Explorer Programme.

Table 1 - Swarm Orbits	
Satellites	3
Launch	Mid 2012
Launcher	Eurockot
Altitude (km)	530 (x1) 450->300 (x2)
Inclination	88.0° (x1) 87.4° (x2)
Duration	4 years

The Swarm mission will use techniques developed for previous magnetic field mapping missions including Ørsted and CHAMP. The Table summarizes the Swarm satellite orbital parameters.

The Swarm mission data will be made available to the members of the international community in response to an Announcement of Opportunity that will be solicited by ESA prior to launch. Level 1B data are calibrated readings in physical units provided on a satellite-by-satellite basis.

In order to take advantage of the unique constellation aspect of the Swarm mission, considerably advanced data analysis tools have to be developed. The average scientific user of data from the Swarm mission could therefore benefit significantly if derived products, so-called Level 2 data that take into account the constellation features were to be available for the scientific community. For this reason ESA has recently agreed with a European consortium of six research institutions led by the National Space Institute, DTU Space, in Denmark to develop such a service within a proposed "Satellite Constellation Application and Research Facility" (SCARF). A number of data products have been defined including various models of the core field, the lithospheric field, the ionospheric field, and the magnetospheric field. In addition, derived parameters like the mantle conductivity, mass density and winds in the thermosphere, field-aligned currents, an ionospheric bubble index, the ionospheric total electron content and the dayside eastward electrical field will be calculated. After termination of the 30-month development phase this service is expected to operate for a period of 5 years after the launch of the Swarm Mission. All derived products will be available through the Swarm Payload Data Ground Segment (PDGS) located at ESRIN, the ESA Centre for Earth Observation in Frascati, Italy.

REPORTS ON IAGA-SPONSORED PROJECTS/MEETINGS IN 2009

CONFERENCE ON NATURAL DYNAMOS

http://rebel.ig.cas.cz/Tatry2009/index.html

Conference on Natural Dynamos was held on August 30 – September 5, 2009, in Stará Lesná, Slovakia. It was dealing with hydromagnetic dynamos, magnetoconvection and various hydromagnetic processes acting in the Earth's core, planetary cores, in the Sun and other stars, in galaxies, accretion discs and other astrophysical objects, and also laboratory hydromagnetic and dynamo experiments. The conference was co-organised by the Geophysical Institute of the Slovak Academy of Sciences, Bratislava, the Institute of Geophysics of the Academy of Sciences of the Czech Republic, Prague, and the Department of Astronomy, Physics of the Earth and Meteorology of FMPI, Comenius University, Bratislava. In total, 78 participants, including 6 accompanying persons, from 15 countries worldwide (Asia, the America, Australia and Europe) attended the conference. It was important that our conference was attractive in particular to young researchers. 21 graduate and undergraduate students took part in the conference.

The conference venue was in Congress Center "Academia", suitably located in the beautiful area of the High Tatras mountains. Oral and poster sessions were accomplished by rich social program, including wine-tasting and a half-day trip to historical town Levoča and Spiš castle. Scientific part of the conference consisted of five oral sessions (included a tutorial lecture for each session) and three afternoon poster sessions. The posters were introduced by short, 2-minute oral introductions. Extended abstracts of the conference were published in Contributions to Geophysics and Geodesy, a journal published by the Geophysical Institute SAS in Bratislava. Special issues of international journals Geophysical and Astrophysical Fluid Dynamics, and Astronomische Nachrichten containing papers presented at the conference, are foreseen.

Financial support, provided by IAGA, was highly acknowledged. This travel support, accompanied by waiving the registration fee, was granted 3 young scientists.

After: *Ján Šimkanin, Jozef Brestenský, Sebastián Ševčík, Alexandra Marsenić, Tomáš Šoltis*

High Energy Particle Precipitation in the Atmosphere

http://www.acd.ucar.edu/Events/Meetings/HEPPA/

In recent years, many new satellite instruments capable of polar region observations have been launched. This has provided unique opportunities to study effects of energetic particle precipitation (EPP) on the atmosphere. Following on from the 1st High Energy Particle Precipitation in the Atmosphere (HEPPA) Workshop, which was held in Helsinki, Finland, 28-30 May 2008, we held the 2nd International HEPPA Workshop on 6-8 October 2009 (HEPPA-2009) in Boulder, Colorado, USA.

HEPPA-2009 brought together 63 participants from Australia, Canada, Finland, France, Italy, Germany, New Zealand, Norway, Spain, Sweden, Switzerland, UK, and USA. The workshop consisted of invited tutorials that were targeted at a level to bring together people from various disciplines, as well as invited talks, contributed talks, and contributed posters. A total of 42 oral and 17 poster presentations were given.

Sessions were arranged as follows: (1) Tutorials; (2) Precipitating Particle Sources; (3) EPP effects on the Thermosphere & Ionosphere; (4) Direct EPP effects on the middle and lower atmosphere; (5) Indirect EPP effects and atmospheric coupling, including climate effects; (6) Future measurements and aviation hazards; (7) Second HEPPA model/measurement comparison workshop.

Measurement capabilities continue to improve; presentations described the AARDDVARK network of ground-based sensors, the EISCAT-3D design concept for a new generation, large-scale incoherent scatter radar facility in northern Scandinavia, and several different techniques for measuring polar night nitric oxide, an important constituent in EPP/atmosphere interactions, from space. Improvements in modeling capabilities were also highlighted, including new parameterizations of ion chemistry, new treatments of energetic particles in global chemistry-climate models, and the ability to simulate specific particle events using input meteorological and particle forcing. Particularly impressive are comparisons between models and measurements from the MIPAS instrument, which has an advantage over other instruments for these types of investigations because of its polar night coverage and measurement of so many chemical constituents. An exciting aspect of HEPPA-2009 was a strong emphasis on atmospheric coupling, including such topics as the polar vortex, mean residual circulation, and gravity waves. Another topic that arose repeatedly was the presence of short-duration periodicities in geomagnetic activity and related effects, with periods that are factors of the 27-day solar rotation period; it is becoming more clear now that high speed solar wind streams play a fundamental role in controlling the effects of EPP on the atmosphere, at least during the declining phase of the solar cycle. New this year was a short session on aviation hazards; in a recent turnaround, it appears that investigators are now beginning to converge in their findings that energetic particle activity does not pose a significant radiation hazard to the general public.

HEPPA organizers received 1500 USD from IAGA, which was used to support participation of young scientists. Based on the success of these first two HEPPA workshops, we are planning a third workshop to be held in Granada, Spain in May, 2011.

After: *Cora Randall*

The 9nth International School on Space Simulation – ISSS9

The 9nth International School on Space Simulation – ISSS9 – held in the city of Guyancourt, in France, hosted by the University of Versailles-Saint Quentin, UVSQ, which provided a strong support, from July 3 to 10, 2009.

The aims of this School were to promote she numerical simulation of space plasmas and the result-

ing applications, to initiate and stimulate young scientists to this activity, to train them to the techniques of numerical simulation, to identify new and key issues in plasma physics, which cannot be worked out by only by experimental and theoretical approaches, to stimulate exchanges between young scientists and well known senior scientists.

167 scientists attendants were greeted, and a total of 224 participants (including teachers, space agencies representatives and others officials), coming from 26 countries throughout the world (USA, Japan, Germany, France, the Great Britain, China, India, … and also Korea, Taiwan, Chile, Argentine, Poland, Romania etc.). Among them 87 were students and young scientists less than 35 years old. 72 grants were attributed, amounting to more than 50 000 Euros.

ISSS9 was divided into 2 parts : i) A tutorial part, including tutorial conferences (8h40) and "hands on" training sessions (11h), Thec students were learned the elements of fluid, PIC, Vlasov, "delta f" and test particle codes. ii) A part dedicated to invited conferences dealing of the state of the art, new results, today and tomorrow issues. The needs of today were presented concerning the modelling of global systems, from the solar corona to the planetary environments, space whether, the dynamics of planetary environments, processes of mass ejection from the solar corona, the complex topology of magnetic field lines in dynamic situations. Emerging problems were stressed, related to the present and future multi-scale space missions. Presentations were dedicated to analysis methods for the smaller scale processes, including methods for analyzing turbulent cascades, the use of multifractal methods, and problems related to intermittency. Experimental results from the recent space missions like Cluster showed a renewed insight on reconnection processes. Simulations required by new technological challenges like the plasma and electric propulsion in space were presented. Also were presented new possibilities opened by the availability of powerful (petaflops) computers. Finally a presentation was dedicated to the working of virtual reality methods for the analysis of the simulation outputs. These sessions were complemented by a poster session where the younger scientists were invited to present their own research works. 98 posters were selected. A prize rewarding the few best posters was instituted.

ISSS issues are organized broadly every 2 years. Today several former students who had attended the first issues are presently well known scientists and were teachers for ISSS9. Our hope is that an informal community of scientists, who have attended one or several ISSS, sharing similar problematic, with their own original approaches, is gradually being constituted, and that ISSS is producing living science. ISSS9 had been sponsored by the Versailles-Saint Quentin University, IAGA, the URSI, CNES, CNRS, INSU, Urban community of Saint Quentin en Yvelines, the Ile de France Region, The General Council of the Yvelines Department, the University Community "PRES UniversSud Paris".

After: *H. de Feraudy*

IAGA2 - SOLAR WIND–SPACE ENVIRONMENT INTERACTION

http://iaga.cu.edu.eg

The meeting was held in Cairo, Egypt, December 4-8, 2009, with an attendance of 81 participants, from 22 countries. The goal of the symposium was the cooperation of scientists from different fields of solar-terrestrial and space research to discuss the solar wind and its effects on space weather. The symposium was focused on the fundamental problem of the solar wind (streams of slow and fast particles) and its related physical effects on the space environment, including the Earth's outer atmosphere and interplanetary space.

The presentations and discussions at this symposium were also focused on identifying the highest priorities needed for operational services that can guide future research and on identifying the new high-value capabilities that can be translated into operations. The symposium was divided into 7 half-day sessions, including invited speakers. The participants at this symposium discussed future contributions to the exploration of solar-terrestrial phenomena relevant to the subject of the confer-

ence. They consider it to be a historical lesson in solar-terrestrial physics that progress in understanding is achieved through combining new major instruments that bring breakthroughs in measurement strategy, along with monitoring observations made using small instruments. They recommended the installation of new neutron monitors in regions close to the equator, especially in Africa, which would cover a broad range of geographic longitudes from which such instruments are presently missing. In view of decreasing coverage in recent years, the conference participants recommended that Hα patrol instruments be established for observing both in the centre and in the wings of the line (Hα ± Å) with a cadence of at least one image per minute while aiming to cover all 24 hours of observing time each day. Also, they recommended studying the usefulness of small instruments like monitor energetic particles which can be launched as passengers on major satellites as well as developing innovative tools for monitoring the solar output.

In view of the decreasing coverage in recent years, the conference participants recommend that patrol instruments be established for observing both in the centre and the wings of the line, with a cadence of at least one image per minute at each wavelength, aiming to cover all 24 hours of observing time per day. They recommend studying the usefulness of small instruments which can be launched as passengers of major satellites, and developing innovative tools for monitoring the solar output. The participants agreed to send full papers for the Proceedings of the meeting within 3 months. Plans are for the Proceedings to appear during August 2010.

IAGA and IUGG grants ($4000) were distributed to 12 participants from the following countries: Austria, Brazil, Ethiopia, Egypt, France, India, Kenya, Russia, and Rwanda. The Symposium LOC chose the distribution of grants to participants from developing countries and to emeritus professors.

Because the minimum of solar cycle 23 is still not finished, which means that it is the deepest minimum in 100 years, the participants recommended that the next IAGA Symposium (IAGA3) be titled "Heliospheric physics during a deep solar minimum." The next IAGA Symposium would be held in Luxor, Egypt, in 2011. The French delegates offered to host the IAGA-4 meeting in Paris.

After: *Luc Damé, Ahmed Hady, Serge Koutchmy, Susan McKenna-Lawlor, Pierluigi Veltri*

REPORTS ON IAGA-SPONSORED PROJECTS/MEETINGS IN 2010

12TH "CASTLE MEETING" ON PALEO, ROCK AND ENVIRONMENTAL MAGNETISM

This meeting, held at Nové Hrady, Czech Republic, 29 August – 4 September, 2010, was already 12th in a series of biennial meetings, held since 1988. This time the meeting was attended by 69 active participants from 28 countries worldwide, who came along with 9 accompanying persons. Out of the 69 participants, the number of 16 PhD students, who presented their results, is in particular promising. Student presentations were evaluated by a board of 5 experienced researchers, covering all subject fields of the meeting. Posters and oral presentations were evaluated equally. At the official closing ceremony, 5 students got Certificate of Excellence for outstanding student presentation (Bucko M., Hlesinki, Finland; Fanjat G., Montpellier, France; Kind J., Zurich, Switzerland; Neres M., Lisbon, Portugal; Roszkowska-Remin, Warsaw, Poland).

Scientific program consisted of several blocks of oral presentations, each of them consisting of 4 talks, and 2 afternoon poster sessions. Altogether 50 talks were presented, complemented by 1 invited "out-of-scope" presentation on Orientation of animals by the Earth's magnetic field (Dr. P. Němec, Charles University in Prague). The sessions were chaired by two chair persons, one of them being as a rule a PhD student. During the two poster sessions, altogether 25 posters were presented, each of them being introduced by a short, 3-minutes oral introduction. In addition to the scientific program, a half-day tour to the region was performed. The tour

included **excursion** to a local brewery, one of the oldest in the Czech Republic, and a historical Chateau at Jindřichův Hradec.

IAGA financial support was provided to five participants (300 USD each) from Ukraine, Romania, China, Finland and Poland. Financial support, provided by the sponsors listed below, is highly appreciated, and contributed significantly to success of the meeting.

We intend to continue this tradition of biennial meetings, and the 13th meeting is planned in 2012 in Zvolen, Slovakia.

After: *Eduard Petrovský*

4TH VLF/ELF REMOTE SENSING OF THE IONOSPHERE AND MAGNETOSPHERE (VERSIM)

http://www.ufa.cas.cz/versim10/

This workshop of the URSI/IAGA Joint Working Group took place in Prague, Czech Republic, on 13-17 September 2010. The workshop was organized by the Institute of Atmospheric Physics, Prague, Czech Republic and by Charles University, Faculty of Mathematics and Physics, Prague, Czech Republic. The scientific sponsorship and financial support for this workshop has been provided by the IAGA and the Union Radio-Scientifique Internationale (URSI).

47 abstracts were received. They are listed online on the workshop website, together with an alphabetical list of authors. The workshop attracted 40 participants from 15 countries, ranging from New Zealand to Russia (ordered by latitude) including 9 students and young scientists under 35 from 5 countries.

VERSIM workshops are now a strong feature of the VERSIM community, which were well supported by the membership and included many very strong presentations. In his invited talk, Yoshiharu Omura described an exciting theory and simulations of VLF triggered emissions. His talk was followed by a session containing theoretical and experimental papers on triggered emissions and chorus with clear implications for the currently high-profile subject of acceleration and losses of energetic particles in the Earth's radiation belts. Another exciting invited talk was given by Andy Smith on extending continuous quantitative measurements of ELF/VLF noise at the Halley station in Antarctica. Much progress there has been since the first workshop in 2004. For example, data from the DEMETER satellite, which was newly launched in 2004, is now being used in a very large percentage of the talks at the 4th workshop. Janos Lichtenberger reported on the autodetection of tens of millions of whistlers, and his successes in developing an automatic whistler scaling technique. SAVNET (South American VLF Network) was being used to study solar flares and gamma ray bursts occurring thousands of light years distant. Another example is the WWLLN lightning location network. Craig Rodger reported that this network has over 50 operating stations, reporting 115.4 million lightning strokes in 2009.

There were 8 candidates for nomination for the IAGA Young Researcher Award, provided by IAGA as part of their support for the VERSIM Workshop. The 4th VERSIM workshop Scientific Committee recommended to the IAGA Executive Committee that Eva Macúšová (Czech Republic) should receive this award.

It has been widely accepted that following the strengths of our previous VERSIM workshops, there would be real value in a 5th VERSIM workshop. Jean-Pierre Raulin (Brazil) has invited the VERSIM community to meet in the state of Sao Paulo, Brazil in September 2012.

After: *O. Santolik*

Representation of the Auroral and Polar Ionosphere in IRI

A two-day session on the 'Representation of the Auroral and Polar Ionosphere in the International Reference Ionosphere (IRI)' was held during the 38th Scientific Assembly of the Committee on Space Research (COSPAR) in Bremen, Germany. IRI is the internationally recommended empirical model for the ionosphere. It is the result of a joint project of COSPAR and the International Union of Radio Science (URSI), and the general assemblies of these two organizations are the main venue for discussions of model performance, shortcomings, improvements, additions, applications and most importantly decisions regarding the next version of the model. These meetings are also the platform for initiating collaborative projects with the goal of future improvements of the model.

A total of 42 presentations were given which were grouped into 5 topical areas: IRI at High Latitudes, GNSS Observations and IRI, Representation of the Topside Ionosphere in IRI, Improving the Description of Solar Forcing in IRI, and New Inputs to IRI. A hallmark of IRI sessions is the wide variety of data sources used to check and improve the model. The Bremen meeting was no exception and included presentation that were based on satellite measurements from TIMED, TOPEX, Jason, GPS, COSMIC, CHAMP, Alouette, ISIS, ACTIVE, APEX, CORONOS-I, AE-E, AE-E, and OGO-5, and on ground based measurements from the global network of ionosondes, and on incoherent scatter radar observations from EISCAT, Kharkov, and Arecibo.

The majority of presentations were focused on the performance of the IRI model at high latitudes and possible improvements. A first step towards this goal is the introduction of auroral boundaries in the next version of the model, IRI-2010, based on the model developed by Yongliang Zhang and Larry Paxton (JHU/APL, USA) using TIMED-GUVI data. The next step now will be the representation of typical auroral characteristics like the density trough and temperature cusp. Another TIMED instrument, SABER, has provided Chris Mertens (NASA Langley, USA) with the database to develop an auroral E-region storm model which is also scheduled for inclusion in IRI-2010. Several years of continuous EISCAT measurements during the recent deep and extent solar minimum are a unique data source that has not yet been exploited for IRI modeling at high latitudes.

Presentations from this session will be considered for a special issue of Advances in Space Research. Papers from the previous COSPAR IRI session in Montreal, Canada in 2008 have just been published as Issue 8 in Volume 46 of Advances in Space Research. The term of office for COSPAR officials is limited to 8 years and the current team chairing the IRI Working Group had now reached this limit. Therefore election of a new leadership team was an important point on the agenda for the IRI business meeting. A new team was proposed and elected unanimously: Lee-Anne McKinnell (South Africa; Chair), Shigeto Watanabe (Japan; Vice-Chair for COSPAR), Vladmir Truhlik (Czech Republic; Vice-Chair for URSI). Three new members were elected: Claudia Stolle (Denmark), Ivan Galkin (USA), and Hanna Rothkaehl (Poland). The next IRI Workshop is scheduled for 10-14 October 2011 at the Hermanus Magnetic Observatory in Hermanus, South Africa. For the 2013 Workshop the IRI community has been invited to hold its meeting at the University of Warmia and Mazury in Olsztyn, Poland.

After: *F.-J. Luebken*

International EMSEV-2010 Workshop on Electromagnetic Studies of Earthquakes and Volcanoes

http://sites.google.com/site/emsev2010/

Following the 2008 EMSEV workshop and meeting held in Sinaia (Romania, September 7-12, 2008), the 2010 International EMSEV workshop was organized by Professor R.P. Singh at Chapman University (USA, October 3-6. The objectives of this workshop were to (1) discuss recent advances in studies of Electromagnetic (EM) phenomena related to earthquakes and volcanic eruptions, (2) promote new directions of research regarding the generation of EM fields, their relation to other geophysical data and extraction using different analysis methods, (3) encourage international cooperation re-

garding other pertinent studies (remote sensing, laboratory measurements, physical processes), and (4) to develop new EMSEV activities in developing countries.

About 55 participants from 12 countries (Japan, France, Italy, Romania, Poland, India, Russia, Ukraine, New Zealand, China, Mexico and US) attended the meeting. A total of 67 abstracts, presented in oral or poster sessions, were devoted to the following sessions: 'Seismicity, Geophysical and Seismo-electromagnetic studies; 2009 L'Aquila Earthquake and San-Andreas Fault', 'Electric, magnetic, and electromagnetic methods related to earthquakes, tsunamis, volcanic, landslides and geothermal activities', 'Techniques for Correction of EM data and Identification of EM Signals Associated with Earthquakes and Volcanoes', 'Generation and Propagation Mechanisms of EM signals and Laboratory Studies', 'Ionospheric and GPS studies associated with Seismo-electromagnetic Processes'. Following the sessions, a general discussion was opened on the reliability of EM pre-seismic and volcanic events, the different methods to track them, and the complementary of EM and other geophysical methods in the understanding of the physical processes involved in the preparation of earthquakes and volcanic eruptions. A discussion was also initiated on the communication and the responsibility between scientists and civil authorities. In addition to the workshop, a field trip along San Andreas Fault was organized by M.J.S. Johnston.

Following the Workshop, the XIII EMSEV business meeting was held during which: [1] activities and participation in international conferences during 2009 and 2010 were reported, [2] planned activities during 2011 and later years were discussed and organized. [3] Five years of successful cooperation with the Philippine Institute of Volcanology and Seimology (PHILVOCS) on the monitoring of the hazardous but sporadic activity of Taal volcano was summarized.

Agreement of the assembly was given to develop a new plan of EMSEV activity on the physics of EM signals related to earthquakes. A cooperative program was proposed with Bishkek Institute (Kygirstan) on understanding changes in electric conductivity structure associated with seismic activity using the Bishkek current ground injection system in central Asia.

After: *J. Zlotnicki, M.J.S. Johnston, T. Nagao, S. Uyeda, Y. Sasai, T. Liu, T. Harinarayana, R. P. Singh*

XIVth IAGA Workshop on Geomagnetic Observatory Instruments, Data Acquisition and Processing

The purpose of the XIVth IAGA Workshop on Geomagnetic Observatory Instruments, Data Acquisition and Processing, held in Changchun, China, 13-23 September 2010, is to examine the practical and theoretical challenges of observations of the Earth's magnetic field at Geomagnetic Observatories. The fundamental goal of the Workshop is the exchange of information, tools, and experience relating to the methodology of such observations. The Workshop has been divided into two parts: measurement sessions and scientific sessions. It also included lectures and training sessions related to magnetic observations. The Workshop was attended by approximately 80 participants with 43 participants coming from 19 countries outside China.

The Measurement Session was scheduled between 14-17 September. This was immediately followed by the Scientific Session in Changchun at the New Century Hotel from 19-22 September. Topics covered by both oral and poster presentations included magnetometer networks, observatory instruments and techniques, new observatories, data processing and distribution, data applications, as well as the future of magnetic observatories. Keynote addresses were given by Dr Peter Sutcliffe from HMO (Studies of geomagnetic pulsations using magnetometer data from the CHAMP low-Earth-orbit satellite and ground-based stations) as well as Dr Masahito Nose from the WDC Kyoto (Application of real-time geomagnetic field data at World Data Center for Geomagnetism, Kyoto).

As highlights from the Workshop we can cite: 1) Calculation of hourly mean values: Calculating hourly means from observatory 1-minute data, particularly when some minute data are missing, has

been a topic of heated discussion in recent years. As a general rule the average relative error for hourly means with 10% missing minute data is approximately equal to 10% of the hourly standard deviation of the source minute data. 2) Automatic DI Flux instruments: Due to the lack of magnetic measurements in remote regions, the geomagnetic community expressed a strong demand for automated absolute measurements to replace the manual operations associated with a DI flux theodolite. 3) Noise in observatory data: Since 2003, INTERMAGNET has been recommending that magnetic observatories produce vector data sampled every second, instead of every minute. The scientific motivations for this upgrade are mainly that: (a) there is a growing demand from the space physics community of one-second magnetic data at the global scale for studying ULF waves in the ionosphere and the magnetosphere; (b) observatory data need to be synchronized with magnetic data produced by low-Earth orbiting satellites such as Oersted and CHAMP, sampled at 1 Hz.

The financial support from IAGA was used for supporting international participants who had submitted financial support application according to the Application Criteria of the workshop.

The next workshop scheduled to be hosted by the San Fernando Magnetic Observatory in Spain in 2012.

After: *Zhongliang Wu*

6TH IAGA/ICMA/CAWSES WORKSHOP ON "LONG-TERM CHANGES AND TRENDS IN THE ATMOSPHERE"

The 6th IAGA/ICMA/CAWSES workshop on "Long-Term Changes and Trends in the Atmosphere" was held at the National Center for Atmospheric Research (NCAR) Center Green Conference Center, Boulder, Colorado, USA, June15–18, 2010. There were about 80 scientists and students around the world attended the workshop.

There were nearly 50 papers presented at the workshop. These papers covered the following research areas: solar and geomagnetic activity trends; statistical methods of trends; global pattern of trends; trends in the troposphere and stratosphere; trends and long-term changes in the mesosphere; trends and long-term changes in the thermosphere; ionospheric trends; vertical distribution of global change in the upper atmosphere coupled with global change in the stratosphere.

In conjunction with the TREND 2010 workshop, there will be a special section of the Journal of Geophysical Research. This will be a joint special section of JGR-Space Physics and JGR-Atmospheres. The title of the special section is "Long-term changes in the stratosphere, mesosphere, thermosphere, and ionosphere". The submission window is from September 10 to November 19, 2010. The lead editors are Robert Lysack (jgr-spacephysics@agu.org) and Steve Ghan (jgr-atmospheres@agu.org), and the guest editors are John Emmert (john.emmert@nrl.navy.mil) and Gufran Beig (beig@tropmet.res.in).

Financial support from IAGA, ICMA, as well as NCAR were used to support six scientists from developing countries to attend the workshop, in the form of round-trip air ticket, hotel accommodation, ground transportation between the Denver International Airport and hotels, and waive of workshop registration fee.

There was no nomination of a young scientist this year. There were only two speakers who were below 31 years old at the TREND2010 workshop. IAGA rules do not allow simply select the best one when competition was so small. The Program Committee considered the presentations by the two young scientists to be good and really interesting but not as outstanding as IAGA requests.

IAGA logo was used at the workshop and for all workshop related materials such as workshop poster, workshop website, and the printed workshop abstract book. As the workshop organizer, we greatly appreciate the financial co-sponsorship of IAGA which enabled more attendance from developing countries.

The 7th workshop on "Long-Term Changes and Trends in the Atmosphere" will be held in Buenos Aires, Argentina, 2012.

After: *Liying Qian*

20TH INTERNATIONAL WORKSHOP ON ELECTROMAGNETIC INDUCTION IN THE EARTH

www.mtnet.info

This workshop, hold Giza, Egypt, 18-24 September, 2010, offered a venue in which EM researchers from all over the world exchange results and new developments are presented. The workshop organized by the Working group I.2 of Division I, devoted to the Electromagnetic Induction studies. Initiated during 70's, it has been organizing international workshops every two years since then without a break. The workshops were held in different countries - both in developed and underdeveloped countries.

The 20th EMIW consisted of 9 scientific sessions organized by the program committee (PC) as shown in table 1 below. PC also decided to restrict the total time for oral presentations in favour for more time for posters and discussions. This allowed for a true workshop atmosphere. The maximum number of contributions were received for session 7 dealing with tectonic studies. A review paper, five oral presentations and 76 posters were discussed in this session, indicating that electromagnetic studies have a large potential for tectonic studies among other geophysical techniques.

Both oral and poster presentations were held at the event hall of Cataract pyramids resort. A total of 28 oral papers were presented in 9 oral sessions in addition to the 6 review talks. The poster sessions were held every day afternoon for the relevant morning oral session. The working group and PC considered poster presentations are equally important as orals. They actually give more importance to posters as it keeps the workshop atmosphere. All posters were displayed during the whole time of the workshop.

This workshop had been sponsored by (alphabetically) Gerald W. Hohmann Trust (GWHMT), International Association of Geomagnetism and Aeronomy (IAGA), International Group for Sciences and Environment (IGSE), International Union of Geodesy and Geophysics (IUGG), Geometrics, Geonics, KMS Technologies, Metronix, National Science Foundation of United States (NSF), Phoenix, Schlumberger and Zonge. Both LOC and IAGA WG I.2 appreciated the generous support of the sponsors that made it possible for the 49 scientists to attend the workshop.

There were two business meetings for the full members of the working group I.2 and two business meeting of the working group committee. The minutes of the two meetings are posted at MTnet web site, while the working group I.2 committee members are listed below.

Yasuo Ogawa, Chair, Japan, 2008 – 2012,
oga@ksvo.titech.ac.jp
Ian Ferguson, Co-Chair, Canada, 2008 – 2016,
ij_ferguson@umanitoba.ca
Nick Palshin, Publications, Russia, 2004 – 2016,
palshin@ocean.ru
Denghai , China, 2004 – 2012,
dhbai@mail.igcas.ac.cn
Gad El Qady, Egypt,2008 – 2016,
gadosan@yahoo.com
Sergio Fontes, Brazil, 2010 – 2018
sergio@on.br
Graham Heinson, Australia, 2008 – 2016,
graham.heinson@adelaide.edu.au
Gary Egbert, Funding Coordinator, U.S.A., 2008 – 2016, egbert@coas.oregonstate.edu
Svetlana Kováciková, Czech Republic, 2010 – 2018
svk@ig.cas.cz
Juanjo Ledo, Spain, 2004 – 2012,
jledo@ub.edu
K. Veeraswamy, India, 2008 – 2016,
kv.swamy@gmail.com
Ute Weckmann, Treasurer, Germany, 2008 – 2016,
uweck@gfz-potsdam.de
Observers - ex officio
Andreas Junge, Past Chair, Germany, 2008 – 2012,
junge@geophysik.uni-frankfurt.de
El Said Ahmed Chair, LOC past workshop (2010), Egypt, 2006 – 2012,
saidragab2001@yahoo.com

Graham Heinson, Chair, LOC next workshop (2012), Australia, 2008 – 2014,
graham.heinson@adelaide.edu.au
Oliver Ritter, Chair, LOC subsequent workshop (2014), Germany, 2010 – 2016,
oritter@gfz-potsdam.de
Observers – appointed,
George Jiracek, Funding Co-coordinator, U.S.A. 2010 – 2012,
jiracek@moho.sdsu.edu
T. Harinarayana, IAGA EC liaison, India, 2008 – 2012,
thari54@yahoo.com

After: *El Said Ahmed, Gad El-Qady*

IAGA Young Scientist Award 2009-2010.

Analysing the proposals received from different co-sponsored meetings and conferences by the IAGA, the following young scientists received the 2009-2010 IAGA Young Scientist Award:

Annika Seppälä - High Energy Particle Precipitation in the Atmosphere (HEPPA) Workshop

Klaus Reuter – Conference on Natural Dynamos

Joanna Roszkowska-Remin - 12th meeting on New Trends in Geomagnetism - Paleo, Rock and Environmental Magnetism

Gilda Currenti – International EMSEV-2010 Workshop on Electromagnetic Studies of Earthquakes and Volcanoes

Eva Macusova - 4th VLF/ELF Remote Sensing of the Ionosphere and Magnetosphere (VERSIM)

The EC decided to sponsor their participation in the XXV IUGG General Assembly, Earth on the Edge: Science for a Sustainable Planet, 28 June - 7 July 2011, Melbourne Convention & Exhibition Centre, Melbourne, Australia, with an amount covering the Student Registration of AU$550 and USD 400 for travelling support.

Deceased IAGA Scientists

Valery Troitskaya 1917-2010

Valery Troitskaya passed away in Melbourne, Victoria, Australia, on 22 January 2010, age 92. She was an eminent Russian scientist known internationally for her pioneering work in characterizing the natural oscillations of the Earth's magnetic field and their origin in the magnetospheric plasma surrounding the Earth. She accepted major roles in international science as a member of the IUGG Bureau from 1963 to 1967 and as the first woman president of IAGA from 1971 to 1975. In 1985 she was elected an Honorary Member of IAGA. She also made significant contributions to COSPAR and SCOSTEP. Within the International Council of Scientific Unions, she served from 1986 until September 1990 as one of the nineteen members of the first Steering Committee of the International Geosphere-Biosphere Program.

Born in Petrograd (now St. Petersburg) on 15 November 1917, she was widely talented, excelling in music, sport and languages. As well as her native Russian she was fluent in French, German and English, giving her easy access to the scientific literature and dialogue with international colleagues.

At age 23, Valery graduated from Leningrad State University with a master's degree in geophysics. In 1950 she enrolled as a graduate student at the Institute of Physics of the Earth, in Moscow where she studied naturally occurring ultralow-frequency (ULF) sinusoidal variations of the geomagnetic field with periods of about 1 second to 10 minutes re-

corded on special magnetograms. In 1953 she obtained her PhD for her studies of these magnetic pulsations, then called geomagnetic micropulsations. She pursued her career at the Institute of Physics of the Earth until 1989 and for the last 27 years served as chair of the Electromagnetics Department.

Realising that a key to understanding ULF waves was to determine their spatial and temporal properties, Valery established a network of magnetic observatories across Russia and in the Arctic and Antarctica. She developed joint programs with Germany, Finland, England, United States, Japan, Hungary, India, Cuba, Czechoslovakia and Australia. She also had collaborations with French scientists which notably included the study of conjugate points in the northern and southern hemispheres and an expedition in which she was the first woman to venture in the French bathyscaphe, 'Archimed' and in which she measured geomagnetic fluctuations at the bottom of the Mediterranean Sea, at a depth of 2,600 metres. From her global studies of pulsations she developed a nomenclature for different types of ULF waves that was formally established in the paper by J. A. Jacobs et al., Classification of geomagnetic micropulsations, J. Geophys. Res., 69(1), 180, 1964).

In her roles with IUGG and IAGA she was very active in facilitating communication between Soviet scientists and their international colleagues. Valery's career was distinguished not only by her original scientific discoveries but also by her outgoing personality and her mentoring of younger scientists world-wide. She had a particular skill in encouraging and challenging younger scientists, both experimentalists and theorists, to investigate the important unsolved mysteries of magnetic field fluctuations. Through these associations she developed many lifelong friendships with scientists in many countries.

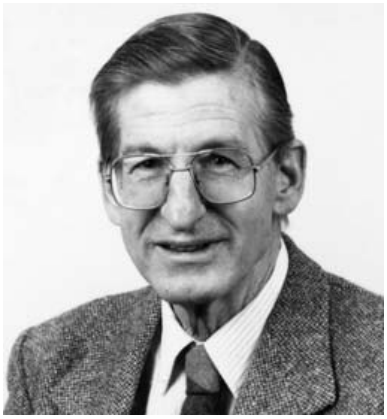
The significance of Valery's contribution to magnetospheric physics was highlighted in 1996 when a special symposium, entitled "ULF Waves: A Tribute to Valeria Troitskaya" was held at the AGU Spring Meeting to honor her in anticipation of her eightieth birthday.

In 1945 Valery married Alexander Waisenberg, a well-known nuclear physicist and twins Katia and Peter were born in 1946. Alexander died in 1985. In 1989 she married the well-known scientist Keith Cole. Keith also had been president of IAGA and was a professor at La Trobe University in Melbourne, Australia. Keith and Valery traveled and worked together in many parts of the world, including extensive stays at NASA Goddard Space Flight Center. Eventually they settled in Melbourne.

Valery is buried in Washington, D. C., in Rock Creek Cemetery near where her daughter Katia Nazarova lives.

Em Prof Peter Dyson, La Trobe University and Katia Nazarova (Retired) Raytheon ITSS/NASA Goddard Space Flight Center, Planetary Geodynamics Laboratory, Greenbelt, Md.

KEITH COLE 1929 – 2010



Keith Cole passed away in Melbourne, Australia, on 13 December 2010. He grew up in Cairns in Queensland and received BSc. (Hons) [1952]; DipEd [1953]; MSc [1954] and DSc [1967] from the University of Queensland. After a short time as a secondary school teacher, in 1956 Keith was appointed Auroral Physicist on the Australian Antarctic National Research Expedition to Macquarie Island and so began his life-long research into the aurora and other solar-terrestrial phenomena. After the year-long expedition he took up a position as a theoretical physicist with the Australian Antarctic Division where he remained until 1962 when he was sec-

onded to the CSIRO Upper Atmosphere Section, headed by D. F. Martyn.

After periods at University of Chicago and University of Colorado as a Research Associate, in 1966 Keith took up his appointment as a Foundation Professor of Physics at La Trobe University in Melbourne, Australia. By this time he had established himself as a leading theorist in solar-terrestrial physics having shown that red arcs and the predawn enhancement are produced by thermal conduction from above, and having made significant advances in our understanding of geomagnetic storms and particularly the ring current. In 1962 he proposed that the ionosphere is heated via Joule heating, a phenomena now known to be a major energy source for the ionosphere and thermosphere at high latitudes.

He formed the Theoretical and Space Physics Group at La Trobe which he headed until his retirement. Under Keith's leadership the group built the Beveridge Field Station north of Melbourne and developed radio, optical and magnetic instruments for use at Beveridge and at Australian Antarctic Stations. These instruments were used to study a wide range of phenomena in the ionosphere, thermosphere and magnetosphere. Keith also continued his theoretical research into geomagnetic storms, ionospheric irregularities and other phenomena in the magnetosphere-ionosphere system.

Keith did not confine himself to his own research interests and those of his many postgraduate students. He also made major contributions to the organisation of science both nationally and internationally. He served IAGA as Vice-President [1976-79] and President [1980-83] and was President of SCOSTEP [1977-86]. In these roles he was a vigorous promoter of international scientific programs, so essential for the study of global scale phenomena.

At La Trobe Keith served terms as Head of Physics and Dean of the School of Physical Sciences. Nationally, he was a very active Fellow of the Australian Academy of Science, serving as Foreign Secretary, Council Member and chair of committees including the National Committee for Solar-Terrestrial Physics. These roles also provided avenues to promote participation by Australian scientists in international programs including the important ICSU International Geosphere-Biosphere Program.

Keith was an outstanding colleague and mentor for many people around the world. He was a person of ideas and was popular as an invited speaker as he would provide a fresh view on topics and challenge people with new ideas.

He received many honours recognising his contributions to science, including: the Union of Radio Science International (URSI) Appleton Prize for "Contributions to the understanding of the basic processes taking place in the magnetosphere and the ionosphere," Life Membership of SCOSTEP, Honorary Membership of IAGA, Fellowships of the Australian Academy of Science, the Australian Institute of Physics, the Institute of Physics (UK), the Indian Institute of Geomagnetism, the Explorers Club of New York, and Associate of the Royal Astronomical Society, London.

Keith's scientific legacy will live on through his contributions to the basic science of solar-terrestrial physics phenomena and through the many colleagues and students he influenced throughout his career.

Keith married Ailsa Moore in 1956. The marriage ended in divorce in 1981. In 1989 he married Valery Troitskaya who has also been president of IAGA. They settled in Melbourne near La Trobe University where Keith was Professor of Physics. Keith is survived by his son David.

Em Prof Peter Dyson, La Trobe University.

General Information about IAGA

The International Association of Geomagnetism and Aeronomy is one of the eight Associations of the International Union of Geodesy and Geophysics (IUGG).

The other IUGG Associations are:

- International Association of Cryospheric Sciences (IACS)
- International Association of Geodesy (IAG)
- International Association of Hydrological Sciences (IAHS)
- International Association of Meteorology and Atmospheric Sciences (IAMAS)
- International Association for the Physical Sciences of the Oceans (IAPSO)
- International Association of Seismology and Physics of the Earth's Interior (IASPEI)
- International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI)

IAGA's Mission

The overall purpose of IAGA is set out in the first statute of the Association:

- to promote studies of magnetism and aeronomy of the Earth and other bodies of the solar system, and of the interplanetary medium and its interaction with these bodies, where such studies have international interest;
- to encourage research in these subjects by individual countries, institutions or persons and to facilitate its international coordination;
- to provide an opportunity on an international basis for discussion and publication of the results of the researches; and
- to promote appropriate standardizations of observational programs, data acquisition systems, data analysis and publication.

(Link to the complete IAGA Statutes and By-Laws.)

Scientific Assemblies

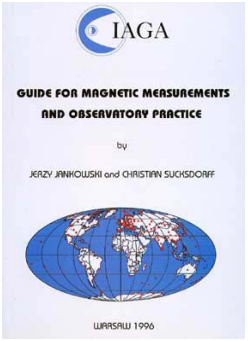
IAGA holds an Ordinary General Assembly every four years in conjunction with each Ordinary General Assembly of IUGG. Between the General Assemblies, IAGA holds a Scientific Assembly, often meeting with one of the other Associations of IUGG.

Participation in IAGA Activities

IAGA welcomes all scientists throughout the world to join in research into Geomagnetism and Aeronomy. IAGA is subdivided into a number of Divisions and Commissions, many of which have working groups for the study of particular subjects in their general areas of interest. On occasion, these internal IAGA groups issue their own newsletters or circulars and many maintain their own web sites. At the IAGA Assemblies, the groups organize specialist symposia, invite scholarly reviews and receive contributed papers that present up-to-the-minute results of current research. The IAGA web site gives, or provides links to, information on the range of IAGA activities.

IAGA Guides

IAGA has published three practical guides to observation. These may be ordered from the Secretary General and they are also available at the IAGA web site.



IAGA Guide for Magnetic Measurements and Observatory Practice by

J Jankowski and C Sucksdorff, 1996

232 pages
ISBN: 0-9650686-2-5, Price: USD 50

This Guide provides comprehensive information about how to organize and run a magnetic observatory and make magnetic measurements.

The main topics are:

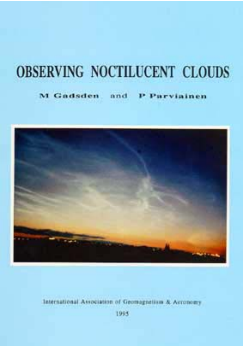
- A brief description of the magnetic field of the Earth
- Selection of observatory sites and layout
- Magnetometers
- Absolute magnetic measurements
- Recording of magnetic variations
- Data processing
- Testing and calibrating instruments

IAGA Guide for Magnetic Repeat Station Surveys
by L.R. Newitt, C.E. Barton, and J. Bitterly, 1997

120 pages
ISBN: 0-9650686-1-7

Price: USD 25

This Guide provides a comprehensive description of the theoretical basis, operational details, and instrumentation for making magnetic repeat station survey measurements.



IAGA Guide to Observing Noctilucent Clouds by M Gadsden and P Parviainen, 1995

ISBN: 0-9650686-0-9

Price: USD 25

This manual and instruction book was written by a group of active researchers, both professional and amateur. There are chapters giving practical advice for taking visual observations, photographing the clouds with film or with video equipment. A summary of observations from space is included, as well as comments on the connection between noctilucent clouds, seen from the ground, and the polar mesospheric clouds that so far have been measured only from orbit. Noctilucent clouds are seen in the summer months, shining in the poleward sky at night-time. Measurements show that the clouds are higher than any others. Lying at a height of 80-85 kilometres, the clouds mark a boundary between meteorology and space physics.

This book is beautifully illustrated with photographs, and will help everyone recognize and appreciate these "sailors in the summer night."

This guide is out of print but it is available at the web site using the link ONC.

(Prices do not include shipping and handling.)

IAGA News

IAGA News contains items of general interest to the IAGA community. Beginning with Issue 40, the method of distribution for IAGA News is by e-mail and via the IAGA web site.

Requests to publish short articles, reports and announcements in IAGA News should be sent to the Secretary General.

IAGA Flyer

A flyer summarising IAGA scientific interests and activities is available in *pdf* format from the IAGA web site (click image below).

THE IAGA WEB SITE

Information on IAGA can be found at:

http://www.iugg.org/IAGA/

CONTACTING IAGA

The Secretary General is the main point of contact for all matters concerning IAGA:

Mioara Mandea

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