



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

IAGA ON THE WEB

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

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Foreword



This issue of IAGA News contains information about the preparations for the XIth Scientific Assembly of IAGA to be held in Sopron, Hungary, on August 23-30, 2009 and news from the meeting of the Executive Committee in 2008 or from other sources. You will also

find a message from the IAGA President, activity reports, information about 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 is then referred to the IAGA website (www.iugg.org/IAGA/) for more details.

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 may not be on our distribution list. If you are uncertain, it is better that they get double copies of IAGA News than none. National policy makers and leaders, whose decisions affect the activities of IAGA scientists also should be informed about IAGA so, please, forward IAGA News to such persons in your country as well.

Bengt Hultqvist
Secretary General

Message from the President: *Science and Society*



I was tempted to call this message "Science *for* Society" in line with the current trend within various science communities to demonstrate the benefit to society of their specific disciplines. But immediately I realised that this phrasing is marked with a definition of science as just providing solutions to the

problems identified by society. Science certainly has that aspect also, but science is much more. In particular science is about an open exchange of views and ideas not impeded by politics. History has demonstrated that advancement of science is intimately connected to a continual dialog between competing views based on experimental and/or observational facts.

During the last year climate science has become an increasingly hotter topic in the public debate and among politicians. Awarding Al Gore and the Intergovernmental Panel on Climate Change (IPCC) the Nobel Prize a year ago obviously had a big impact in the public. Although not a science prize, in the media it was generally regarded as the final acceptance of the climate model projections of future climate. The debate is over; it was said over and over again.

What is meant but not always clearly expressed is that the political debate is over. With the current uncertainty and the future risks expressed by the climate community the politicians decided they had sufficient information to act. In particular because actions in form of a major push of research into new technologies for power generation, energy storage and transportation is a rational and beneficial policy, regardless of any climate projection.

However, as scientists, we should be the last to confuse politics and science. As long as we see the advancement of science, the scientific debate will and must continue. The Earth's climate is a complex physical system involving a number of different scientific disciplines, spatial regimes, and feed-back mechanisms including the oceans, land vegetation, the atmosphere, and the cryosphere. And possibly also the upper atmosphere and even particles from space play an important role.

To understand such a complex system we need to rely on complicated physical and mathematical models like the General Circulation Models (GCMs). But we must never forget that models cannot possibly include Nature's entire plethora of physical processes. And we must never forget that only experiments and observa-

tions can provide the means to decide, which models are right and which models are insufficient.

This is exactly what our science is all about.

Best wishes to everyone for 2009.

Eigil Friis-Christensen
President

New Member of the Executive Committee

In November 2007 Vladimir Papitashvili had to resign from his membership in the Executive Committee of IAGA as a consequence of having accepted a permanent position as a Program Director in the U.S. National Science Foundation, which might lead to conflicts of interests.

The Executive Committee appointed in his stead Daniel Baker, Director of the Laboratory for Atmospheric and Space Physics at the University of Colorado, USA, as a member of the Committee up to the next election in 2011.

Preparations for the XIth IAGA Scientific Assembly

Time and Place

The XIth Scientific Assembly will take place in the old university town Sopron in westernmost Hungary between August 23 and 30, 2009. The scientific sessions will be held on Monday to Saturday, August 24-29. Registration and all lecture and poster halls are situated within five minutes by foot from each other in the western part of the beautiful horseshoe-shaped old town, which is also downtown of Sopron and "Sopron Downtown Convention District". Headquarters, with registration, opening and closing ceremonies, Association lectures and part of the sessions, will be in the Liszt Ferenc Conference and Culture Centre.

Local Organising Committee

The Local Organising Committee (LOC) is chaired by László Szarka, Director of the geophysical section of the Geodetic and Geophysical Research Institute of the Hungarian Academy of Sciences in Sopron. Technical organiser is Attila Varga of the Diamond Congress Ltd. In Budapest. There are three co-chairs: Gabriella Sántori, Viktor Vesztergom and Bertalan Zieger. Márta Toth is treasurer. Further members are: József Bór, Géza Erdős, Tilda Fleishhacker, Gábor

Hatos, Balázs Heilig, Károly Kis, Árpád Kis, János Kiss, András Koppán, Károly Kecskeméty, Károly Kovács, Alpár Körmendi, István Lemperger, Janós Lichtenberger, András Ludmány, Dániel Martini, Emő Márton, Tamás Nagy, Attila Novak, Tímea Prodan, Sándor Pusztai, Krisztina Rokob, Sándor Szalai, Judit Szendrői, Mariella Tátrallyay, and Zoltán Vörös.

There is also an Advisory Committee consisting of Hungarian scientists.

The address to LOC is: IAGA 2009 LOC (MTA GGKI), H-9400 Sopron, Csatka u. Hungary (H-9401 Sopron, POB 5, Hungary).

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website

www.iaga2009sopron.hu

Scientific Programme

The scientific programme contains 56 symposia covering all parts of the IAGA sciences. Descriptions of the symposia and information about abstract submission, registration, visa and many other things can be found in the Second Circular from LOC at the above web site for IAGA 2009. There will be oral sessions between 0830 and 1200 and between 1330 and 1700. Poster sessions will be between 1700 and 1900.

Two Association Lectures, for all participants, will be given in the mornings of Wednesday and Thursday on –Magnetic Anomalies– and –The Mesosphere as a Link in Sun-Climate Relationships– respectively.

Other Meetings during the Assembly

The Conference of Delegates will meet on Monday and Friday and the Executive Committee will meet four times during the week.

All Working Groups and the Divisions and Commissions will hold their business meetings during the week of the Assembly. Because of the few days available, most working group business meetings will take place during lunch breaks and the participants in the lunch business meetings will be provided with free sandwich lunches. Another result of the short time available is that opening and closing ceremonies will take place in the evening, at 1900 on Monday and Saturday, respectively. On Monday at 2000 there will be a welcome reception and on Thursday evening a banquet.

Publication of the Results

The Springer publishing company has proposed to publish five books covering the outcome from the fields of the five Divisions at the IAGA 2009 Scientific Assembly. The Executive Committee has decided to negotiate an agreement with Springer about such a publication project. The books will not be just proceedings of the invited and contributed papers but they will contain a selection of papers presented and summaries of the majority of papers written specially for the books. The head-editors, who will be responsible for the planning and production of the five books, will be:

for Division I: E. Petrovsky and T. Harinarayana

for Division II: M. Abdu and D. Pancheva

for Division III: W. Liu and M. Fujimoto

for Division IV: M. P. Miralles and J. S. Almeida

for Division V: M. Manda and M. Korte

Report From the Meeting of the Executive Committee in July 2008

IAGA Awards

Besides the most distinguished IAGA award, **Honorary Member of IAGA**, which is decided by the Conference of Delegates, the Executive Committee of IAGA at present can give out two kinds of awards, The **Long-Term Distinguished Service Medal**, which is intended for persons who are not in a scientific career but have served IAGA sciences in technical or managerial positions, such as operators of magnetic or other geophysical observatories, and **Young Scientists Presentation Award**, which is presented to young scientists (below 30) who have given an outstanding presentation at an IAGA-sponsored topical meeting of a paper where they are the first author about a research project in which they have played a major role. It consists of economic support for attending the next IAGA assembly.

The Executive Committee has for some time considered the establishing of a new medal for scientific service to IAGA. At this meeting the EC, however, decided to give up these plans because of the problems foreseen in selecting the right awardees among the large number of prominent IAGA scientists. Instead the EC decided to consider an award for interdisciplinary work.

Selection of Host Country for IAGA Scientific Assemblies

Because of the experience of the problems to uphold the policy to hold about every second scientific assembly in developing countries and the general unpredictability of the outcome of the voting by the Conference of Delegates, it was agreed to change the way the location of IAGA scientific assemblies is decided in such a way that only one location is presented to the Conference of Delegates, closely following the procedure IUGG has recently decided for the IUGG General Assemblies.

IAGA web site

The President and the National Space Institute of the Technical University of Denmark are taking over as custodian of the IAGA web site. A first version of the new web site is up for discussion and improvement. The President will look after the content and the maintenance.

Sun-Climate Relationships

The Executive Committee concluded after a discussion that IAGA is the proper international organization for handling the subject Sun-climate relationships. A committee of independent scientists will be set up to evaluate the present knowledge of Sun-climate relationships. It was also concluded that it is important for the future of IAGA to be visible on societal matters like the one of Sun-climate relationships.

IAGA Inter-Divisional WG for Education and Outreach

The first Chair of the IDWG EO, Emily CoBabe-Ammann in Boulder, has asked to be replaced as chair of the working group. Larry Newitt in Ottawa has accepted to be the new Chair.

Eduard Petrovsky and Charlie Barton have agreed to assist the ICWG EO in contacting organizers of IAGA-sponsored topical meetings about outreach activities in connection with the meetings.

eGY

The Executive Committee of the International Union of Geodesy and Geophysics (IUGG) decided at a meeting in August 2008 to establish a Union Commission on Data and Information (UCDI) which will continue and develop at union level the activities which

have been conducted by eGY, initiated by IAGA in Sapporo in 2003.

At the meeting in July 2008 the IAGA Executive Committee concluded that IAGA has done well by starting eGY and is well located for keeping an important role as the international work on data management is continued within IUGG, ICSU and otherwise. The positive development hitherto is due to efforts of many people but primarily those of Charlie Barton, Peter Fox and Bill Peterson. IAGA should try to keep a lead in this field.

New Database

A new database for paleointensity data has been established recently. It is named PINT08. Its characteristics and ways of reaching are as follows:

- Contains all published absolute palaeointensity data with ages older than 50 ka (3,360 site mean measurements).
 - Newly updated with 681 data published in period 2003 – 2008 by Lisa Tauxe and Andy Biggin.
 - Available for download as MS Excel file from Andy Biggin's homepage:
<http://www.geo.uu.nl/~forth/people/Andy/Andy.htm>
 - Data with ages younger than 50 ka now in GEOMAGIA50 database:
<http://data.geophysics.helsinki.fi/archeo/>
 - All data in process of being uploaded to the MagIC database <http://www.earthref.org/MAGIC/> so that there will be simultaneous data repositories.
-

Anniversary in Addis Abbeba

An International Scientific Conference to mark the 50th Anniversary of the Founding of the Geophysical Observatory of Addis Ababa University was held in Addis Ababa, 1-2 November 2007. The Observatory now has geomagnetism, seismology and GPS instruments, and the IGS permanent GPS station was inaugurated during the meeting. Out of 30 oral presentations, a good number were given by international participants, mainly from Europe and North America, but also from elsewhere in Africa and Australia. The theme of the technical sessions of the conference was the Geodynamics of Afar and the Ethiopian rifts: Geophysics, Geohazard Challenges and Resources, and the keynote address was given by the Minister for Mines and Energy. There were some presentations not directly related to the conference theme, especially those concerned with the geomagnetic observatory activity. Prof Paul Mohr was due to speak about the early years of the Observatory, and Prof Pierre Gouin S.J., foun-

der and first director, but had to return to Ireland for family reasons. However, Ms Frances Williams gave his presentation and also shared her reminiscences of working with Prof Gouin. Dr Arnaud Chulliat spoke about the Addis Ababa INTERMAGNET magnetic observatory, and Prof Kathy Whaler about the contribution of the Addis Ababa geophysical observatory to geomagnetism. Following the conference, there was a very enjoyable 2 day field trip into the Ethiopian rift, including an overnight stay at the hot springs of Sodore.

Deceased IAGA Scientists

Roy Piggott

It is with great sadness that we announce the death in Cambridge on Tuesday 20 May of Roy Piggott at the age of 93. Piggott, as he was known to most of his colleagues, made many and varied contributions to ionospheric physics. He started as an assistant to Sir Edward Appleton in the 1930s and did much original radio physics research during the Second World War. In the immediate post-war era, he played a major role in establishing the German ionospheric research at Lindau, and for this clandestine operation he was awarded the Order of the British Empire.

Perhaps Piggott will be best remembered for writing, with Karl Rawer, the definitive handbook on the interpretation of ionograms, and for his leadership in Antarctic ionospheric research. Piggott was the prime mover in establishing the ionospheric observatory at Halley Bay in the International Geophysical Year, (1957-1958) and provided oversight of the programme for the next two decades. Latterly he was Head of Atmospheric Sciences at the British Antarctic Survey.

Piggott was unfailingly generous with his time, scientific insight and ideas. He will be remembered by his many friends and colleagues on every continent for his kindness, patience and skill as a mentor and advisor.

Everybody whose lives have been touched by Piggott has their own particular story about this lovable archetypal British eccentric. He was universally highly respected, and will be sorely missed by colleagues around the world. Piggott will live on through his humanity and his legacy to ionospheric physics.

Alan Rodger

Peter Malcolm Mc Gregor

Australian geophysicist, Peter Malcolm McGregor, passed away on 18 March 2008, aged 79, from the secondary effects of cancer. He had been active in

observatory geophysics, particularly in geomagnetism and seismology, throughout his career.

Peter's first job on graduating from the University of Western Australia in the late 1940s was at the remote Watheroo observatory in southwest Western Australia. Originally established in 1919 by the Carnegie Institution of Washington, in July 1947 the observatory was transferred to the Australian Bureau of Mineral Resources (BMR) and had a program of geomagnetic, geoelectric, ionospheric, atmospheric and solar observations. By 1958 Peter had become its Observer in Charge.

He was later instrumental in moving observatory operations from their remote Watheroo site to a new site on the outskirts of Perth. The new Mundaring Geophysical Observatory was commissioned in 1959 with Peter its inaugural OIC. Its program consisted of geomagnetic, seismological, and ionospheric observations.

In 1968 Peter and his young family moved across the country to Canberra where Peter took charge of the BMR's observatory program, which at that time comprised observatories at Gngara (Western Australia), Toolangi (Victoria), Port Moresby (Papua New Guinea), Macquarie Island and Mawson (Antarctica). Under Peter's care, over the ensuing 20 years this network grew and its technology changed from photographic recording to digital data acquisition. Today the Australian geomagnetic observatory network consists of 9 observatories – 6 in Australia and 3 in Antarctica.

Between 1977 and 1986, Peter represented Australia with distinction on the UN Group of Scientific Experts which devised an international verification system for the UN Comprehensive Nuclear-Test-Ban Treaty. This treaty was adopted in 1996 and is an important deterrent to the proliferation of nuclear weapons.

Peter was instrumental in establishing Australia's observatory program in the Antarctic. He wintered at Macquarie Island in 1952 and Mawson in 1956. At Macquarie Island, geomagnetic measurements had been made sporadically since Sir Douglas Mawson's 1911 Australasian Antarctic Expedition. Peter established regular observatory operations there in April 1952. At Mawson, geomagnetic field recording had begun in 1955 using buildings relocated from the magnetic observatory at Atlas Cove on Heard Island. Macquarie Island and Mawson are today the longest serving Australian geomagnetic observatories.

Peter was a talented Australian Rules footballer in his younger years, a sport he took up at high school. His enthusiasm for the game remained with him throughout his life. He also loved the adventure of travel to out of the way places, whether through the forests of southwest Western Australia on his Indian motorbike in the 1940s, on remote fieldwork in the Antarctic, or to historic outback Australian pubs off the beaten track in his trusty 4-wheel-drive after his retirement.

Peter was a passionate scientist, a dedicated family man, great company in an Antarctic blizzard, keen sportsman, and connoisseur of fine beer. He has left an enduring legacy for Australian and international observatory geophysics.

Adrian Hitchman

Richard Doell

Richard Doell, a distinguished USGS scientist (retired), died in his sleep on March 6, 2008, at his home in Point Richmond, California, following a series of grave illnesses.

Born in Oakland in 1923, Richard grew up in Carpinteria, California. After serving for 2 years as a combat infantryman during World War II, he resumed his studies at UC Berkeley, where he earned his doctorate in geophysics in 1955. Following graduation Richard held teaching positions at the University of Toronto and MIT. Richard joined the USGS Geophysics Branch in Menlo Park, California in 1959 where he specialized in research on the earth's magnetic field and remnant magnetism in rocks. He was an integral member of a team that presented convincing evidence of periodic polarity reversals of earth's main magnetic field by analyzing magnetization of rock samples collected from widely separated, geologically young, volcanic sequences. Furthermore, isotopic dating of the rock samples provided the first time scale of polarity epochs for the last 3.2 million years (Cox, Doell, and Dalrymple, 1963). The timed sequence of reversals, with subsequent refinements by this USGS team and others, proved to be a major component of the plate tectonics revolution in the mid to late 1960s. It not only provided the basis for confirming the hypothesis of sea floor spreading, but it also was a technique for quantifying rates and amounts of crustal plate movements on a global scale.

For his numerous unique pioneering scientific contributions and leadership, Richard Doell was elected to the National Academy of Sciences in 1969 and he shared the prestigious Vetlesen Prize with Allan V. Cox of the USGS and S. Keith Runcorn in 1971. Richard served as President of the American Geophysical Union's section on Geomagnetism and Paleomagnetism from 1968 to 1970 and as Chief of the Geological Survey's Branch of Theoretical Geophysics from 1967 to 1971.

In 1978, Richard retired from the USGS to pursue his passions for the new field of environmental studies, sailing, exploration, and photography. Having built a 38-foot sailboat, he began a series of long sailing cruises to Alaska, French Polynesia, and northern Europe. In 1984 he married Janet Hoare who joined him on those voyages. Since 1993 he devoted much of his time to photography, specializing in the photogra-

phy of lichens as an active member of the California Lichen Society.

He was a gentle, soft-spoken person who was equally at home in the laboratory inventing and building equipment for paleomagnetic analysis or working in remote field localities to collect the critical rock samples to be analyzed. He thoroughly enjoyed opportunities to join with friends and colleagues for story-telling, food, and drink. On these occasions his innate modesty invariably precluded mention of his own numerous and diverse accomplishments.

Richard is survived by his wife Janet Doell and daughters Kerstin Doell of Seattle and Shirley Doell of Point Richmond, California, and by a large family of devoted stepchildren, grandchildren, and great-grandchildren. He will be greatly missed.

Peter T. Lyttle

Norbert Bonhommet

Norbert Bonhommet (born in 1936), who discovered the Laschamp's event, passed away on December 8, 2007 after a very lengthy disease.

Norbert began his work in Paleomagnetism in the laboratory of Professor Roche at Strasbourg. He discovered the Laschamp's event during his detailed study of the secular variation of Earth's magnetic field recorded by recent lava flows of the Chaîne des Puys (France) at the end of the sixties. After a stay in the United States at the beginning of the seventies, Norbert Bonhommet built the Paleomagnetic laboratory of the University of Rennes 1. There, in collaboration with the geologists from Rennes, he directed the studies of the apparent polar wander path of the Armorica plate.

At the beginning of the Eighties, the reality of the Laschamp's event was called into question by observations of self-reversal in some samples of the Olby flow and by the difficulty to recognize the short event in some sedimentary records. Norbert started again working on secular variation, excursions, reversals and absolute paleointensity determinations conducted on lava flows. The reality of the Laschamp excursion was later definitively confirmed by further studies in Rennes and other laboratories.

The first signs of his terrible disease led Norbert to have an early retirement and leave the scientific community several years ago. Norbert was a rigorous scientist of a great kindness in the everyday life at the laboratory. We are particularly grateful to him, who opened us the door of his laboratory, and gave us the opportunity to undertake scientific researches. Our thoughts go out to his wife, Micheline who helped Norbert during these difficult years and to their children.

Annick Chauvin , Pierrick Roperch

Jean-Paul Villain

I am very sad to report the death of Jean-Paul Villain, a founder and one of the Principal Investigators of the international SuperDARN Radar Network. Jean-Paul died of cancer in his abdominal cavity on January 9, 2008, a condition of which he became aware last summer. His doctors attempted to treat the disease with chemotherapy and other techniques, but were unsuccessful. He is survived by his wife Maryannick, his daughter Segolene, and his sons Jean-Baptiste and Antoine.

During his life, Jean-Paul made many significant contributions to radar remote sensing of the upper atmosphere and ionosphere. I first became acquainted with him in the late 1970s at the Max Planck Institute for Aeronomy, where he held an Alexander Von Humboldt postdoctoral fellowship and worked with me on data from the STARE radar experiment in northern Scandinavia. Later, in collaboration with his colleague, Dr. Christian Hanuise, he was amongst the first to use HF radar technology to study plasma instability processes in the high-latitude ionosphere. When I decided to follow the French lead and construct HF radars in Alaska and Goose Bay, Labrador, Jean-Paul helped by developing the first multipulse sounding codes for HF radars at high latitudes. Later, he visited JHU/APL and used data from the Goose Bay and Schefferville, Quebec (French) radars to identify the electrostatic ion cyclotron instability as a source of high-latitude ionospheric irregularities.

In the early 1990s, Jean-Paul and another French colleague, Jean-Claude Cerisier, were founding members of the SuperDARN radar network. They agreed to construct a radar in Iceland that would pair with the existing JHU/APL Goose Bay radar and they worked together to identify the site and acquire the necessary funding. Jean Paul became the Principal Investigator for this facility, which is located near Stokkseyri, Iceland and has contributed significantly to the success of the northern hemisphere component of SuperDARN.

Subsequently, Jean-Paul collaborated with Dr. Ermanno Amata (IFSI-Italy) to construct another SuperDARN radar on Kerguelen Island in the southern Indian Ocean. Jean-Paul was also the Principal Investigator of this radar which began operation in 2000. At the time of his death, Jean-Paul was collaborating with Dr. Amata to deploy two additional SuperDARN radars at Dome C in Antarctica. It is hoped that the ongoing SuperDARN radar activities at Stokkseyri, Iceland and Kerguelen Island as well as the planned radar deployment at Dome C will not be adversely affected by Jean-Paul's untimely passing.

The international SuperDARN community is in great sorrow over the loss of Jean-Paul Villain. Not only did his efforts lead to the development of many of the SuperDARN radars, but his scientific contributions, primarily in the areas of source mechanisms and char-

acteristics of ionospheric irregularities, were very highly respected. He was a stimulating and agreeable colleague with whom we enjoyed collaborating and accompanying on campaigns to various radar sites. He was a true leader within SuperDARN and will be sorely missed.

Ray Greenwald

Ulrich Schmucker

Prof. Ulrich Schmucker, University of Göttingen, Germany, passed away on October 27, 2008, while attending the EM Induction Workshop in Beijing.

Ulrich Schmucker made fundamental contributions to geomagnetism, in particular electromagnetic induction. An obituary was not available at the time of collection of information for this Newsletter but will be brought in the next IAGA News.

Some Reports on IAGA-Sponsored Scientific Activities

EMSEV Report for 2007 (abbreviated)

2007 Annual Report of Inter-Association (IAGA/IASPEI/IAVCEI) Working Group of Electromagnetic Studies on Earthquakes and Volcanoes (EMSEV)

By Jacques Zlotnicki, Malcolm Johnston, Seiya Uyeda, Toshiyasu Nagao, Yoichi Sasai, and Jann-Yeng Liu

1) Introduction

EMSEV - An inter-association Working Group actively promoting EM studies on earthquakes, tsunamis and volcanoes at international conferences and also at workshops, in-field campaigns, education in developing countries, etc.

Recently, EMSEV led four sessions at IUGG-2007 meeting at Perugia (Italy). The association has also maintained a high-level research activity on Taal volcano (Philippines).

2) Membership

During the 10th business meeting at IUGG-2007 EMSEV members decided:

- To elect, on IUGG request, a new EMSEV bureau in response to the wish of Chair Seiya Uyeda to step down. Jacques Zlotnicki (France) was elected as new Chair, and Malcolm Johnston (USA) as Vice Chair. It was also decided that Jann-Yeng Liu, Malcolm Johnston, and Yoichi Sasai would act as IAGA, IASPEI and IAVCEI liaison-members, respectively. T. Harinarayana was designated as new representative of WG1.2.

- To elect new EMSEV members: Professor A.K. Gwal (India), Dr T. Harinarayana (India), Dr Friedemann Freund (USA), Dr D.S. Widarto (Indonesia), Professor K. Eftaxias (Greece), Dr N. Sarlis (Greece) and Dr V. Traumatoli (Italy). Fortytwo regular EMSEV members and well over 200 corresponding members are now

enlisted in EMSEV mailing
“<http://www.emseviugg.org/emsev/>”.

3) Organizational Activity in 2007

Meetings:

- Demeter Workshop, Toulouse, France, June 29, 2007.

Observations and results on the first two years of mission, (M. Parrot).

- EGU, Vienna, Austria, 15-20 April 2007.

Session NH4.02. Electric, magnetic and electromagnetic phenomena related to earthquakes, convened by P. Biagi, O. Molchanov, M. Hayakawa, F. Vallianatos.

Session NH4.03. Deformation processes and accompanying mechanical and electromagnetic phenomena, for rocks and other materials, from the laboratory to the geophysical scale, convened by K. Eftaxias, T. Chelidze, V. Morgounov, Nomicos, M. Manda.

- IUGG General Assembly Perugia, Italy; July 2-13, 2007

EMSEV organized four integrated sessions at IUGG on “Progress in electromagnetic studies on earthquakes and volcanoes”:

Crustal instabilities and earthquake precursors (JSS009) (Main convener P. Biagi)

Electromagnetic fields associated with earthquakes and active faulting (JSS008) (Main convener M. Johnston)

Seismo-electromagnetic studies using space technology (JSS010) (Main convener R.P. Singh)

Volcanic structure and activities (JSS007, JVS002) (Main convener: S. Spichak)

More than 143 abstracts were accepted and presented in these four sessions.

- Italy/Japan bilateral Seminar on EM in Seismic and Volcanic Areas, Chiba, Japan, July 25-27, 2007, organized by K. Hattori.

- Third international school-seminar on electromagnetic sounding of the earth (EMS-07), Zvenigorod, Russia. 3-8 September, 2007 organised by V. Spichak.

- 50 years of the International Geophysical Year and the International Electronic Year, Suzdal, Russia, 16-19 September 2007, organized by A. Gvishiani (Geophysical Centre, Acad. Sci.). Session on Russian-French research on Geophysics, Volcanology and Seismic Danger; EM applications

- The 8th China International Geo-Electromagnetic Workshop, 11-14 October 2007, Yangtze University, Jingzhou, Hubei, China.

- International Workshop on Seismo-Electromagnetic Phenomena: Recent Progress (Japan/Indonesia Project), Bandung, Indonesia, 6-7 November 2007, organized by D. Widarto and K. Hattori.

EMSEV gave some support to this workshop and the XI EMSEV local meeting was held there. Several Indonesian organizations (LIPI, LAPAN, BMG) have

asked EMSEV to contribute to the development of several EM techniques for Natural Hazard assessment.

- AGU Fall meeting in San Francisco, 10-14 December, 2007.

Session S21. Theory and Applications of Electromagnetic and Thermal Anomalies During Earthquakes, convened by D. Ouzounov, K. Hattori, M. Parrot, S. Pulinets, P. Taylor.

Inter-Association Initiative activities:

Volcano Taal investigation (Philippines):

Under PHIVOLCS (Philippine Institute of Volcanology and Seismology)-EMSEV agreement, a Japan-French team has contributed to understand the slow unrest of Taal volcano. The activities include implementation of EM monitoring systems, and education of PHIVOLCS teams on electromagnetic methods etc. One paper has been published (Harada et al., 2006) and another one is in press (Zlotnicki et al., 2008). Financial support from the Associations is used to facilitate PHIVOLCS teams to field campaigns. The foreign teams provide equipment and other materials.

Campaign 1 [January 29 to February 13, 2007]

This campaign replaced the one previously scheduled for November 2006 that was postponed due to a typhoon. Work was focused on:

- A resurvey of magnetic benchmarks and installation of new ones near recent magnetic field changes first observed during 2005-2006,

- A resurvey of several SP-GTE-CO2 profiles made in 2005. The sampling distance was reduced to 12.5 m compared to 25 m in 2005, in order to completely describe the anomalies and to identify their evolution with time,

- The preliminary mapping of CO2 fluxes and ground temperature gradient in the main geo-thermal areas,

- Maintenance of the first SP-GTE station, located across the northern 1992-94 active fissures,

- New resistivity soundings on the volcano. First, a south-north cross section on the northern

flank is scheduled. Other soundings will be done during the next campaign.

Campaign 2 [April 17 to April 28, 2007]

The objectives were:

- To install a second SP-GTE continuous station (called MCL) in the geothermal field located to the NE of the Main Crater,

- To build a telemetry system for the two SP-GTE stations with real time data transmission to Buco observatory,

- To do added maintenance of the first SP-GTE station (called DAK), located across the northern 1992-94 active fissures,

- To resurvey magnetic benchmarks (see Y. Sasai report),

- To resurvey the SP (self-potential) - GTE (ground temperature) - CO2 (soil degassing) profile along the northern trail, from the crater rim to down slope. The sampling distance was reduced to about 12.5 m in order to detail the anomalies,

- To extend resistivity soundings inside the Main Crater along the eastern border of MCL.

Campaign 3 [November 27-December 8, 2007]

The sporadic seismic crises and the time and spatial changes of the surface activity led PHIVOLCS and EMSEV to increase their studies. These included:

- Resurvey of several SP-GTE-CO2 and magnetic surveys were completed,

- Telemetry system up to the local BUCO observatory was improved and a daily routine was set,

- Two continuous proton magnetometers with local data recordings were implemented at the SPGTE stations,

- A three component magnetometer was installed in the crater and connected to the MCL SPGTE station,

- Preliminary GPS benchmarks were set inside and outside the crater, and a first real time differential campaign was done,

International Workshop on Seismo-Electromagnetic Phenomena, Recent Progress:

IWSEP 2007, Bandung, Indonesia, November 2007.

Indonesia consists of more than 17,000 islands and severe natural disasters in this country are frequent. These include destructive earthquakes, tsunami, and volcanic eruptions. As an example, casualties of the 2004 Sumatra-Andaman Earth-quake reached several hundred thousand. Mitigation of these disasters is obviously of essential importance. Identification of electromagnetic phenomena associated with crustal activity and the detection of these phenomena should be included in the methods for monitoring seismic and volcanic activities. To develop the methodology and to improve scientific knowledge for the seismo-electromagnetics, measurements with sensitive sensors, sophisticated signal processing, and theoretical consideration should be performed. Even if this activity is well supported by LIPI, LAPAN, and

BMG, further implementations of EM methods and the use of installed stations/equipment are crucial for improving the effectiveness of current global investigations.

Report on the HEPPA WS (abbreviated)

From: P. T. Verronen, Finnish Meteorological Institute, Helsinki, Finland

General information

In recent years, many new satellite instruments capable of polar region observations have been launched. This has given unique opportunities to study effects of energetic particle precipitation in the middle atmosphere. Finnish Meteorological Institute organised the 1st International HEPPA Workshop "High-Energy Particle Precipitation in the Atmosphere" in Helsinki, Finland between 28th and 30th of May, 2008.

During the three workshop days, the participants enjoyed warm and sunny weather. Social activities included an icebreaker reception and an excursion to the Suomenlinna fortress island.

Participants

HEPPA brought together 47 scientists from Finland, Germany, Hungary, New Zealand, Norway, Russia, Spain, Switzerland, UK, and USA.

Abstracts and sessions

A total of 50 abstracts were submitted, one of them was withdrawn. Thus 49 presentations were given in the workshop, 37 of them were oral and 12 posters. HEPPA had 5 sessions: 1) General/Overview, 2) Energetic Particle Sources and Fluxes, 3) Lower Thermosphere and Ionosphere, 4) Mesosphere and Stratosphere, and 5) Instruments and Detection.

Scientific highlights

The workshop focused on the observational as well as modelling studies of atmospheric and ionospheric changes caused by energetic particle precipitation, e.g. solar proton events, relativistic electron precipitation, and auroral electron precipitation. Topics ranging from short-term ionospheric changes to long-term atmospheric changes were covered, including defining spectra of precipitating particles and the effects on atmospheric dynamics and climate.

3-D atmospheric modelling of particle precipitation effects was one of the most interesting topics of the meeting and results from several models were presented. At the present, the understanding of energetic electron forcing is at a crude level due to a variety of particle sources, their unpredictability, and insufficient temporal and spatial coverage of the

available observations. Overall, the comparisons between the models and observations showed that even though the main features of atmospheric response can be modelled and understood to a large extent, a lot of the details still show significant differences that need to be studied further.

Of individual atmospheric constituents, HNO₃ received special attention. Observations were presented from MIPAS/Envisat and SMR/Odin instruments, showing increased levels of HNO₃ in the winter polar regions especially after major particle precipitation events. Models tend to significantly underestimate HNO₃. Several possible production routes that are not currently included in 3-D models were presented and discussed, the most promising ones involving ion chemical reactions.

A panel discussion was held and some outstanding issues were identified: 1) uncertainties in the precipitating fluxes and spatial and temporal distribution of medium and high-energy electrons, 2) temperature and dynamical effects caused by particle precipitation and 3) effects on some minor constituents such as HNO₃ and N₂O₅.

The workshop ended with a "hands-on" session where observations from MIPAS/Envisat were compared with results from several 3-D atmospheric models, inducing lively discussions. Among other things, this comparison indicated that ClONO₂ is generally underestimated by the models while HOCl is rather well reproduced. ClO is not well reproduced, but this MIPAS data has a small signal-to-noise ratio.

Next HEPPA workshop

Based on the success of this first HEPPA meeting, we are planning another workshop to be held in Boulder, Colorado, in early October 2009.

IAGA financial support

HEPPA organisers received 1000 USD from IAGA which were used to support participation of young scientists. Following persons received support between 150 and 250 EUR each

Name	Year of birth	Country
Baumgaertner, Andreas	1979	Germany
Calisto, Marco	1973	Switzerland
Kazeminejad, Shahin	1980	Germany
Seppälä, Annika	1980	UK
Stobbard, Philip	1981	UK

More information

The HEPPA book of abstracts that accompanies this report gives more detailed information about the workshop including schedule, members of scientific

committee, members of FMI organising committee, list of participants, and abstracts of the presentations. The workshop WWW page is at <http://heppa2008.fmi.fi/>

Report on Paleo, Rock and Environmental Magnetism WS (abbreviated)

11th "Castle Meeting" on New Trends in geomagnetism – Paleo, Rock and Environmental Magnetism (<http://gauss.savba.sk/nt2008.php>) was held on June 22-28, 2008, in Bojnica, Slovakia. The meeting was co-organised by the Geophysical Institutes of the Slovak Academy of Sciences, Bratislava and Academy of Sciences of the Czech Republic, Prague.

In total, 75 participants, including 5 accompanying persons, from 27 countries worldwide (Asia, the America, Africa – for the first time, and Europe) attended the meeting. It became already tradition that these meetings are attractive in particular to young researchers. This time, 21 graduate and undergraduate students took part in the meeting; the number and their performance provides promising perspective for the future.

The meeting venue was in Hotel "Pod Zamkom" (www.hotepodzamkom.sk), suitably located right next to Bojnica Castle (www.bojnicecastle.sk). The hotel provided excellent "all-in-house" setting, enabling fruitful and intense contacts and discussions, extending beyond the scientific sessions. The Bojnica Castle is one of the most beautiful castles in Slovakia, standing on a travertine hill above the town. In 1970 the castle was declared a National cultural monument, nowadays houses a museum. The first written mention of the castle existence is from 1113 and comes from the Zobor abbey. Originally the wooden fortress was rebuilt with stone over the 13th century. Originally renaissance and gothic style has been rebuilt in Romanticism style in 19th century.

Oral and poster sessions were accompanied by a rich social program, including barbecue, a half-day trip to historical town of Kremnica (www.kremnica.sk/en/). Kremnica, center of medieval gold and silver mining, is famous due to the gold and coins minted in the town. Kremnica was the home of the chamber earl, who was the head of the mint chamber, which managed 12 mine galleries. He was responsible for mining enterprises and, as the monarch's deputy; he controlled the exploitation of precious metals and the quality of the coinage. Kremnica had a leading position in the union of seven middle-slovak mining towns due to its gold production. Kremnica's ducats - so called Florins belonged to the most valuable coins in Europe granted the thrones of many monarchs. Ever since its founding in 1328 Kremnica's mint continues to operate which makes it a rarity within the European mints. In

the 14th century in Hungary, Kremnica was also called "Golden Kremnica". Finally, an evening concert in the chapel of the Bojnica Castle, given by Jozef Kundlak, an opera soloist from the Slovak National Theatre, represented "social" highlight of the meeting.

Scientific part of the meeting consisted of oral sessions and two afternoon poster sessions. The posters were introduced by short, 2-minute oral introductions (this format was highly appreciated by the presenting authors as well as by the audience). Extended abstracts of the meeting were published in Contributions to Geophysics and Geodesy, a journal published by the Geophysical Institute SAS in Bratislava. A special issue of international journal Studia Geophysica et Geodaetica, containing papers presented at the meeting, is foreseen.

Financial support, provided by IAGA, was highly acknowledged. This travel support, accompanied by waiving the registration fee, was granted 6 young scientists: Michal Bucko (Helsinki, Finland), Tiiu Elbra (Helsinki, Finland), Marcos Chaparro (Queretaro/Tandil, Mexico/Argentina), Ulla Preeden (Tartu, Estonia), Ayca Yurtseven Ozmen (Windsor/Istanbul, Canada/Turkey) & Birendra Sapkota Windsor/Katmandu, Canada/Nepal).

In addition, sponsorship from the following companies was highly acknowledged: 2G Enterprise, USA; AGICO, Czech Republic; Bartington, U.K.; L.O.T. Oriel, Germany and ZH Instruments, Czech Republic. This sponsorship helped significantly to support more young scientists by covering (partly or fully) their registration fee and living costs.

Prague, July 4, 2008

Dr. Eduard Petrovsky, Geophys. Inst. ASCR, Prague, Czech Republic

Dr. Jan Vozar, Geophys. Inst. SAS, Bratislava, Slovakia

Report on the 5th IAGA/ICMA/CAWSES workshop "Long Term Changes and Trends in the Atmosphere"

The workshop was held in the Arctic and Antarctic Research Institute in St. Petersburg, Russian Federation, on 9-12 September 2008. It was attended by 45 scientists (including a few doctoral students) from four continents, Europe, Asia, Northern America and Southern America. Altogether 33 oral (including twelve invited) and 7 poster papers were presented. Program Committee: J. Lastovicka (chairman), G. Beig, J. Emmert, M. Jarvis, O. Troshichev (chairman of LOC).

The workshop was focused on long-term changes and trends in the mesosphere, thermosphere and ionosphere. However, papers on trends in the stratosphere (including ozone), stratosphere/troposphere and stratosphere/upper layers interactions, on tropospheric trends, and on long-term changes in solar wind/geomagnetic activity were presented, as well.

Lastovicka gave an overview of the state-of-art in knowledge and understanding of long-term trends in the mesosphere, thermosphere and ionosphere. He stressed simultaneous action of several sources of long-term changes: greenhouse gases, stratospheric ozone depletion, changes of geomagnetic activity, changes of the Earth's magnetic field and a few others. Therefore trends themselves and mutual role of various agents in them are not stable in time. Makarova and Elias dealt with long-term changes in the solar wind magnetic field and geomagnetic activity. Cnossen treated the role of solar activity in determination of trends.

Pokrovsky, Avakyan and Elias studied long-term changes in the troposphere and their causes including influence of solar and geomagnetic activity. Pokrovsky suggested a new method, quantile regression technique, for studying temperature trends in the stratosphere and lower stratosphere. Foelsche and Steiner presented a new, GNSS-RO (radio occultation) based data base for studying trends in the UT/LS region and atmospheric change detected from this data base; long-term changes appear to be relatively weak over 1995-2008 and NCEP/NCAR and EMCWF, GNSS-RO and radiosondes somewhat differ, partly even as to sign of changes. Baldwin demonstrated effects of long-term changes in the stratosphere on tropospheric climate and discussed possible mechanisms. Pogoreltsev dealt with strengthening of the stationary planetary wave $k = 1$ and its impact on the middle atmosphere, particularly the stratosphere.

Several presentations treated long-term changes of ozone concentration. Staehelin summarized long-term trends in stratospheric ozone; the impact of the Montreal protocol is already seen in midlatitude ozone, whereas it has not been revealed in the Antarctica due to longer delay of ozone depleting substances (ODS) transport and more than enough ODS to deplete ozone at 15-20 km in the ozone whole maximum. Suvorova found an increase of longitudinal variation of ozone concentration with its decreasing total content. Jadin analyzed correspondence of the total ozone and surface temperature trends. Milenevsky illustrated zonal asymmetry in total ozone distribution and tropopause height during Antarctic spring. Zossi de Artigas studied impact of the QBO in equatorial wind on trends in total ozone.

The middle atmosphere responds also to high energy particle flux variability. Krivolucki presented model results on long-term (duration a couple of months)

effects of solar proton events on mesospheric and particularly stratospheric composition at high latitudes in winter. Semeniuk analyzed response of the middle atmosphere to ionizing particle precipitation.

Long-term changes and trends in the mesosphere and lower thermosphere (MLT) were studied in several parameters. Jacobi presented change of trend in the mesopause region winds around 1990 and discussed its relation to changes of stratospheric trends and long-term variations, while Merzlyakov analyzed structural changes in trends in the MLT winds at middle and high latitudes. Beig reviewed the MLT temperature response to long-term changes in solar activity, particularly to 11-year solar cycle. Amnosov and Gavrileyva analyzed temperature trends over Yakutia; if they will succeed to fill in the gap in the 1990s at least partly, this dataset will become very useful. Fomichev presented results of modeling towards understanding the middle atmosphere temperature trends in terms of radiative energy budget changes. Peters analyzed long-term variability of the boreal mesosphere based on very long data series of the LF radio wave phase reflection height measurements. Bremer found a positive trend in polar mesospheric summer echoes (PMSE), which depend on temperature and water vapour concentration. First results on trends in PMSE from Kiruna, which generally agree with results of other observations, were presented by Smirnova. Recent satellite measurements found a gap in water vapour concentration at NLC/PMSE "ice" heights and increased water vapour concentration below, where ice is melting, as expected (Feofilov).

Emmert/Akmaev analyzed climatology and long-term trends of thermospheric density based on drag of about 5000 satellites and of other objects; trend of density at 400 km was found to be $-2,7 \pm 0.5$ %/decade. Akmaev presented results of modelling of greenhouse cooling of the upper atmosphere and stressed important role of stratospheric ozone depletion in the mesosphere and lower part of the thermosphere (maybe almost to about 200 km). Danilov used trends in the F2 layer ionosphere parameters as indicators of trends in thermospheric dynamics.

Long-term trends in the neutral atmosphere induce trends in the ionosphere, where two additional factors to greenhouse gases play a role – long-term changes of geomagnetic activity and of Earth's magnetic field. Mikhailov further developed the concept of geomagnetic control of trends in the ionosphere. On the other hand, Qian presented model results on trends of greenhouse gas increase origin and found significant effect in hmF2 but weak effect in foF2.

These results enable interpretation of predominantly geomagnetic control of trends in foF2 but predominantly greenhouse gas control of trends in hmF2 at present (not necessarily in the past). Elias presented experimental results on Earth's magnetic

field changes impact on trends in the F2 region, while Cnossen did the same by model simulations. Long-term changes of the Earth's magnetic field play a very important role in equatorial and middle latitudes of South America and southern Atlantic Ocean, while in some other regions, like Europe, they are quite negligible. Shirockov focused on trends on ionospheric trends in the southern polar cap, while Kobyakova dealt with trends in northeastern Asia. Mansilla/Elias treated the QBO effect in foF2 at the southern crest of the equatorial anomaly.

Financial report

The workshop was supported by IAGA (1500 USD), SCOSTEP/CAWSES (1500 USD) and ICMA/IAMAS (1000 USD) for the sake of support of participation of some scientists from abroad. The support was distributed among four scientists:

G. Beig (India, invited speaker, vicechair of IAGA/ICMA WG II.F on trends) - 1400 USD

Ana Elias (Argentina, invited speaker) - 1000 USD

S.V.V.D. Prasad (India) - 1000 USD

M. Baldwin (USA, invited speaker) - 600 USD.

Prof. Prasad informed LOC just one day before the beginning of workshop that he is unable to arrive. Therefore his support was transferred to Dr. Beig with respect to the fall of USD exchange rate during the last year and resulting need of Dr. Beig to cover part of travel expenses by his private money.

J. Lastovicka, G. Beig, O. Troshichev,

R.A. Akmaev

Report on the 3rd VERSIM Workshop (abbreviated)

The 3rd VERSIM Workshop on ELF/VLF radio phenomena: generation, propagation and consequences in observations, theory and modelling took place on 15-20 September 2008 at the Balaton Limnological Research Institute (BLRI) of Hungarian Academy of Sciences at Tihany. It was sponsored by Eötvös University and supported by IAGA and URSI Commission G and H. This was a chance for the VERSIM IAGA/URSI joint working group to meet and discuss current issues, developments, and techniques. The workshop attracted slightly more than 50 participants from 15 countries, ranging from India and Serbia all the way to Brazil and the USA, and included 61 presentations. Due to the increased number of presentations the workshop length was increased by one day, to maintain the established structure of the timetable; oral presentations of a sensible length (~20-30 min), interspersed by good-length coffee and lunch breaks in which participants could follow up with more

detailed discussions, or plan future scientific collaborations.

The 3rd workshop builds on the success on the previous 2 meetings, which were held in Sodankylä, Finland. With steadily more participants and more presentations at each VERSIM workshop, it is clear that the workshops are filling an important role for the VERSIM community. Many of the participants at the 3rd workshop commented that the quality of the talks had steadily improved with each VERSIM workshop, suggesting that the collaborations established through VERSIM workshops were leading to rapid forward motion in VERSIM-Science. Participants at the 3rd workshop agreed that the success of this workshop confirms the viability of recurring VERSIM workshop as part of our future scientific calendars.

Many past VERSIM chairs were present at the 3rd workshop, including Don Carpenter (Stanford University, USA) who was the first chair of the Whistlers in the Magnetosphere URSI joint committee. This evolved into the current joint URSI-IAGA VERSIM working group. During the business meeting at the end of the workshop the current chairs paid tribute to all the previous VERSIM working group chairs, most of whom are still active members of the VERSIM community.

The 3rd VERSIM workshop was marked by a significant series of talks on the use of VLF and ULF waves to provide plasmaspheric parameters, both electron density and mass density, which when combined allow ground-based observations of plasmasphere composition. Some VERSIM researchers are rapidly moving towards automated detection and analysis of VLF whistlers and ULF-field line resonances, which should provide nearcontinuous ground-based plasmaspheric measurements from multiple stations. Combined with the power of the internet, near-realtime reporting of plasmaspheric parameters should be possible in the near future. This is a highly promising development, linking to the earliest goals of the working group (and its predecessors), made possible by recent improvements in technology and growing scientific understanding. At the same time, these studies have pointed to gaps in our knowledge as to detailed route by which ground-based VLF sources couple into space, for example the VLF radiated by a lightning discharge creating whistlers. Several reports focused on the finer details of this coupling, through ray-tracing and entirely experimental measurements. In addition, multiple papers dealt with the interaction between waves and energetic electrons in the radiation belts, both as a mechanism for affecting the waves, or the particles (acting as an acceleration or loss process). One set of invited talks at the 3rd VERSIM workshop offered homage to workers in our field over more than 4 decades of research, providing context for our current efforts. Another invited talk focused on high-end experimental observations, where 1 days wideband

ground-based recording and analysis leads to many hundreds of gigabytes of data, with a noise floor of 100 aT/Hz-^{1/2}. A very common feature throughout the workshop was the use of observations from the Centre National d'Etudes Spatiales (CNES) DEMETER spacecraft. The launch of DEMETER was reported at the first VERSIM meeting in September 2004, and has made such an impact on the community that roughly 50% of the presentations made use of DEMETER data. A full listing of the abstracts presented at the 3rd VERSIM workshop can be found at:

<http://sas2.elte.hu/versim/versim1.htm>

The support from URSI, IAGA and local sources was used

- to support the participation of 9 young scientists from Hungary, New Zealand, South Africa and USA with waived registration fee and free accommodation,
- to support the participation of 3 scientists from disadvantaged nation (India, Russia and Slovakia) with waived registration fee and/or free accommodation,
- to cover the air fares of 2 invited scientist (Don Carpenter, Stanford University, USA and Tauno Turunen, SGO, Finland)

Craig J. Rodger and János Lichtenberger

IAGA INTERNATIONAL SYMPOSIUM

Space Weather and its Effects on
Spacecraft

I- General Information of the Symposium

Meeting website: <http://iaga.cu.edu.eg>

Venue and dates: Cairo Egypt, October 5-9, 2008.
Total number of participants: 66

The nationalities which have been attending are 20 as follows: Bulgaria, China, Egypt, Ethiopia, Finland, France, Greece, India, Israel, Italy, Jordan, Korea Republic, México, Nigeria, Poland, Romania, Russia, Sweden, USA, Vietnam,

Supporting Organizations:

International Association of Geomagnetism and Aeronomy (IAGA): Amount of 2500USD used to waive the registration fees for 10 attendances.

Cairo University (CU): cover the registration fees of 3 participants from Cairo University.

Academy of Scientific Research and Technology (ASRT): cover the registration fees of 2 participants

Computer Centre (SCC /CU): cover the meeting website publication in the centre server.

Scientific Program

The symposium has been divided into 8 sessions, as follows

- S1- Solar Wind, its origin and evolutions.
- S2- Solar energetic particles (SEP), Coronal Mass Ejections (CME's),
- S3- Interaction between cosmic ray/solar energetic particles and spacecraft.
- S4- Magnetospheric trapped particles their evolutions.
- S5- Use of geomagnetic data and indices in space weather.
- S6- New results from solar and heliospheric missions.
- S7- History and Education of space Science.
- S8- IHY & IAY latest activities

Scientific Organizing Committee (list of members): S. Awad (Cairo University, Egypt), V. Bothmer (SOC Co-Chair, Goettingen University, Germany), D. Callebaut (University of Antwerp, Belgium), C. Fang (Nanjing University, China), B. Fleck (European Space Agency, ESA), A. Hady (SOC Co-Chair, Cairo University, Egypt), B. Hultqvist (IAGA-GS, The Swedish Institute of Space Physics, Sweden), C de Jager (Utrecht, Netherlands), Katya Georgieva (STIL-BAS, Bulgaria), H. Koskinen (University of Helsinki, Finland), C. Amory-Mazaudier (CNET/CRPE, Saint-Maur des Fossés, France), S. Mukherjee (Jawaharlal Nehru University, India) M. A.M. Shaltout (NRIAG, Egypt), A. V. Stepanov (SOC Co-Chair, Pulkovo Astronomical Observatory, Russia), N. Meyer-Vernet (Observatoire de Paris, France), Phil Wilkinson (IPS Radio and Space Services, Australia), M. Wanas (Cairo University, Egypt) David Webb (Boston College, USA)

Invited Speakers:

Session 1- Solar Wind, its origin and evolutions: Ilya Usoskin, Franco Porcelli, Ester Antonucci, M. Argoun, A. H. Salama

Session 2- Solar energetic particles (SEP), Coronal Mass Ejections (CME's): Xenophon Moussas, Karl-Ludwig Klein, Pengfei F. Chen

Session 3- Interaction between cosmic ray/solar energetic particles and spacecraft: Lev Dorman, Giorgi Aburjania, Lev A. Pustilnik

Session 5- Use of geomagnetic data and indices in space weather: Katya Georgieva, G. Muñoz, Georgeta Maris, Ha Duyen Chau, Giorgi Aburjania

Session 6- New results from solar and heliospheric missions: Juan, X. Moussas, Lev Dorman

Session 7- History and Education of space Science: M. Shaltout, X. Moussas, G. Muñoz Ahmed Hady

Session 8- I IHY & IAY latest activities and closing session: Georgeta Maris, A. Galal , Karl-Ludwig Klein, Ester Antonucci.

II- Symposium Closing Session and Recommendations

The participants in the IAGA symposium "Space weather and its effects on Spacecraft" have discussed future contributions to the exploration of solar and solar-terrestrial phenomena relevant to the subject of the conference.

They consider that it is a historical lesson in solar-terrestrial physics that progress in understanding is achieved through a combination of new major instruments that

bring breakthroughs in measurement strategy with monitoring observations using small instruments.

Specifically :

They consider that neutron monitors are still the up to date instruments for the detection of relativistic solar protons and neutrons, and for the use of galactic cosmic rays as probes of solar-terrestrial disturbances, with warning times that cannot be achieved by other techniques. They recommend to study the implementation of new neutron monitors in regions close to the equator, especially in Africa, which covers a broad range of geographic longitudes where such instruments are presently missing.

They emphasise the need of continued patrol observations in H α , which is the historical reference for flares, but also a crucial tool to probe large-scale travelling disturbances (called Moreton waves) whose understanding is at the forefront of contemporary research on the link between flares and coronal mass ejections. In view of the decreasing coverage in recent years, the conference participants recommend that patrol instruments be established 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 24 hours of observing time per day.

They recommend studying the usefulness of small instruments which can be launched as passengers of major satellites, for developing innovative tools for the monitoring of the solar output.

Ester Antonucci, Ahmed Hady, and Karl-Ludwig Klein
Cairo, 9 October 2008

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 research;
- 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.

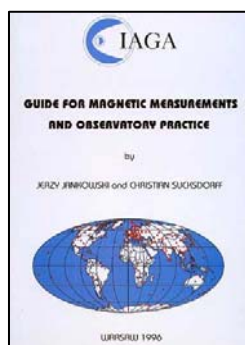
Participation in IAGA Activities

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.



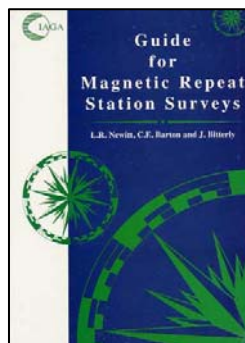
IAGA Guide for Magnetic Measurements and Observatory Practice by J Jankowski and C Sucksdorff, 1996

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:

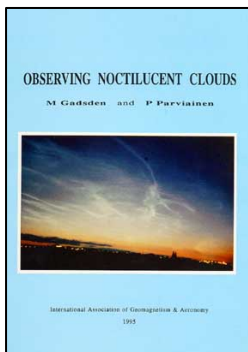
- A brief description of the magnetic field of the Earth
- Selection of observatory sites and layout
- Magnetometers
- Absolute magnetic measurements
- Recording of magnetic variations
- Data processing
- Testing and calibrating instruments

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.



IGAGuide 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, and 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 nighttime. 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 now out of print but a new electronic edition has been created. This can be downloaded at the IAGA web site using the following link: [ONC](#)

IGAG News

IGAG News contains items of general interest to the IAGA community. Beginning with Issue 40, the main method of distribution for IAGA News has been via the IAGA web site. If printed copies are required a request should be made to the Secretary-General who will mail copies free of charge.

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

Meetings Calendar

A calendar of scientific meetings relevant to the interests of IAGA scientists is maintained at:

<http://www.ufa.cas.cz/html/conferences/iaga.html>

The IAGA Web site

Information on IAGA can be found at:
<http://www.iugg.org/IAGA/>

IGAG Flyer

A flyer (English version) summarising IAGA scientific interests and activities can be downloaded in pdf format from the IAGA web site by clicking on the image below (718kb):



[French](#) and [Spanish](#) versions are also available.

Contacting IAGA

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

Prof. Bengt Hultqvist

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