

URSI General Assembly, New Delhi, October 2005

Business Meeting 1: Monday, 24 October 2005

1 In Memoriam

The business meeting commenced with a brief moment remembering past friends of Commission G. They were: L.H. Brace, A. Breed, E. Essex, M. Maundrell, P.J. Melchior, U. Sultangazin, C. Sutton, M. Yamada, K.C. Yeh

2 Election of Commission G Vice-Chair for 2005-2008

Four candidates were nominated: Jorge Chau, Anthea Coster, Michael Rietveld, Bruno Zolesi. Voting slips were distributed to the Commission G national delegates and, including votes cast during the assembly, Michael Rietveld was the successful candidate and Bruno Zolesi was second.

Subsequently, the URSI Council endorsed Michael Rietveld as the Vice-Chairman of Commission G for 2005-2008.

3 Terms of reference

The terms of reference of Commission G were reviewed and it was decided that no amendment was necessary.

4 Commission G triennial report

The report on commission G activities during the past triennium was prepared by the Chairman Christian Hanuise and published well in advance of the General Assembly.

5 Commission G Working Groups and Joint Working Groups

All Working Groups triennium reports were included in the Commission triennium report. These reports are the responsibility of the lead commission representative. A very brief verbal report was provided at the Business Meeting.

- *G.1. Ionosonde Network Advisory Group (INAG)*. Chair: Terence. Bullet (USA), Vice-Chair: Christopher. Davies (United Kingdom), INAG Editor: P. Wilkinson (Australia) Recommend continuing with Lee-Anne McKinnell (SA) replacing C Davies as Vice- Chair
- *G.2. Studies of the Ionosphere Using Beacon Satellites*. Chair: R. Leitinger (Austria), Vice-Chairs: J.A. Klobuchar (USA; until October, 2004); P. Doherty (USA, since October, 2004) and P.V.S. Rama Rao (India). Recommend continuing.
- *G.3. Incoherent Scatter*. Chair: Chair: W. Swartz (USA), Vice-Chair: J.P. Thayer (USA). Recommend continuing with Ingemar Häggström (Sweden) as Vice-Chair.
- *G.4. Ionospheric Research to Support Radio systems*. Chair: P. Wilkinson (Australia); Co-Chair: M. Angling (UK). Recommend continuing – see record of third business meeting.
- *GF. Middle atmosphere*. Co-Chair for Commission G: J. Röttger (Germany), Co-Chair for Com. F: C. H. Liu (China, SRS). Recommend continuing with the same officers.
- *FG: Atmospheric Remote Sensing using Satellite Navigation System*. Co-chair for Commission G: C. Mitchell (UK). Co-Chair for Commission F. Bertram Arbesser-Rastburg. Recommend continuing with the same officers.

- HGEJ: Supercomputing in Space Radio Science Working Group. Commission G required a representative but one could not be found at this meeting.
- *Inter-commission Working Group on Solar Power Satellite.* Co-Chair for Commission G: M. Rietveld (Norway). Decision for continuing rests with URSI board.

6 Publications

The Chair, C Hanuise, on behalf of the Commission, thanked Paul Cannon as the Commission G editor and Vice-Chair for Reviews of Radio Science, for his hard work. Paul Cannon in turn thanked the authors for their hard work and excellent reviews. Commission G had five reviews accepted during the triennium and more than met its quota.

The Lower Ionosphere: Abandoned by Communication, to be Re-discovered by Aeronomy	M Friedrich	Jun 2004
Progress in Radio Ray Tracing in the Ionosphere	JA Bennett, PL Dyson, RJ Norman	Sep 2004
New Techniques and Results From Incoherent Scatter Radars	R Robinson	Dec 2004
Radio occultation techniques for probing the ionosphere	N Jakowski	Awaiting publication
Long-term trends in different ionospheric layers	J Bremer	Awaiting publication

Michael Rietveld, the incoming vice-chair of Commission G, accepted to act as the Commission G editor for the new Radio Science Bulletin and Reviews of Radio Science.

7 Commission G resolutions

There were no Commission G resolutions.

8 Discussion on GA 2005 organisation and programme

Submission of abstracts. The subject of the length of Commission G abstracts and papers (1 versus 4 papers) was discussed, as it was at the last GA. There was once again a general agreement on having a one-step only submission. A one page extended abstract with a short (~100 word abstract) for incorporation in the conference booklet was deemed preferable.

8 Proposals for sessions in 2008

A call for proposals was made.

9 SCT

At the last GA M. Hall was tasked to re-activate the Scientific Committee on Telecommunications (SCT). SCT: Patrick Lassudrie Duchesne (France) was confirmed as the Commission G representative to SCT and he explained that there had again been limited activity during the last triennium and promised to report back later in the week.

Business Meeting 2: Wednesday, 18 August 2002

This business meeting was a joint meeting between commissions G and H.

1 Joint Working Groups 2002-2005

Activities during the past triennium and recommendations for future activities were reviewed and presented for the joint Commissions G and H working groups and activities.

- *GHI Active experiments in Space Plasmas*: Co-Chair for Commission G: Sa. Basu (USA), Co-Chair for Commission H: T.Leyser / B. Thidé (Sweden). Recommend continuing with Commission G representative as Dr Keith Groves (USA) as Commission G Co-Chair. The meeting expressed its thanks to Santimay Basu for the long and dedicated service that he has given leading this WG.
- *GHC Wave and Turbulence Analysis*: Co-Chair for Commission G: D. Hysell (USA), Co-Chair for Commission H: T. Dudok de Wit (France), Co-Chair for Commission C: G Kubin (Austria) Recommend discontinuing as the work of the working group is completed.
- *EGH: Seismo-Electromagnetics*. Co-chair for Commission G: S. Pulinets (Russia). Recommend continuing with the same officers.
- *HGEJ: Supercomputing in Space Radio Science*. Co-chair for Commission G: A. Barakat, USA. See record of 3rd business meeting.

Commission G and H also coordinate the reports from certain other Groups which fall under the aegis of both URSI and another union. Further, Commissions G and H make recommendations to the URSI Board in respect to the URSI representation to these Union.

- *URSI-COSPAR on International reference Ionosphere (IRI)*. Chair: B.W. Reinisch (USA), Vice Chair for COSPAR: Martin Friedrich (Austria), Vice Chair for URSI: Lida Triskova (Czech Republic); Secretary: D. Bilitza (USA). Recommend continuing with same officers.
- *URSI/IAGA VLF/ELF remote Sensing of the Ionosphere and Magnetosphere (VERSIM)*, URSI Rep: M. Parrot (France). Recommend continuing with Janos Lichtenberger (Hungary) as representative.

2 Commissions G and H resolutions

There were none.

3 Proposed URSI Representatives

Commissions G and H recommended the following external representatives from within their own ranks:

- CAWES (Climate and Weather of the Sun-Earth system): Sunanda Basu.
- COSPAR (Committee on Space Research): Dr Z. Klos for a second term.
- FAGS (Federation of Astronomical and Geophysical Data Analysis Services): Phil Wilkinson
- ICSU Panel on World Data Centres (Geophysical and Solar) : Dr. D. Bilitza (USA)
- ISES (International Space Environment Service): Dr. S. Pulinets (Russia)
- SCAR (Scientific Committee on Antarctic Research) : Dr. M Clilverd (UK)
- SCOSTEP (Scientific Committee on Solar-Terrestrial Physics) : Christian Hanuise (Fr)

Commissions G and H assumed that the following members from Commissions G and H would continue in the following roles:

- ICSU (International Council for Science) : Prof. K. Schlegel (Germany)
- IUGG / IAGA (International Union of Geodesy and Geophysics/International Association of Geomagnetism and Aeronomy): Prof. H. Matsumoto (Japan).

4 Joint Programme for 2005-2008

There was no discussion

5 Other business

There was no other business.

Business Meeting 3: Friday, 28 October 2005

1 Opening Comments

The outgoing Chair, Christian Hanuise, thanked the Commission for the support they have given to him during his tenure and especially for the assistance given by the incoming Chair, Paul Cannon. The incoming Chair, Paul Cannon, then acknowledged the work put by Christian Hanuise and thanked him for his efforts and expressed the pleasure he had working with him, as well as expressing his pleasure at being the new Chair. Paul Cannon then took over chairing the meeting and the Commission.

2 Commission G sessions for GA 2008

The incoming Chair, Paul Cannon presented a list of proposed sessions (and in some cases convenors), a subset of which will form basis for the 2008 General Assembly. It will cover, as much as possible, all interests within Commission G and will involve convenors from younger scientists and various countries. A detailed discussion followed. Paul Cannon pointed out that based on the 2005 GA only eleven oral and 1.5 poster sessions would be possible and this list would consequently need to be rationalised. For reference the sessions appropriate to the 2005 GA are given at Appendix A.

Proposed Sessions for 2008 GA

- Imaging of the ionosphere – measurements, modelling and validation (Wilson - agreed). - multiple data type assimilation
- Beacon satellite studies of the ionosphere (TBD) - including tomography but not scintillation studies
- Tomography – new opportunities (Leitinger - agreed)
- Small scale structures and radio scintillation (TBD) – to include CNOFS results (hopefully)
- Ionospheric density profiles – measurements and models (Reinisch and Bilitza, agreed)
- Radar remote sensing of the ionosphere (Lestera greed) - including coherent backscatter meteor radars and associated science
- Meteors (TBD).
- Ionosonde data analysis and techniques (McKinnell, agreed)
- The latest and greatest from incoherent scatter radars – methods and results (Swartz and Häggström- agreed)
- Ionospheric and radio wave propagation implementations of geostorms and super storms (Shirochkov, agreed & TBD)
- Improving radio systems through radio science (Angling, agreed and TBD)
- Open session and latest results (Hanuise, agreed)

- GH - Ionospheric modification by high-power radio waves (Groves, agreed and TBD from Commission H)
- GF - Degradation of navigation systems by the ionosphere and troposphere (Coster, agreed, Arbesser-Rastburg for F agreed)

The following sessions with other commissions have been variously proposed:

- FG - Atmosphere-Ionosphere sounding by using global navigation satellite systems (TBD)
- JGH - Low frequency astronomy and the ionosphere – problems and opportunities (post meeting note – Commission J has agreed a session that could include this topic)
- HG - Radio frequency observations in space (TBD)
- HGE - Lightning effects on the ionosphere and magnetosphere (TBD)
- Inter-union - Solar Power Satellites (TBD)

The following suggestion was made for the Commission G tutorial at GA 2008:

- Ionospheric Mapping and Forecasting Using Assimilative Techniques. Dr Brian Wilson of the USA has agreed to give the talk.

Suggestions for commission G General Lecture at GA 2005:

- There were no suggestions

3 URSI Sponsored Meetings

The following meetings were noted as being or likely to be sponsored by URSI, Commission G.

- **Advanced School on Space Weather**, ICTP, Trieste, Italy, S. M. Radicella , 2 May 2006
- **Characterising the Ionosphere**, 12-16 June 2006, Fairbanks, Alaska, USA – sponsorship already agreed
- **IRI**, COSPAR 16-23 July, Beijing, China, 2006 (3 half-day sessions)
- **IRI**, Workshop, Buenos Aires, Argentina 16-20 Oct 2006,
- **IRI** Workshop, Prague, Czech Republic, Summer 2007
- **Ionospheric Radio Systems and Techniques**, 18-21 July 2006, London, UK
- **Workshop on the future of ionospheric research for satellite navigation and positioning: its relevance for developing countries**, ICTP, Trieste, Italy, 27 November – 8 December, 2006, S.M. Radicella and R. Leitinger
- **Vertical coupling in the atmosphere – ionosphere system**, Bulgaria, 2006.
- **AP-RASC'07**, Perth, Western Australia, Aug/Sep 2007 – sponsorship already agreed
- **Beacon Satellite Symposium**, 2007

4 Working Groups

HGEJ: Supercomputing in Space Radio Science Working Group

After consultation and after discussion at this meeting Commission G has decided to withdraw from this WG.

G.4 Ionospheric Research to Support Radio Systems

With the election of Phil Wilkinson to URSI Vice President he expressed a desire to withdraw from the chair of this WG. Dr Matthew Angling was elected in his place but no replacement vice-chair

could then be identified. Chair Commission G was given authority to appoint as appropriate before the next GA. (Chairs note; Dr Chris Coleman from Australia has kindly agreed to fulfil this role).

5 Publications.

The incoming Vice-Chair, M. Rietveld was confirmed as the Commission G editor for the new Radio Science Bulletin, incorporating the Review of Radio science. Contributions are requested.

6 Review of GA 2005

The General Assembly was considered quite successful for Commission G. The discussions after papers were particularly animated and beneficial. Several sessions attracted well over 100 scientists, many from other commissions.

7 Resolutions

There were no resolutions from Commission G.

Appendix A: Sessions held at the 2005 General Assembly

Sessions organized by Commission G or with Commission G leading:

- G01a and b Imaging of the Ionosphere (Wilson/Codrescu/Mitchell)
- G02a and b Ionospheric Effects on Radio Systems (Chandra/Lassudrie)
- G03 Density profiling and validation (Foster/Bilitza)
- G04 Open Session (Wilkinson/Wu)
- G05 and b Small Scale structures (Decameter and less in the ionosphere (St Maurice/Chau)
- GF1a and b Atmosphere-Ionosphere sounding by using global navigation satellite systems (Jakowski and Spalla)
- GHJ Novel Ground-Based Radio Techniques for studying the sun-earth plasma environment (Hanuise/Thidé/Butcher)
- Posters - Two sessions - General Poster session (Cannon/Zolesi) plus those associated with the oral sessions

Sessions organized by other Commissions

- HG1 Radio Frequency Observations in Space (Reinisch/James)
- HG2 Ionospheric Modification By High-Power Radio Waves (Leyser and Basu)
- HG3 Dusty Plasmas and Laboratory Plasmas (Ganguly/Havnes/Mareev)
- HGE Ionospheric Effects on Lightning (Blanc/Price and Su)
- HGCJ Diagnostic of Media Fluctuations with Radio Methods (DeWilt/Wernik)
- EGH Seismo-Electromagnetics (Hayakawa/Pulinets/Molchanov)
- FG Degradation by Ionosphere and Troposphere (Arbesser-Rastburg /Coster/Leitinger)