

**Report of Commission H Business Meetings  
URSI General Assembly, New Delhi, October 2005**

2002-2005 Chair: Prof. Umran Inan (USA)

2002-2005 Vice-chair: Dr. Richard Horne (UK)

**Business Meeting 1: Monday 24 October 2005**

**1. Election of Commission H Vice Chair for 2005-2008**

The chair, Umran Inan, announced that two candidates stood for election, Yoshiharu Omura and Ondrej Santolik. After counting voting slips returned by the Commission H national delegates, and those cast at the GA, Yoshiharu Omura was elected as Vice-chair, subject to confirmation at the URSI Council meeting.

**2. Discussion on GA 2005 Organisation and Programme**

The chair, Umran Inan, thanked the local organisers and noted that they had a difficult time organising this assembly. He also thanked the incoming chair, Richard Horne, for his help in organising the sessions, and the session convenors.

The submission of abstracts was discussed, as it was at previous GAs. It was felt that the current system of submitting a 1 page abstract, followed by a 4 page extended abstract and a 100 word summary was excessive. Commission H (along with Commission G) has always regarded the 4 page extended abstract as optional. The general feeling was to continue with a 1 page abstract and 100 word summaries and keep the extended abstract as optional.

The issue of internet access was raised, and requested that wireless access be made available at the next GA.

**3. Terms of Reference**

The terms of reference were reviewed and it was decided to simplify the wording. It was also decided to include a reference to space weather to reflect the important role that wave-particle interactions play in controlling the flux of energetic particles in the radiation belts which cause satellite damage. The terms of reference are now:

The goals of the Commission are :

- (a) To study waves in plasmas in the broadest sense, and in particular :
  - (i) the generation ( i.e. plasma instabilities) and propagation of waves in plasmas,
  - (ii) the interaction between these waves, and wave-particle interactions,
  - (iii) plasma turbulence and chaos,
  - (iv) spacecraft-plasma interaction ;
- (b) To encourage the application of these studies, particularly to solar/planetary plasma interactions, space weather, and the exploitation of space as a research laboratory.

**4. Meeting Support**

Over the last 3 years Commission H has provided support for 6 meetings in mode A (moral support, no funding), and 7 in mode B where funds up to Eu 1,500 have been provided for individual meetings. In total Eu 7,750 has been provided and there is a balance of Eu 2,130. The chair proposed that this money is carried forward and added to new funds in the next triennium as there will probably be additional meetings related to the International Polar Year.

## 5. Publications

The Chair, Prof U Inan, thanked the incoming chair, Richard Horne, for acting as editor for Reviews of Radio Science. During the last 3 years Commission H has been the most productive with 6 review papers published or in press. Richard Horne thanked the authors for their hard work.

<b>Title</b>	<b>Author</b>	<b>Status</b>
Remote sensing of the plasmasphere	Carpenter, D.	Published March 2004.
Solar power satellites	Matsumoto, H.	Special issue Sept 2004
Kinetic and nonlinear processes in space plasmas	Lembege et al.	Published Sept. 2005
Use of RF waves in space propulsion systems	Bering et al.	Published Sept. 2004.
The CLUSTER fleet explores waves in the magnetosphere: chosen illustrations	Decreau et al.	Published Dec. 2005
Space weather effects on communications satellites	Koons and Fennel	In press

The incoming vice chair, Yoshi Omura, agreed to act as the new editor for Commission H for Reviews of Radio Science and Radio Science Bulletin.

## 6. URSI White Papers

URSI has adopted the idea of issuing white papers on important topics relevant to URSI science where it can provide sound scientific information and an open forum for discussion. The first white paper will be on solar power satellites (SPS), led by Professor Matsumoto (former URSI president and Comm H). This white paper was supported by Commission H. So far, other suggestions for a white paper include the effects of mobile phones on human health.

## 7. Commission H Resolutions

There were no Commission H resolutions.

## 8. Proposals for H-led Sessions in 2008

A call for H led sessions for GA 2008 was made, for discussion at BM3 (see below).

## 9. Other business

Three venues had been proposed for GA 2008, Chicago (USA), Istanbul (Turkey) and Goteborg (Sweden). The final decision will be made by a vote at the URSI Council meeting later in the week.

## Business Meeting 2: Wednesday 26 October 2005

This was a joint meeting between Commissions H and G.

### 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: B. Thide (Sweden). Recommend continuing with Commission G representative (and Co-chair) as Dr Keith Groves (USA), and Commission H representative as Dr. Ruzhin (Russia). 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), Co-chairs for Commission H: M. Parrot (France) and O. A. Molchanov (Russia). Recommend continuing with the same officers.
- *HGEJ: Supercomputing in Space Radio Science*. Co-chair for Commission G: A. Barakat, USA, Co-chair for Commission H: Y Omura (Japan). Recommend continuing with the same Commission H representative, but Commission G will withdraw.
- *ABDFGHJK: An inter-commission working Groups on Solar Power Satellites*: Co-chair for Commission G: M Rietveld (Germany), Co-chair for Commission H: N. Shinohara (Japan). Recommend continuing with the same officers.

Commissions 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 J. Lichtenberger (Hungary) as representative for Commissions G and H.

### 2. Commission G and H Resolutions

There were none.

### 3. Proposed URSI Representatives to Organisations

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 (France)

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. G. Lakhina (India).

#### **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 Remarks

The outgoing chair, Umran Inan, thanked the commission for their support, and thanked the incoming chair for his help over the last triennium, and especially over the organisation of the sessions for the GA. The incoming chair, Richard Horne, thanked the outgoing chair for the work that he had done, and for his advice and help – he had been a good teacher. He also welcomed Yoshi Omura as new vice chair, which had been confirmed at the URSI Council meeting. Richard Horne then took over chairing the meeting.

### 2. Proposed Sessions for GA 2008

URSI Council decided that the next GA will be in Chicago 2008. The chair pointed out that at this GA there were 11 half day H led sessions plus a 1.5 day poster session and that for planning purposes we should assume that GA 2008 will have a similar number of sessions. As a guide, the session titles and number of papers at GA 2005 are given in the table below.

Session at GA 2005	papers
H1. Microscopic processes in boundary layers	7 oral + 9 poster
H2. Radiation belts and the Plasmasphere	10 oral + 11 p
H3. Waves and coherent structures in space plasmas	7 oral + 15 p
H4. Multi-point measurements	10 oral + 0 p
H5. Open session & latest results	7 oral + 11 p
HG1. Radio-frequency observations in space	10 oral + 15 p
HG2. Ionospheric modification by high-power radio waves	10 oral + 10 p
HG3. Dusty plasmas and laboratory plasmas	7 oral + 6 p
HGCJ. Diagnostics of media fluctuations with radio methods	7 oral + 12 p
HGE. Ionospheric effects of lightning	7 oral + 3 p
HADFBJK. Solar Power Satellites	7 oral + 2 p

Several new sessions were proposed for GA 2008 including (with suggested convenors):

- H1: Boundary layers: kinetic mechanisms (B. Lembège, G. Lakhina)
- H2: Wave effects on the radiation belts (J. Albert, R. Horne)
  - Including radiation belt remediation
- H3: Waves and coherent structures in space plasmas (J. Pickett, Y. Omura)
- H4: Multi-point measurements of space plasmas (O. Santolik, M. Andre)
- H5: Waves and Dynamics of the Plasmasphere (B. Fraser, H. Laakso)
- H6: Acceleration and Heating by Plasma Waves (R. Bingham, T. Chang)
  - Including tokamaks and lab plasmas
- H7: Open session & latest results (R. Horne, Y. Omura)

Several joint sessions were also discussed:

- HG: Active Radio Frequency Space Experiments (B. Reinisch, G. James, Ruzhin)

- HG: Dusty Plasmas and Laboratory Plasmas (G. Ganguly, Havnes, Mareev)
- HX (inter-union): Solar Power Satellites (H. Hashimoto)
- GH: Ionospheric Modification By High-Power Radio Waves (Groves from Commission G, suggest T. Leyser and S. Basu, B. Thide for Comm H)
- HGE: Effects of Lightning on the Ionosphere and Magnetosphere, (Suggest M. Blanc, Price, V. Pasco)
- HGE: Seismo Electromagnetics (M. Parrot, O. Molchanov)

It was suggested that the open session should be on the first day to encourage full attendance. In this GA there were 11 H led sessions which meant they had to be restricted to half day sessions. There was a feeling that fewer but longer sessions might be more appropriate at the next GA.

### **3. Suggestions for H Tutorial Lecture for GA 2008**

Three people were suggested including Don Gurnett, Umran Inan and Gordon James.

### **4. Requests for URSI Meeting Sponsorship**

Several meetings have requested Commission H support during the next triennium, including:

- Radio Science Symposium for A Sustainable Humanosphere, March 20-21, 2006, Kyoto, Japan (Mode A)
- ISROSES: International Symposium on Recent Observations and Simulations of the Sun-Earth System, September 18-22, 2006, Bulgaria, (Mode B)
- IRI Workshop, October 16-20, 2006, Buenos Aires, Argentina (Mode B)
- COSPAR Meeting July. 17-23, 2006, Beijing, China ( Mode B)
- VLF Workshop, Sodankyla, Sept 2006.
- The 8th International School/Symposium for Space Simulations (ISSS-8): 2008, USA (Mode B)

URSI Council had approved the carry forward of unused funds to the next triennium as proposed by the outgoing chair.

### **5. Publications**

In accordance with tradition, the new vice chair, Yoshi Omura, agreed to take over as editor for Commission H of Radio Science Bulletin, incorporating Reviews of Radio Science. There are 4 review papers being written, but additional reviews papers would be sought. Additional suggestions include J. Holweg on coronal heating, M. Reiner and J. L. Bougeret on solar radio emissions, and R. Benson on IMAGE results and A. Cairns on wave heating in tokamaks.

### **6. Review of GA 2005**

It was felt that the GA had been a good meeting. Although the number of US attendees was less than in previous years, the number of papers submitted had increased over GA 2002. There had only been 2 oral talks where the authors could not attend, but these were filled with other talks. Attendance varied between 40-90 people but some sessions had over 100 including members from other commissions. The Commission H tutorial was very well

attended. The room size was more than adequate, and the coffee facilities by each room were excellent. It was expected that the next GA in Chicago would have a much higher US attendance.

Richard Horne  
Chair, Commission H  
26 April 2006