

Commission J

Radio Astronomy

Chair: Professor Y.N. Parijskij (Russia)
Vice-Chair: Professor R.S. Booth (Sweden)

The commission held two Open Commission Meetings, respectively on August 30 and September 3, 1996. The discussion and resolutions are summarised as follows:

1. Terms of reference

No changes were proposed.

2. Election of Vice-Chair

Two nominations were received and final voting took place at the GA, although those votes received before the GA from National delegates not present at the GA, were also accepted. However, delegates expressed their concern that one of the nominees was not present at the GA. Results were, in order of preference:

1. Professor Jacqueline Hewitt (USA)
2. Professor S. Ananthkrishnan (India)

3. Inter-Union Programmes

3.1. *Inter-Union Commission on the Allocation of Frequencies for Radio Astronomy and Space Science (IUCAF)*

URSI nominates four (now six) members of IUCAF. Each member has a six year term, with two members rotating at each General Assembly. At the time of the GA, the Commission J members of IUCAF were J. Whiteoak (Australia), who replaced B.J. Robinson in 1995, W. Baan (USA) - Chairman, R.J. Cohen (UK) and H.C. Kahlmann (Netherlands). Kahlmann retired at the GA and the Commission recommended that he should be replaced by K. Ruf (Germany). It was also suggested that Whiteoak should continue until the next GA.

These recommendations have been communicated to the President and General Secretary.

3.1.1. IUCAF Resolutions

The IUCAF chairman's report expressed serious worries about interference in wavebands allocated to Radio Astronomy. Proposals for cloud-sensing radar at mm wavelengths and mobile communications systems (such as the Motorola Iridium project) are specific examples. The underlying problem is that regulatory mechanisms are being subverted by multi-national corporations that cause enormous monetary value to be attached to all pieces of the electromagnetic spectrum without allowance for passive users with ultrasensitive measurement requirements. Our resolutions, summarised below, reflect these worries.

- a) Interference to Radio Astronomy from Satellites. This resolution calls on the ITU, and affiliated national and regional administrations to encourage the use of modulation schemes that minimize harmful interference, to require pre-flight testing of satellite transmission systems, to devise rulemaking that prevents new users from

disrupting existing users, and to require electro-magnetic environmental impact statements before operation is authorized.

- b) Protection of Existing Passive Use of the Millimetric and Sub-Millimetric Portions of the Radio Spectrum. Because of the lack of filter technology at mm-wave frequencies, the ITU and national administrations are asked to take great care in frequency allocation and possibly to defer active use until such technology is available.
- c) Protection of Passive Services in the Shielded Zone of the Moon. This is the same resolution that was adopted at the 1994 GA of the International Astronomical Union in The Hague.
- d) Inter Commission Working Group on Radio Interference. This resolution calls for the establishment of ICWG to study all technical aspects of harmful interference, to invite two members from all URSI Commissions to participate, and to establish a cooperation mechanism with the ITU-R Study Groups.
- e) The restatement of the resolution accepted at the 1993 GA calling on the ITU to allocate spectrum only to those services which must radiate electromagnetic energy.

3.2 ICSU Working Group on Adverse Environmental Impacts on Astronomy

J. Cohen (UK) was re-nominated as the Commission J member on this working group.

3.3 FAGS

Prof. Roy Booth agreed to succeed Prof. R. Wielebinski as the Commission J representative on FAGS (the Federation of Astronomical and Geophysical Data Analysis Services).

4. Review of Radio Science

The Commission editor, Dr. T. Tzioumis, reported on the Review. Commission J continues to support the Review but again voted against the disk, essentially for the reasons given in the previous report.

Dr. Richard Strom (Netherlands) was appointed as Commission editor for the 1999 issue of the Review.

5. Communications

The commission was keen to see better communications between General Assemblies. It was agreed that a www page, linked to the URSI page, would be established, as recommended by the secretariat.

6. Reports of the Working Groups

6.1 Global VLBI

This working group, formed at the Prague GA to coordinate Global VLBI developments, has been actively supporting the Space VLBI missions. It was decided to recommend the continuation of the Group's activities until the launch of those missions. Professor Roy Booth (Sweden), now Commission Chair, will resign as Chairman after the launch of the Japanese VSOP mission and it was unanimously agreed to nominate Professor Richard Schilizzi (Netherlands) to take over the Chairmanship in mid 1997. The commission thanked Professor Booth for his work on their behalf.

6.2 Large Telescope Working Group

The Chairman, Dr R. Braun (Netherlands), reported on a series of meetings of this Group and the continuing definition of the needs and plans for such an instrument. Groups in the Netherlands and in China were actively working on different but complementary ideas. The working group will continue its activities.

6.3 Working Group for a 'Large Millimetre/Submillimetre Array

Three groups, in the US, Japan and Europe are working on separate projects to build arrays in the southern hemisphere and, although much collaborative work has been done, particularly in the area of site testing, it has been difficult to achieve much discussion on combining these projects into one single array. The co-chairmen, Professors Ishiguro (Japan) and Booth (Sweden) felt that they were perhaps too close to the projects, being individually involved with the Japanese and European studies, respectively, and decided to stand down. It was agreed that Dr Jaap Baars (Germany) should become the next Chairman.

7. Review of the Lille General assembly

7.1 Scientific Programme

Commission J members thought that the scientific content of the J programme was good but that there were too many sessions (all slots were filled), leaving too little time to attend meetings of other commissions.

General Lectures are a good idea but two of the three Lille general lectures were not very interesting

Tutorials are also a good idea but since there were always other commission meetings at the same time, making it difficult to get a general audience, some of the point of the tutorial was lost.

7.2 More general issues

7.2.1 Length of the General assembly

There was a preference for a shorter general assembly, say a continuous six day programme of scientific sessions, but with a wish to keep the General Lectures, Tutorials and Open business meetings.

7.2.2 Young scientists

Commission J noted that there were not many young radio astronomers at the GA. They also noted that Radio Astronomy fared relatively poorly in young scientist awards and agreed to publicize the young scientist award programme more widely before the next GA. Since it is the young scientists that hold the key to the future of URSI it was felt that conveners should leave more slots in their programmes for contributed papers, giving young people more opportunities to submit papers. Often institutions will only support members of staff to attend a meeting if they are giving a paper.

8. Symposia for Commission sponsorship in 1996 - 1999

8.1 VLBI: Galactic and Extragalactic

Contact: A. Zensus .

Location: Socorro, New Mexico. Date: April 1997.

8.2 The Universe at Metre Wavelengths

Contact: G. Swarup. Location: India. Date: 1997/98.

8.3 50 Years of Radio Galaxies

Contact: R. Ekers. Location: Australia. Date: 1999

APPENDIX

Comm. J Organised eight Scientific Sessions:

- J1 Measurements of the Cosmic Microwave Background
Convener: R.D. Davies (UK)
- J2 Pulsars and Interstellar Matters
Convener: V. Radhakrishnan (India)
- J3 Millimetre and sub millimetre astronomy

Convener: S. Guilloteau (France)

- J4 Next generation millimetre/sub millimetre arrays- technical and observational challenges
Conveners: R.S. Booth (Sweden), M. Ishiguro (Japan)
- J5 Next generation large cm/decimetre telescopes
Convener: R. Braun (Netherlands)
- J6 New developments in VLBI
Convener: C. Walker (USA)
- J7 Highlights of the past 3 years
Convener: R. Ekers (Australia)
- J8 Observatory reports (oral)
Convener: T. Wilson (Germany)

Poster sessions

- P1 Observatory Reports
Convener: T. Wilson (Germany)
- P2 New Results
Convener: R. Ekers (Australia)

The Commission was also help to Organise the following Joint Sessions

- JB1 Focal Plane Arrays
Convener for Com. J. : N. Whyborn (Sweden)
- JB2 New Antenna Technology
Convener for Com. J. : P. Napier (USA)
- JH1 Kilometre Wave Radio Emission Generated by Coherent Processes from the Sun and Planets
Convener for Com. J. : M. Kundu (USA)
- JCE1 Interference Problems in Radio Astronomy and Communications- or Cosmic Ecology
Convener for Com. J. : J. Whiteoak (Australia)

Tutorial Lecture

- Dr. James Moran (USA) : Cosmic MASERS - an important tool in Radio Astronomy

Guest Lecture

- Nobel Laureate, Prof. Joe Taylor, also of Comm. J, gave a public lecture: Radio Science, Pulsars and General Relativity