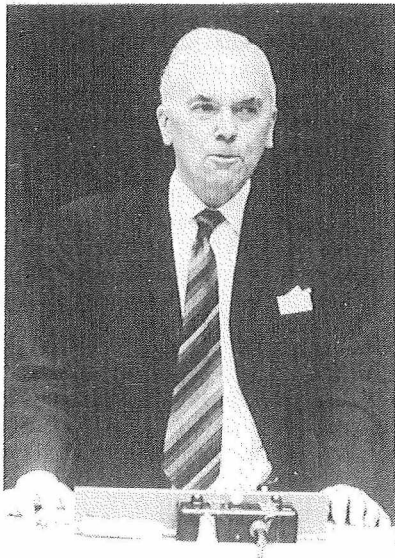


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IN MEMORIAM
F.H.C.M. MINNIS
1912-1985



Francis Hugh Campbell Morgan Minnis, Secrétaire général émérite de l'URSI, s'est éteint à Saintfield le jour de Noël 1985. Né à Saintfield, en Irlande du Nord, dans une famille d'hommes d'affaires, il fit ses études universitaires à l'Université Queen's de Belfast, où il obtint un diplôme de physique en 1932, suivi plus tard d'une maîtrise et d'un doctorat.

Sir Granville Beynon, Président d'honneur de l'URSI, nous fait parvenir le texte suivant sur la carrière du Dr. Minnis.

"Dr. C.M. Minnis was a scientist and a scientific administrator who for more than twenty years, played a leading role in international cooperation in solar-terrestrial physics and

in radio science.

Francis Hugh Campbell Morgan Minnis was the eldest of a family of four (three girls and a boy) born and brought up in Saintfield, County Down, Northern Ireland. He was educated at Saintfield Academy, at Belfast Methodist College and at Queen's University Belfast. He graduated in 1932 with a First Class Honours Degree in Experimental Physics and later received M.Sc. and D. Sc. degrees from Queens. He was for a time Demonstrator in Physics at the University and in the late 1930's he was appointed to the research group then being established by Sir Robert Watson Watt to develop radio methods for detecting aircraft. Minnis was thus one of the early members of the U.K. team working on 'radio-location' or as it was subsequently termed 'radar'. After the War, Minnis joined the scientific staff of the Radio Research Station at Ditton Park, Slough and for a number of years he carried out research on various ionospheric and radio propagation topics. His involvement with international cooperation in science began in 1962 when he was appointed Secretary of the Committee for the International Years of the Quiet Sun (IQSY). Towards the conclusion of the (IQSY) project Minnis helped to establish the Inter-Union Commission on Solar-Terrestrial Physics (IUCSTP) before leaving in 1967 to become Secretary General of the International Union of Radio Science (URSI), a post he held until his retirement in 1979.

Dr. Minnis was without doubt a scientific administrator of the highest calibre. The widely acknowledged enormous success of the IQSY enterprise was in no small measure due to the excellence of the IQSY Secretariat which he established and directed. He was involved with every aspect of the project from start to finish and a permanent tribute to his efforts exists in the 21 issues of 'IQSY Notes' (the forerunner of 'STP Notes') which he edited, the 10 'IQSY Manuals' and the 7 volumes of 'IQSY Annals', in the preparation and publication of which he played a major part. It was my privilege to introduce Minnis to the IQSY project in 1962 and to the URSI Secretariat in 1967, and for 25 years we worked closely together in these organisations. With his long personal experience as an active scientist, both in radio science and in solar-terrestrial physics, few were better qualified to become Secretary General, first of the IQSY, then of URSI. He brought great distinction to both these offices and on his retirement URSI awarded him the title Secretary General Emeritus. With his passing, the

international radio science and solar-terrestrial physics communities have lost a great servant, friend and gentleman and he will long be remembered".

Le Dr. F. Horner, ancien Président de la Commission VIII de l'URSI, a connu le Dr. Minnis après l'arrivée de celui-ci à Slough, en 1948. Il écrit les mots que voici:

"Following his wartime service, Dr. Minnis returned in 1948 to civilian research at the Radio Research Station at Slough, and turned his attention to studies of the accuracy with which forecasts could be made of the optimum frequencies for high-frequency radio communications over long distances. Such forecasts were highly dependent on the use of indices to allow for variations in solar activity which affected the ionosphere, and he considered that the use of an index based directly on measurements of the ionospheric characteristics would be more reliable than the well-established use of sunspot numbers. Studies were carried out, based on the critical frequencies of both the E and F layers of the ionosphere, and also on the long-term measurements of centimetre-wavelength emissions of the Sun, being made by other workers. Interesting records were made of the changes in ionospheric characteristics during eclipses of the Sun and Dr. Minnis made good use of the effects of the eclipses in Singapore and at stations in Africa.

Examination of the errors in ionospheric forecasting using various indices led to the adoption in many countries of an index IF2, based on the observed critical frequencies of the ionospheric F-2 layer. Dr. Minnis was a key figure in promoting its adoption and made extensive studies of the global distribution of the F2 critical frequencies on which the IF2 index could be based. The complexity of the problem led him to take the first steps in adopting computer techniques to facilitate the work.

Although Dr. Minnis became increasingly involved in organizational work connected with the IGY in 1958 and with the IQSY in 1962 (at which time he left the Radio and Space Research Station, as it had become), he maintained his position as an authority on ionospheric forecasting indices and was awarded the degree of D.Sc. in 1959, largely as a result of this work. In 1964 he wrote an extensive review of the subject published in 'Advances in Radio Research' (Vol.2)."

Le Dr. Minnis fut Secrétaire général de l'URSI de 1967 à 1979, au cours des présidences de S. Silver, W. Dieminger, W.J.G. Beynon, J. Voge et W.N. Christiansen. Le Dr. Dieminger, Président d'honneur de l'URSI, nous fait part de ses réminiscences:

"When I met Dr. C.M. Minnis for the first time in 1963, his name was already well known to me from the literature. He had published, among others, the results of his investigations on the dependence of ionospheric parameters on solar activity. This was a problem which I was familiar with from my activities in the German Ionospheric Forecasting Service. Minnis was at that time Secretary of the Special Committee for the IQSY. I was Reporter for the Ionosphere on that Committee, and we met again and again in different locations. I became acquainted with Minnis' capabilities and was really delighted when he took over the responsibilities of the Secretary General during the illness of Colonel Herbays, and became his successor after Herbays' untimely death in 1967. The transition did not imply a break, primarily because the Administrative Secretary, Mme Stevanovitch, who had already served URSI for ten years, stayed in office.

I was one of the Vice-Presidents of the Union at that time, and I had the privilege to enjoy the work of Dr. Minnis on every meeting of the Board of Officers at Brussels. I remember with pleasure the efficient preparation of these meetings, and the intimate atmosphere which reigned on the premises of the URSI Secretariat, Place Emile Danco, Uccle.

It was in Ottawa in 1969 that Dr. Minnis attended a General Assembly of URSI for the first time. When I was elected President of URSI on that occasion, I already knew that I could entirely rely on his loyalty and his unflinching support. I should like to repeat what I said at the end of my presidency in Warsaw in 1972: "His competence in dealing with scientific problems as well as with administrative questions has been and is still one of the pillars on which URSI rests. I confess frankly that I would have been unable to fulfil my duties as President of URSI without his constant help and advice". May I add that his ability of speaking the two official languages of the Union fluently was of paramount importance in the discharge of his duties.

Dr. Minnis has prepared four General Assemblies of URSI:

Ottawa 1969, Warsaw 1972, Lima 1975 and Helsinki 1978. During this period, a serious problem arose in URSI, to wit: the reorganization of the Union. As the result of historical developments a substantial overlap of interest with the Association of Geomagnetism and Aeronomy (IAGA) of IUGG had arisen, and created serious problems. Two solutions were envisaged: A merger with IAGA and the creation of a new Union, or the restriction of URSI activities to radio aspects in the pertinent fields. After very thorough and lengthy discussions the second possibility was chosen at the General Assembly of Warsaw. It should be stressed that Dr. Minnis preserved always a very fair and objective attitude in these difficult matters.

After the 1978 General Assembly in Helsinki, Dr. Minnis retired. He was the last full-time Secretary General after Robert Goldschmidt and Colonel Herbays. For financial reasons URSI had to abstain from an arrangement which had proved very advantageous for almost six decades.

Dr. Minnis was a dear friend and a gentleman".

Comme le dit le Professeur Dieminger, après 1978 le Secrétariat général devint l'apanage d'un volontaire, prêt à consacrer le temps libre que lui laissaient ses occupations normales à l'expédition des affaires administratives de l'Union. Il fut décidé que les autres membres du Bureau prendraient des responsabilités accrues afin de réduire au minimum la diminution évidente des services que le Secrétariat pouvait rendre à l'Union. Le Professeur Hontoy prit sur lui la tâche ingrate de diriger le Secrétariat dans ces nouvelles structures. Terrassé par une maladie soudaine, il dut renoncer à ce défi, et il m'incomba de reprendre ses responsabilités à très court terme, sans grande préparation. C'est à ce moment que le Dr. Minnis vint à la rescousse, en nous prodiguant de façon tout-à-fait désintéressée les conseils et avis que lui dictait sa longue expérience. Le Trésorier, en particulier, trouva un appui décisif dans la grande expertise financière qu'avait acquise mon prédécesseur. Cet homme de bien, modeste et courtois, connaisseur de bons vins, aimait la langue française, et la pratiquait couramment. Il eût aimé qu'une partie de cet In Memoriam fût écrite dans la langue de Molière.

J. Van Bladel

IVO RANZI
1903-1985

It is with deep regret that I announce the death, on 14 August 1985, of Professor Ivo Ranzi, the Italian Official Member of URSI Commission III (now "G") from 1938 to 1968.

Professor Ranzi has been one of the pioneers of experimental research in ionospheric physics, to which he made many important contributions.

Born in 1903, Doctor in Physics in 1925, already in 1931 and as Professor of Physics at the University of Camerino, he performed ionospheric radio soundings using apparatus with two important innovations: only one antenna for both transmitting and receiving, and a grid-leak device for pulsing the transmitting tube. Shortly afterwards, in 1935, at the National Institute of Geophysics in Rome, he realized the first automatic ionosonde in Italy. In 1937 he became ordinary Professor of Experimental Physics at Cagliari University and, in 1942, Professor of High Physics at the University of Florence. From 1948 to 1955 he was at the disposal of the government of the Argentine republic for performing ionospheric research, through the Italian Foreign Affairs Ministry; with such a qualification he organized the first ionospheric measurements in the Argentine territories in Antarctica. After a new short period at the University of Florence, he was, from 1958 until his retirement in 1978, ordinary Professor of Electromagnetic Wave Propagation at the High School for Telegraphy and Telephony of the Italian Ministry of PTT in Rome.

His noteworthy experimental activity was the matter of more than hundred scientific publications and touched many aspects of the ionospheric radio electricity with great originality of methods and results. The following are to be remembered in particular: a simple and powerful method for detecting small phase variations of ionospheric radio echoes, correlated by him to geomagnetic pulsations (1934); the putting in evidence of the longitude effect in the large-scale distribution of F2 critical frequencies (1939); the promotion of ionospheric radio soundings by ground backscattering and their utilization in studying radio scattering both from land and sea and from ionospheric wavelike irregularities.

His great scientific experience made him play an eminent role in important international scientific organizations, besides URSI. In particular, he was President of CCIR Commission IV (from 1970, "II") for Space and Radioastronomical Research from 1959 to 1978, and during the period 1971-1974 he was member, and then President, of the AGARD-NATO Panel for Electromagnetic Wave Propagation.

Anyone who, like me, has had the privilege of working under his guidance has had also the opportunity of appreciating the interesting and pleasant human personality of Professor Ranzi, and will always remember the serenity with which he faced his last long and terrible disease.

Pietro Dominici

FREDERICK WILLIAM CHAPMAN 1906-1985

Dr. F.W. Chapman died on 20 December 1985 aged 79 years. Excepting only a period during the war when he was seconded to the Ministry of Supply, Fred Chapman had a continuous presence in King's College from the time that he entered as a General Honours student in 1926 to the date of his retirement as a Reader in Physics in 1972. He obtained his B.Sc. degree in 1929 and afterwards was invited by Professor (later Sir) Edward Appleton to join his Radio Research Group. In this group Fred Chapman obtained an M.Sc. in 1931 and a Ph.D. in 1935. His Ph.D. Thesis was on the subject of "rapid variations of the Earth's electric field". These variations are now known to be generated by lightning flashes. He developed this and related research interests in the post war period and his work, together with that of his research students, was well known internationally. Dr. Chapman attended the General Assemblies of URSI in 1950, 1952 and 1954 and participated in the activities of the Commission on Radio Noise of Terrestrial Origin.

At King's College, Dr. Fred Chapman was responsible for the teaching of electromagnetism and also played a major part in the development of the undergraduate teaching laboratories. To undergraduates and postgraduates alike he was a father figure who could be relied upon for advice on both academic and non-academic problems. He will be remembered with affection by all those with whom he interacted.

David Ll. Jones

PERSONALIA

It is our pleasure to announce the following:

Dr. A.P. Mitra, President of URSI, has taken over the dual position of Director General of the Council of Scientific and Industrial Research and of Secretary of the Department of Scientific and Industrial Research with effect from 26 February 1986. The CSIR is responsible for 43 laboratories (one of which is the National Physical Laboratory), with a combined staff of about 25,000. The National Laboratories of the CSIR cover most of the disciplines belonging to the physical, chemical, engineering, biological and information sciences. The CSIR is operated through a Society presided by the Prime Minister of India.

Prof. W.E. Gordon, Past President of URSI, has been elected Foreign Secretary of the National Academy of Sciences of the USA, effective 1 July 1986.

XVII INTERNATIONAL CONFERENCE ON PHENOMENA IN IONIZED GASES

The XVII International Conference on Phenomena in Ionized Gases was organized by the Roland Eötvös Physical Society and the Central Research Institute for Physics of the Hungarian Academy of Sciences in Budapest, under the patronage of the Hungarian Academy of Sciences, from 8 to 12 July 1985. The Conference was sponsored by the International Union of Pure and Applied Physics, the International Union of Radio Science and the Tungfram Ltd Budapest. There were 367 participants coming from 32 countries.

Eleven general invited lectures in plenary sessions, and twenty topical invited lectures in two parallel sessions reviewed the newest results in the topics selected by the International Scientific Committee of the Conference. The 392 contributed papers were given in 8 poster sessions. The topics, devoted mainly to application-oriented basic low temperature plasma physics, were as follows:

- Kinetics and thermodynamics of plasma including transport phenomena;
- Waves and instabilities in plasmas;
- Plasma-beam interactions including laser beams;
- Plasmas in astrophysics;
- Physical aspects of plasma chemistry;
- Non-ideal plasmas;
- Elementary processes;
- Electrode and surface effects;
- Breakdown including ionization growth, coronas and sparks;
- Glows and microwave discharges;
- Arcs;
- Numerical modelling related to discharges and plasmas;
- Laser induced discharges;
- Discharges for lasers;
- Generation and dynamics of plasma flows;
- Plasma spectroscopy (including radiation transport);
- Diagnostic methods related to all topics listed above.

The contributed papers have been published in two volumes of the Conference Proceedings (three pages for each paper) before the Conference. The invited lectures are to be published in a separate volume after the Conference.

The Organizing Committee of the Conference invited 55 guests and reduced or released the conference fee for 95 participants coming from developing countries. The conference fee of \$110 was reduced to \$70 for students.

57 volumes of the Conference Proceedings were sent free of charge to the Trieste Centre for Theoretical Physics for help to developing countries.

The scientific level of the Conference was high. The meeting gave good opportunity to scientists coming from all parts of the world to exchange ideas in a quiet relaxed atmosphere.

The XVIII Conference on Phenomena in Ionized Gases will be held in Swansea, United Kingdom, in 1987.

J.S. Bakos

10TH ANNUAL INTERNATIONAL CONFERENCE ON INFRARED AND MILLIMETER WAVES

The 10th Annual International Conference on Infrared and Millimeter Waves was held at Lake Buena Vista, Florida, USA from 9 to 13 December 1985. It was held in four parallel sessions, namely, millimeter waves (120 delegates), free electron lasers and gyrotrons (60 delegates), submillimeter waves (30 delegates) and millimeter-wave plasma diagnostics (16 delegates). When the conference is held in the USA, there is a growing participation by the millimeter wave delegation and a shrinking participation by the submillimeter wave delegation. The opposite was true when the conference was held in Japan (1984) and in France (1982). The Conference will be held in Italy in 1986.

Twenty five invited papers and 225 contributed papers were presented. These were presented in eleven sessions on millimeter waves, nine sessions on the free electron laser and gyrotron, nine sessions on submillimeter waves, three sessions on plasma diagnostics and two sessions on far infrared measurements on materials.

Although this has been established as an annual conference, it has become clear that the submillimeter wave dele-

gates prefer to attend in even numbered years when they can expect a richer programme and a larger attendance by their closest colleagues. The millimeter wave and gyrotron delegates have not adopted this preference.

K.J. Button

WORKSHOP ON THE INTERNATIONAL REFERENCE IONOSPHERE

The Workshop on the International Reference Ionosphere was held at the Université Catholique de Louvain, Louvain-la-Neuve, Belgium, from 20 October to 1 November 1985. It was sponsored jointly by URSI and COSPAR. There were 18 participants from 10 countries.

The 130-page Proceedings of the Workshop will be published in *Advances in Space Research* under the title "International Reference Ionosphere - State 1985/86". The editors are K. Rawer and Y.V. Ramanamurty. The Table of Contents of the Proceedings is reproduced below.

- Preface
- Highlights of the 1985 URSI/COSPAR Workshop on the IRI, Y.V. Ramanamurty
- The Interest of Information obtained by Incoherent Scatter Technique, K. Rawer and D. Bilitza

CHAPTER 1 - TOPSIDE

- Electron Density in the Equatorial Topside, D. Bilitza
- Modelling the Plasmasphere for the IRI, M.J. Rycroft and I.R. Jones
- Comparison of Measured and Predicted F2 Peak Altitude, D. Bilitza
- Latitudinal Asymmetry in Electron and Ion Density Distribution in Southern and Northern Hemispheres, K.B. Serafimov, I.S. Kutiev and Ts.P. Dachev
- On the Relative Abundance of Helium Ions in the Topside Ionosphere, R. Koleva and I. Kutiev

CHAPTER 2 - MIDDLE IONOSPHERE

- Determining Electron Density Profiles for the Middle Ionosphere, K. Rawer
- Reliability of Electron Density Profiles, A.K. Paul
- Controlling Role of Maximum Usable Frequencies in Ionospheric Informatics, T.L. Gulyaeva
- Practical Method for Routine Analysis of the Valley Parameters between E- and F-Region of the Ionosphere, K. Bibl and M. Calandrella
- Proposal for the Improvement of the Electron Density Profile of the F Region, K. Serafimov
- Refinement in the Diurnal Variation of IRI-79 Electron Density Distribution, Y.V. Ramanamurty

CHAPTER 3 - LOWER IONOSPHERE

- Input from Station-oriented Observations and its Assimilation into the New Formula for the International Reference Lower Ionosphere (IRLI), Y.V. Ramanamurty
- Report on the Discussions on Modelling the Lower Ionosphere, Y.V. Ramanamurty
- Electron Density Models for the Lower Ionosphere, W.C. Bain
- Comparison between D- and Lower E-Region Electron Density Profiles and IRI-79, G.A. Moraitis
- A Note on the Use of Absorption Measurements for Improving the IRI Electron Density Distribution in the Lower Ionosphere, K.B. Serafimov, M.K. Serafimova, Y.V. Ramanamurty and K. Rawer
- A Study of the Short-term Variations of foE during a Sudden Magnetically Disturbed Period, C.K. Barbatsi
- A Simplified D-Region Ion Chemistry Scheme and its Possible Use for IRI Lower Ionosphere Modelling, J. Taubenheim and B.S.N. Prasad
- Normalized Electron Production Rate Profiles as a Result of Penetration of High Energy Solar Particles into the Lower Ionosphere, P.I. Verlinov and M. Gerdjikova

CHAPTER 4 - TEMPERATURES

- Implementation of the New Electron Temperature Model in IRI, D. Bilitza
- Heat Balance of the Ionosphere: Implications for the International Reference Ionosphere, D. Bilitza.

1986 INTERNATIONAL ZÜRICH SEMINAR ON DIGITAL COMMUNICATIONS

This successful and well established biennial seminar was held on 11-13 March 1986, at the Swiss Federal Institute of Technology, Zürich, Switzerland. It was sponsored by the IEEE Switzerland Chapter on Digital Communication Systems, and co-sponsored by URSI and other scientific bodies. The President of the 1986 Seminar was Prof. A. Kündig and the Chairman was Dr. A. Hartmann.

The subject of the 1986 Seminar was "New Directions in Switching and Networks". In his opening address, Professor Kündig stressed that, while low-speed Integrated Services Digital Networks (ISDN) are not yet routinely provided in any country, the technology is available for constructing Gbit/s networks and it is very difficult to predict the users' need.

37 papers were presented in 6 sessions on:

- A: New directions in communications, an overview.
- B: Network architectures.
- C: Wideband circuit switching.
- D: Wideband packet switching.
- E: Methods and tools.
- F: Distributed systems.

The relative merits of circuit and packet switching were the subject of lively discussions, which of course did not put an end to the race between these techniques. Some papers were relevant to hybrid techniques.

While the meeting essentially focused on switching techniques for future broadband communication networks, the papers and discussions showed the need for further research in areas of direct interest to URSI, namely bitrate reduction algorithms in entertainment and high-definition television, high-speed signal processing architectures and VLSI, and integrated optics devices.

The meeting was attended by about 570 participants. A cocktail was offered on 11 March evening in the Dozentfoyer of the ETH and many participants enjoyed the banquet organized in the traditional atmosphere of the guild house "Zur Meisen" on 12 March.

The Symposium Proceedings are published with the IEEE
Catalog No 86CH2277-2 and can be ordered from:

Institut für Elektronik
ETH-Zentrum
CH-8092 Zürich
Switzerland,

or

IEEE Service Center
445 Hoes Lane
Piscataway, NJ 08854
USA.

P. Delogne

ANNOUNCEMENTS OF MEETINGS AND SYMPOSIA

1986 ANNUAL MEETING OF THE NATIONAL COUNCIL ON RADIATION

PROTECTION AND MEASUREMENTS

The National Council on Radiation Protection and Measurements will hold its Annual Meeting on 2-3 April 1986 in Washington, D.C., USA. The programme of the Scientific Session on "Nonionizing Electromagnetic Radiations and Ultrasound" will include the following topics and presentations:

Radiofrequency Electromagnetic Radiations

- Physical Interaction Processes and Energy Absorption , A.W. Guy
- Biological Effects at the Cellular, Molecular, and Organismic Levels, D.R. Justesen
- Behavioral Effects, M.E. O'Connor
- Electromagnetic Fields, Cell Membrane Amplification and Cancer Promotion, W.R. Adey
- Exposure Criteria, E.L. Alpen

Low Frequency Electric Fields

- Nature of the Fields, Interactions and Energy Absorption, W.T. Kaune
- Biological Effects, H.B. Graves

Magnetic Fields

- Mechanisms and Effects in Biological Systems, Th.S. Tenforde
- Safety and Hazard Evaluation of Magnetic Resonance Imaging, Th. Budinger

Ultrasound

- Medical Ultrasound Fields and Exposure Measurements, P.L. Carson
- Medical Applications and Medical Exposures, M.C. Ziskin
- Biological Effects of Ultrasound, F. Dunn
- Development of Exposure Recommendations, W.L. Nyborg

Brief Reports on Selected Committee Activities

- Biological Effects of Magnetic Fields, D.D. Mahlum
- Practical Guidance on the Evaluation of Human Exposures to Radiofrequency Radiation, R.A. Tell

- Extremely Low-Frequency Electric and Magnetic Fields, W.R. Adey
- Video Display Terminals, G.M. Wilkening.

COMMISSION F OPEN SYMPOSIUM ON WAVE PROPAGATION:

REMOTE SENSING AND COMMUNICATIONS

The Open Symposium on Wave Propagation: Remote Sensing and Communications, which is sponsored by URSI Commission F, will be held from 28 July to 1 August 1986 at the University of New Hampshire, Durham, NH, USA. Papers on any topic of interest to Commission F are welcome. Papers are encouraged in the following areas:

- wave propagation over the Earth's surface;
- wave propagation in, and interaction with, the neutral atmosphere;
- wave interaction with the Earth's surface, oceans, land, ice;
- wave propagation through, and scattering by, the sub-surface medium;
- characterization of the environment as it affects wave phenomena.

Papers are encouraged on applications of wave propagation studies to remote sensing and communications.

Abstracts should be mailed to:

Professor Robert K. Crane
Thayer School of Engineering
Dartmouth College
Hanover, NH 03755, USA.

Four-page summaries of papers accepted for presentation are due by 15 May 1986 for inclusion in the preprint volume.

Advance registration and hotel reservation will be mailed with the Advance Programme.

14th ANNUAL MEETING ON ATMOSPHERIC STUDIES

BY OPTICAL METHODS

This meeting, arranged jointly by University College London and the British Antarctic Survey, will be held at Clare College, Cambridge, UK from 17 to 22 August 1986. It will follow the time-honoured tradition of providing a forum for:

- presenting new and exciting results obtained by many optical techniques;
- evaluating the results now being obtained;
- discussing their significance;
- considering possibilities and opportunities for future instrumentation and programmes on the aurora, airglow and laser/lidar studies of the atmosphere.

Topics to be covered will include ground-based and space-borne instruments, coordinated observational campaigns, theoretical considerations and the interpretation of data in terms of atmospheric science.

For further information, contact:

Dr. D. Rees
Department of Physics and Astronomy
University College London
Gower Street
London WC1E 6BT, United Kingdom.

XI GENERAL ASSEMBLY OF THE EUROPEAN GEOPHYSICAL SOCIETY

The XI General Assembly of the European Geophysical Society will be held in Kiel, F.R. Germany from 25 to 30 August 1986. The European Seismological Commission will meet in Kiel at the same time.

A very full programme of Symposia and Workshops has been arranged in the fields of Solid Earth and Planets, Atmospheres and Hydrospheres, and External Geophysics.

As in previous years travel awards will be available to help young scientists attend the meeting to present a paper. Applicants need to be under 30 years of age on 31 Dec 1986 and full details can be obtained from the Secretary General of EGS:

Dr. G.M. Brown
Department of Physics
University College of Wales
Aberystwyth SY23 3BZ
United Kingdom.

2nd INTERNATIONAL WORKSHOP ON TIME-VARYING IMAGE
PROCESSING AND MOVING OBJECT RECOGNITION

This International Workshop will be held in Florence, Italy on 8-9 September 1986. It is sponsored by the European Association for Signal Processing (EURASIP), the IEEE Middle and South Italy Section, the International Centre for Signal and Image Processing, the University of Florence, the Istituto di Ricerca sulle Onde Elettromagnetiche (IROE), etc.

The Chairman of the Workshop is Prof. V. Cappellini, University of Florence and IROE. Invited lectures will review recent developments in the field of time-varying image processing and moving object recognition with applications to communications, radar-sonar systems, moving vehicle tracking, remote sensing, biomedicine, artificial intelligence and robotics.

For more information, contact:

ENIC
Via S. Caterina d'Alessandria 12
I - 50129 Florence
Italy.

INTERNATIONAL SYMPOSIUM ON IONOSPHERE MODIFICATIONS
BY POWER RADIO WAVES

This Symposium will be held from 8 to 12 September 1986 at Moscow-Suzdal, USSR. It is organized by the Soviet URSI Committee, the Scientific Council on Radio Wave Propagation of the USSR Academy of Sciences and the Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation (IZMIRAN) of the USSR Academy of Sciences.

The programme will include review papers and short presentations on the following topics:

- modification of the atmosphere and lower ionosphere;
- modification of the upper ionosphere (F Region);
- LF-emission effects in the upper ionosphere and the magnetosphere;
- modulation of current jets and geophysical effects.

It is proposed to publish the Proceedings of the Symposium. Papers should be submitted to the Organizing Committee before 15 March 1986. The length of the papers should not exceed more than 2 pages. The text should be typed with 1,5 spacing on one side of the sheet. All typing should be inside of the print-block 170x270 mm (the format of the sheets: 210x297 mm).

All requests for information should be addressed to the

Soviet URSI Committee
Prospekt Marksa 18
103907 Moscow K-9
USSR.

11th ANNUAL INTERNATIONAL CONFERENCE ON INFRARED
AND MILLIMETER WAVES

The 11th Annual International Conference on Infrared and Millimeter Waves will be held from 20 to 24 October 1986 at Tirrenia (Pisa), Italy.

There will be four parallel sessions which will provide a full week of papers on each of the following topics: millimeter

waves, free electron lasers and gyrotrons, and submillimeter waves. A few sessions will cover plasma diagnostics, spectroscopic techniques and millimeter wave measurements on materials. The invited papers in all of these areas will be given in plenary sessions.

The Conference is being organized under the general chairmanship of Prof. K.J. Button who may be called upon for copies of call for papers, hotel application forms and information. Abstracts should be sent to:

Prof. M. Inguscio and Prof. F. Strumia
Dipartimento di Fisica
Universita di Pisa
Piazza Torricelli 2
I - 56100 Pisa, Italy.

For additional information, write to:

Prof. K.J. Button
Box 72
MIT Branch
Cambridge, MA 02139-0901
USA.

16th EUROPEAN MICROWAVE CONFERENCE

The 16th European Microwave Conference will be held from 8 to 11 September 1986 at the National Concert Hall in Dublin, Ireland. A Workshop is planned on 12 September on Direct Broadcast Satellite Systems. The Conference is organized in cooperation with the Royal Irish Academy, the Institution of Engineers of Ireland, the Institution of Electrical Engineers (Irish Branch), and other societies. It is cosponsored by URSI.

The Chairman of the Technical Programme Committee is Prof. J.O. Scanlan, University College, Dublin.

All areas of microwaves will be considered. Special emphasis will be placed on the following aspects of microwaves:

Propagation; New advances in cellular radio; Digital radio systems; Remote sensing (especially using mm waves); MM wave

solid-state devices; New advances in filters and multiplexers; Medical applications of microwaves.

Also papers on recent advances in the following areas would be welcomed: Satellite communications; Antennas; Active and passive components; New techniques in radio astronomy; Sub-mm techniques; CAD and Measurements.

The Management Committee will award a prize of Sw.F.1,000 to the author(s) presenting the best paper at the Conference.

The deadline for summaries was 3 March 1986. For further information, please contact:

Microwave Exhibitions and Publishers Ltd
Convex House
43 Dudley Road
Tunbridge Wells, Kent TN1 1LE
United Kingdom.

1987 INTERNATIONAL CONFERENCE ON DIGITAL
SIGNAL PROCESSING

This Conference will be held from 7 to 10 September 1987 in Florence, Italy. It is sponsored by the European Association for Signal Processing (EURASIP), the IEEE Middle and South Italy Section, the Imperial College of Science and Technology, University of London, the IROE, the International Centre for Signal and Image Processing, etc. The Conference Co-Chairmen are Prof. V. Cappellini, University of Florence and IROE, and Prof. A.G. Constantinides, Imperial College, London.

Papers are invited for this Conference devoted to advances in the theory and techniques in digital signal-image processing and digital filtering. Contributions on the following topics are particularly encouraged: design methods and techniques; quantization effects; accuracy and stability; multidimensional filtering methods; digital image processing; fast parallel processing; hardware implementations and architectures; array processors; applications including speech, communications, high definition television, radar and sonar

signals; biomedical signal and images, remote sensing, moving object recognition and robotics.

The Conference will include special Sessions on the following subjects: digital image processing algorithms and architectures, VLSI modules for digital signal-image processing, array and parallel processing, digital communications, remote sensing, biomedical applications, artificial intelligence, knowledge-based signal-image processing and robotics.

Deadlines for Submission of Papers:

- 30 November 1986: submission of contributions (2-page summary) to Prof. V. Cappellini;
- 1 February 1987: notification of the acceptance of the contributions;
- 20 February 1987: shipment of special sheets to the selected authors;
- 15 April 1987: receipt of papers typed on special sheets at Prof. Cappellini's address.

For any information concerning the scientific programme, please contact the nearest Co-Chairman:

Prof. V. Cappellini
Facolta di Ingegneria
via di S. Marta 3
I-50139 Firenze, Italy.

Prof. A.G. Constantinides
Dept. of Elec. Engineering
Imperial College of Science
and Technology
Exhibition Road
London SW7 2BT, England.

12th ANNUAL INTERNATIONAL CONFERENCE ON INFRARED
AND MILLIMETER WAVES

The 12th Annual International Conference on Infrared and Millimeter Waves will be held in early December 1987 in Florida.

Millimeter waves (12 sessions), free electron lasers and gyrotrons (9 sessions), submillimeter waves (9 sessions) and plasma diagnostics (4 sessions) will be featured in the

technical programme. A millimeter wave exhibit will be held for two days. The Conference is being organized by Prof. K.J. Button (MIT), James C. Wiltse (Ga. Tech. Research Inst.), Richard J. Temkin (Plasma Fusion Center, MIT), Neville C. Luhmann (UCLA), M.N. Afsar (CCNY) and F. Kneubuhl (ETH, Zurich). The abstract (40 words) deadline is July 1987 and should be sent to:

Prof. K.J. Button
Box 72
MIT Branch
Cambridge, MA 02139-0901
USA.

WORKSHOP ON PRACTICAL ASPECTS OF IONOSPHERIC

MODELLING

Correction to Information Published

in *URSI Information Bulletin* No 235

Please note that the dates for the Workshop on Practical Aspects of Ionospheric Modelling, to be held in Boulder, Colorado, USA are 12-14 August 1986, and not 12-14 July as indicated on page 25 of *URSI Information Bulletin* No 235.

XXII GENERAL ASSEMBLY OF URSI YOUNG SCIENTISTS PROGRAMME

The letter reproduced below was sent out in February 1986 to the Member Committees of URSI.

"Dear Colleague,

The 1987 General Assembly of URSI will be held in Tel Aviv, Israel, from Tuesday 25 August to Wednesday 2 September. At the 1981 General Assembly in Washington, D.C. the Young Scientists Programme was strongly revitalized, and we were able to invite

- 8 Young Scientists from developing countries (Category A)
- 15 Young Scientists from developed countries (Category B).

At the 1984 General Assembly in Florence, thanks to the generous support of ICSU, the URSI Committee in Italy, the Royal Society of London, UNESCO and the International Institute for Theoretical Physics in Trieste, we were able to extend our programme, and invite

- 23 Young Scientists in Category A
- 24 Young Scientists in Category B.

Both Categories were (almost) equally represented in order to ensure a balanced, two-sided interaction between the two groups. In 1987 we hope to do as well as in 1984 and to provide, for each participant,

1. Room and board (on a modest level),
2. Registration fee,
3. A copy of *Review of Radio Science 1984-1986*,
4. Participation in a "cheese and wine" party for Young Scientists at the start of the Assembly.

The selected Young Scientists will be given the opportunity to speak briefly about their research activities.

We believe that the very broad scope of the Scientific Programme, with its emphasis on the developments of the last triennium, will be of great interest to the invited Young Scientists. The purpose of this letter is to ask your Committee to submit a few names of potential candidates for these

scholarships. A one-page curriculum vitae should be appended for each candidate. The selection criteria are:

1. The candidate must be at most 35 years of age on 1 September 1987.
2. The candidate must have the necessary scientific maturity. Young Ph.S.'s are typically selected.
3. The candidate must be interested in promoting contacts between developed and developing countries.

The age rule will be strictly adhered to, as laxity from that point of view is sure to attract negative comments.

The main financial problem yet to be solved is eventual support for candidates from Category A. It would help considerably if the Recommending Bodies involved in this Category would propose a number of candidates residing not too far from Israel at the time of the General Assembly (e.g. because they are holding a research appointment at a Southern European University).

The names of the candidates should be in by 15 October 1986. The final selection will be made by 1 January 1987.

Yours sincerely,

Prof. A.L. Cullen
Vice-President, URSI

Prof. J. Van Bladel
Secretary General, URSI"

THE EWALD PRIZE OF THE INTERNATIONAL UNION OF CRYSTALLOGRAPHY

The International Union of Crystallography announces the establishment of the Ewald Prize for outstanding contributions to the science of crystallography. The name of the prize has been chosen with the kind consent of the late Paul Peter Ewald, to recognise Prof. Ewald's significant contributions to the foundations of crystallography and to the founding of the International Union of Crystallography, especially his services as the President of the Provisional International Crystallographic Committee from 1946 to 1948, as the first Editor of the Union's publication *Acta Crystallographica* from 1948 to 1959, and as President of the Union from 1960 to 1963.

The prize consists of a medal, a certificate and a financial award. It will be presented once every three years during the triennial International Congresses of Crystallography. The first prize will be presented during the XIV Congress at Perth, Australia, in 1987. This year will be the 75th anniversary of the discovery of X-ray diffraction in 1912.

Any scientist who has made contributions of exceptional distinction to the science of crystallography is eligible for the Ewald Prize, irrespective of nationality, age or experience. No restrictions are placed on the time or the means of publication of his or her contributions. The prize may be shared by several contributors to the same scientific achievement.

Nominations for the Ewald Prize are invited. They should be submitted in writing, accompanied by supporting documentation to the Executive Secretary of the IUCr, 5 Abbey Square, Chester CH1 2HU, United Kingdom. The closing date for nominations is 30 September 1986.

BOOKS PUBLISHED BY URSI PERSONALITIES

K.G. BUDDEN

The Propagation of Radio Waves

Cambridge University Press, 1985.

B. MROZIEWICZ, M. Bugajski, W. Nakwaski

Lasery półprzewodnikowe (Semiconductor lasers) (in Polish)

Państwowe Wydawnictwo Naukowe, Warszawa 1985,
341 pages, ISBN 83-01-04758-5.

A. SMOLIŃSKI

Optoelektronika światłowodowa (Optical Fibre Optoelectronics)
(in Polish)

Wydawnictwa Komunikacji i Łączności, Warszawa 1985,
268 pages, ISBN 83-206-0563-6.

P.I. SOMLO, J.D. Hunter

Microwave Impedance Measurement

Peter Peregrinus, London 1985, 213 pages,
0-86341-033-2.

L.T. REMIZOV

Estestvennyye Radiopomekhi (Natural Radio Noise) (in Russian)

ed. Nauka, Moscow 1985, 200 pages.

J.R. WAIT

Electromagnetic Wave Theory

Harper and Row, New York 1985, 308 pages,
ISBN 0-06-046877-7.

NAMES AND ADDRESSES OF URSI OFFICERS AND OFFICERS OF MEMBER COMMITTEES

The amendments listed below refer to pages 29-83 of *URSI Information Bulletin* No 235 (December 1985). Member Committees are invited to notify the URSI Secretariat as soon as possible of any amendments to the information given in Bulletin No 235 and the present Bulletin.

1. URSI COMMISSIONS

Commission A - Electromagnetic Metrology

India: Dr. B.S. Mathur
Italy: Prof. S. Leschiutta

Commission B - Fields and Waves

India: Ms Bharti Bhatt
Sweden: Prof. S. Ström

Commission C - Signals and Systems

Italy: Prof. G. Tartara

Commission D - Electronic and Optical Devices and Applications

India: Dr. B.R. Nag
Italy: Prof. A.-M. Scheggi
Sweden: Prof. O. Nilsson

Commission E - Electromagnetic Noise and Interference

India: Dr. M.K. Rao
Sweden: Dr. V. Scuka

Commission F - Wave Propagation and Remote Sensing

India: Prof. O.P.N. Calla

Commission G - Ionospheric Radio and Propagation

India: Dr. A.K. Sen
Italy: Prof. P. Dominici

Commission H - Waves in Plasmas

India: Dr. A.G. Das
Italy: Dr. G. Fiocco
United Kingdom: Dr. D. Jones

Commission J - Radio Astronomy

India: Dr. S. Ananthkrishnan
Italy: Prof. G. Tomassetti

2. URSI MEMBER COMMITTEES

India

President: Dr. G. Swarup
Secretary: Dr. S. Ananthkrishnan

United Kingdom

Secretary: Dr. P.T. Warren

3. LIST OF ADDRESSES: CORRECTIONS AND ADDITIONS

AJAYI, Dr. G.O., Department of Electronic and Electrical Engineering, University of Ife, Ife, Nigeria.

ANANTHAKRISHNAN, Dr. S., Radio Astronomy Centre, Tata Institute of Fundamental Research, Ootacamund 643 001, India.

BHATT, Ms. Bharti, Indian Institute of Technology, Hauz Khas, New Delhi 110 016, India.

DAS, Dr. A.G., Physical Research Laboratory, Navrangpura, Ahmedabad 380 009, India.

DOMINICI, Prof. P., Istituto Nazionale di Geofisica, Via Ruggero Bonghi, 11/B, I-00184 Roma, Italy.

KAARLS, Mr. R., Van Swinden Laboratorium, Schoemakerstraat
91, 2628 UK Delft, Netherlands.

MATHUR, Dr. B.S., Department of Radio Science, National
Physical Laboratory, Hillside Road, New Delhi 110 012,
India.

MITRA, Dr. A.P., Director General, Council of Scientific and
Industrial Research, Rafi Marg, New Delhi 110 011, India.
Phone Nos: Off: 383652 and 382108. Res: 584213. Telex No:
312522 CSIR IN.

NAG, Dr. B.R., Institute of Radio Physics and Electronics,
University of Calcutta, 92-A.P.C. Road, Calcutta 700 009,
India.

NILSSON, Prof. O., Royal Institute of Technology, S-100 44
Stockholm, Sweden.

PFLEIDERER, Prof. J., Institut für Astronomie, Universität
Innsbruck, Technikerstrasse 15, A-6020 Innsbruck, Austria.

RAO, Dr. M.K., Wireless Planning and Coordination, New Delhi,
India.

SCHEGGI, Prof. A.-M., Istituto di Ricerca sulle Onde Elettro-
magnetiche del CNR, Via Panciatichi 64, I - 50127 Firenze,
Italy.

SEN, Dr. A.K., Institute of Radio Physics and Electronics,
University of Calcutta, 92-A.P.C. Road, Calcutta 700 009,
India.

STROM, Prof. S., Royal Institute of Technology, S - 100 44
Stockholm, Sweden.

SWARUP, Prof. G., Radio Astronomy Centre, Tata Institute of
Fundamental Research, Ootacamund 643 001, India.

TARTARA, Prof. G., Centro di Studio sulle Telecomunicazioni
Spaziali del CNR, c/o Dipartimento di Elettronica del
Politecnico, Piazza Leonardo da Vinci, 32, I - 20133
Milano, Italy.

TOMASSETTI, Dr. G., Istituto di Radioastronomia del CNR,
c/o Istituto di Fisica "A. Righi", Università degli Studi,
Via Irnerio 46, I - 40126 Bologna, Italy.

WARREN, Dr. P.T., The Royal Society, 6 Carlton House Terrace,
London SW1Y 5AG, United Kingdom.