**Table des matières - Contents**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Necrology: Dr. G. Goubau, Prof. R. Rivault</td>
<td>1</td>
</tr>
<tr>
<td>XX General Assembly of URSI: General Lectures</td>
<td>1</td>
</tr>
<tr>
<td>Meeting of URSI Board of Officers</td>
<td>2</td>
</tr>
<tr>
<td>16th General Assembly of ICSU: Resolutions</td>
<td>4</td>
</tr>
<tr>
<td>Symposium on Scientific and Engineering Uses of Satellite Radio Beacons</td>
<td>7</td>
</tr>
<tr>
<td>URSI Symposium on Millimeter Wave Technology</td>
<td>8</td>
</tr>
<tr>
<td>Precise Time and Frequency</td>
<td>9</td>
</tr>
<tr>
<td>5th International Wroclaw Symposium on Electromagnetic Compatibility</td>
<td>10</td>
</tr>
<tr>
<td>Electromagnetic Waves and Biology: Proceedings</td>
<td>12</td>
</tr>
<tr>
<td>URSI Symposium on Electromagnetic Waves: Proceedings</td>
<td>13</td>
</tr>
<tr>
<td>4th Electromagnetic Symposium and Technical Exhibition, Zurich</td>
<td>13</td>
</tr>
<tr>
<td>15th International Conference on Phenomena in Ionized Gases</td>
<td>14</td>
</tr>
<tr>
<td>News from Member Committees</td>
<td>15</td>
</tr>
<tr>
<td>Information on the UTC System</td>
<td>16</td>
</tr>
<tr>
<td>Changes in the SCOSTEP Secretariat</td>
<td>16</td>
</tr>
<tr>
<td>International Geophysical Calendar 1981</td>
<td>17</td>
</tr>
<tr>
<td>Names and Addresses of URSI Officers and Officers of Member Committees:</td>
<td></td>
</tr>
<tr>
<td>Honorary Presidents</td>
<td>20</td>
</tr>
<tr>
<td>Board of Officers</td>
<td>20</td>
</tr>
<tr>
<td>URSI Standing Committees</td>
<td>20</td>
</tr>
<tr>
<td>Commissions and Working Groups</td>
<td>21</td>
</tr>
<tr>
<td>URSI Representatives on other Organizations</td>
<td>33</td>
</tr>
<tr>
<td>Member Committees</td>
<td>34</td>
</tr>
<tr>
<td>Alphabetical Index and Addresses</td>
<td>37</td>
</tr>
</tbody>
</table>
NECROLOGY

We regret to announce the recent death of two radio scientists who were well known in URSI circles:

Dr. G. Goubau (Federal Republic of Germany), and
Prof. R. Rivault (France), Chairman of URSI Commission VIII from 1966 to 1969.

A fuller account of their activities will appear in the next issue of the URSI Bulletin.

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XX GENERAL ASSEMBLY OF URSI
GENERAL LECTURES

The following General Lectures will be given on three mornings during the Assembly in Washington:

Wed. 12 August "Radio Science and Oceanography"
Prof. E.D.R. Shearman

Mon. 17 August "Solar Power Satellite and Telecommunications"
Prof. W.E. Gordon

Wed. 19 August "High Energy Astronomy"
Dr. R. Friedman.

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MEETING OF URSI BOARD OF OFFICERS

The Board met in Brussels on 13 and 14 September 1980. Some of the actions taken at the meeting are summarized below.

1. Nominations for Commission Vice-Chairmen

In view of the differences in character of the Commissions, the method for nominating Vice-Chairmen was left open. However, all Commissions will be asked to submit all nominations received to the URSI Secretariat 4 months ahead of the Assembly, i.e. by 15 April 1981. The lists of nominees will then be sent to the Member Committees. The actual voting procedure will be left to the Commissions, but each Commission shall submit at least two names to the Council, which will elect the Vice-Chairmen. In doing this, the Council will try to ensure a proper balance in the geographical distribution of the Vice-Chairmen.

2. Chairmanship of the URSI/CCIR/CCITT Liaison Committee

The chairmanship was left open by the untimely death of Dr. J.A. Saxton (UK). The Board agreed unanimously to ask M. M. Thué (France), who is very deeply involved in the affairs of ITU and CCIR, to act as Chairman of the URSI/CCIR/CCITT Liaison Committee, pending confirmation by the Council in Washington, D.C. next year. M. Thué has accepted this responsibility.

3. Committee on Relations with Developing Countries

It was agreed that Dr. A.P. Mitra, Vice-President of URSI, should form a Working Group of representatives of developing countries, of which M. J. Voge, Past President, would also be a member. The task of the Group will be to investigate the ways in which URSI could make a useful contribution to the scientific progress of the developing countries, e.g. by organizing symposia of direct interest to them (possibility in collaboration with ITU-CCIR), or by publishing booklets on topics such as the relations between radio science and the environment, or the use of observational satellites for Earth resources.

4. Beacon Satellite Group

The COSPAR Panel under which the Beacon Satellite Working Group was operating had been dissolved and the
Group had adopted a resolution asking for incorporation in URSI as a Working Group of Commission G (Ionospheric Radio and Propagation). The Group is chaired by Professor E. Leitinger (University of Graz, Austria) and has been very active in the past.

It was decided that the Beacon Satellite Group should be incorporated in Commission G as Working Group G.12 on the Use of Beacon Satellite Transmissions, pending formal approval by the Council in Washington, D.C. in 1981.

5. Federation of Astronomical and Geophysical Services

The UNESCO Subvention to FAGS has been strongly reduced. The financial aid of the supporting Unions is therefore more important than ever and, in view of the usefulness of the Services to the scientific community, the Board agreed to make a grant of $1,000 to FAGS in 1981, as in 1980.


The Board received a report from the Organizing Committee, which is making excellent progress in its preparation of the General Assembly. The Board was informed of the development of the Scientific Programme by the Steering Committee. A provisional timetable, which represents only a first approximation, was set up. The details of the latter are too long to be quoted here, but the main features were at the time:

- 3 general lectures (see p.1);
- 44 individual scientific sessions (half-day) for the Commissions:
  5 for Commission A (Electromagnetic Metrology)
  9 for Commission B (Fields and Waves)
  5 for Commission C (Signals and Systems)
  1 for Commission D (Physical Electronics)
  5 for Commission E (Electromagnetic Noise and Interference)
  6 for Commission F (Wave Phenomena in Non-ionized Media)
  4 for Commission G (Ionospheric Radio and Propagation)
  5 for Commission H (Waves in Plasmas)
  4 for Commission J (Radio Astronomy)
- 3 Open Symposia on
  Remote sensing (Comm. B, F, H)
  mm and submm waves (Comm. A, B, D, F, J)
  Mathematical models in radio propagation (Comm. B, F, G, H);
- a Series on Interactions of em waves and biological systems (Comm. A, B).

It was decided that Review of Radio Science 1976-80 would be distributed to participants in the General Assembly at the time of registration. As a result, the Commission reports will have to reach Prof. S.A. Bowhill, General Editor of the Review, before 21 April 1981.

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18th GENERAL ASSEMBLY OF ICSU
Amsterdam, September 1980

The Resolutions and Decisions most likely to interest URSI are reproduced below:

1) Membership

The 18th General Assembly of ICSU
accepts the application for national membership from:
1) The Royal Scientific Society, Amman, Jordan
2) The Kenya Academy for the Advancement of Arts and Sciences;
accepts the report of the Admissions Committee.

3) Agreement between ICSU, the China Association for Science and Technology and the Academy located in Taipei, China

The 18th General Assembly of ICSU
endorse the recommendation made by the Executive Board at its 27th Meeting in May 1980 concerning the agreement between the China Association for Science and Technology,
the Academy located in Taipei, China and ICSU, and

recommends that the Executive Board make every effort to ensure the participation in ICSU of the scientists from the People's Republic of China.

5) World Data Centres

The 18th General Assembly of ICSU,

noting that international geophysical programmes are increasingly generating data sets which are largely, if not entirely, digital and machine readable, and therefore that it is of the greatest importance that the World Data Centres acquire the necessary equipment, procedures and personnel for the efficient processing, archiving and retrieval of data in large quantities in machine-readable form,

recognizing that the costs of maintaining the WDCs are borne entirely by those countries in which they are located, but that the Centres are required to meet the changing needs of the international scientific community as determined by the relevant Unions, Associations, Commissions and Committees of ICSU,

records its deep appreciation of the enormous service provided by the World Data Centres to the world scientific community,

invites the responsible National Agencies to consider ways and means of meeting the need for continued modernization of data-handling facilities in the WDCs.

8) COSTED and ICSU's Role in Development

The 16th General Assembly of ICSU,

aware of the growing interest in problems of the developing countries among members of the ICSU family, and of significant new initiatives by intergovernmental agencies, both of which were discussed in an open meeting on science and technology for development, in Amsterdam on 6 September 1980,

noting with approval the COSTED programme for 1981, the intention to draw up a long-range programme for 1982-84, the planned extension of COSTED activities in Africa and Latin America, and the rapidly increasing participation of many scientific Unions in fostering the growth
of science and technology in developing countries,

recommends that the Scientific Unions and COSTED improve and maintain close and continuing two-way communications concerning their respective programmes and intentions for working with developing countries,

invites national members to appoint national committees or correspondents for COSTED, who would help to identify:
1) problems where ICSU could be helpful; and 2) personnel and resources to strengthen COSTED's programmes,

suggests that the Executive Board and the General Committee continue to consider ways and means of increasing the involvement of the world scientific and technological community in problems of developing countries, and

suggests that the ICSU Executive Board authorize the preparation and publication of a concise readable booklet that would describe the activities of ICSU and its constituent bodies in the development area and characterize the kinds of services the ICSU family has to offer.

15) Commemoration of the First and Second Polar Years and the International Geophysical Year

The 18th General Assembly of ICSU,

remembering that the International Geophysical Year was an unprecedented step forward in world-wide scientific cooperation, and that it marked the beginning of many international programmes in the earth sciences which ever since have progressed continuously,

reaffirms the decision to commemorate the centenary of the First Polar Year and the anniversaries of the Second Polar Year and the International Geophysical Year,

invites appropriate groups within ICSU, intergovernmental organizations and regional and national associations, to take this into account when planning their activities for 1982 and 1983, and

requests the Executive Board to include addresses on the history of international cooperation in earth sciences, and its relevance to future activities at the 19th General Assembly, to consider the publication of a special volume including the papers given at commemorative meetings, and to encourage the publicizing of the commemoration through
the media.

16) The Need for Peaceful Resolution of International Disputes

The 18th General Assembly of ICSU,

aware of the imminent threat to the very survival of the human race inherent in the world-wide arms race,

remembering the call for peace issued 25 years ago in the Einstein-Russell Manifesto signed by nine other great scientists,

urges scientists everywhere to call upon their governments to work toward progressive limitation of weapons of mass destruction, and seek peaceful means for settling all matters of dispute between them.

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SYMPOSIUM ON SCIENTIFIC AND ENGINEERING USES OF SATELLITE RADIO BEACONS

A Symposium on Scientific and Engineering Uses of Satellite Radio Beacons was held in Warsaw, Poland, from 19 to 23 May 1980 at the invitation of the Space Research Committee of the Polish Academy of Sciences. It was the fifth Symposium of the COSPAR Beacon Satellite Group and was sponsored by COSPAR and URSI. The Symposium had the support of several eminent Polish personalities. The Organizing Committee and the Programme Committee were chaired by Dr. A.W. Wernik.

The Symposium was fortunate in having the participation of 71 scientists from 18 countries. Following the tradition of the previous Symposia, some sessions were devoted to the presentation of 9 invited and 28 contributed papers, and others to discussions of the present status and future aspects of scientific and engineering uses of satellite radio beacons. Some of the topics were:

- Ionospheric disturbances (natural and artificial);
- Scientific uses of trans-ionospheric propagation studies;
- Tropospheric and ionospheric propagation limitations on earth/space systems;
- High-latitude ionospheric studies by radio beacon techniques;
- Equatorial ionospheric studies by radio beacon techniques;
- Mid-latitude ionospheric studies by radio beacon techniques;
- Plasmasphere/protonosphere studies;
- Techniques of radio beacon measurements;
- Application of beacon techniques to microwave and infrared sounding systems.

The Proceedings of the Symposium will be issued by the end of this year. Requests for spare copies should be addressed to:

Dr. A.W. Wernik,
Space Research Centre PAN,
ul. Ordona 21,
01-237 Warsaw, Poland.

R. Leitinger

Note: See on p.2, para 4) the decision of the URSI Board of Officers to accept the Beacon Satellite Group as Working Group G.12 of URSI Commission G.

URSI SYMPOSIUM ON MILLIMETER WAVE TECHNOLOGY
WITH EMPHASIS ON RADIO ASTRONOMY APPLICATIONS


Local organization was arranged by E.J. Blum of the recently established French-German Institute for Radio-astronomy in the Millimeter Range (IRAM), situated in Grenoble.

About 125 invited participants participated in the
4-day programme, which consisted primarily of extensive invited review papers. Twenty-two review papers were presented on all aspects of MM-technology, subdivided in the following categories: Radiometer Components, Detector Elements, Antennas and Observing Techniques. In addition 28 short contributions and posters were presented.

The great activity currently underway in the development of instrumentation for MM-astronomy was well reflected in the Symposium. Particularly noteworthy are the construction of a new generation of large and accurate telescopes, the advancements in low-noise detector elements and the application of interferometry at MM-wavelengths. In the coming 2-3 years we shall witness an enormous improvement in the observing capabilities at MM-wavelengths.

Proceedings of the Symposium will not be published.

J.W.M. Baars

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PRECISE TIME AND FREQUENCY

A Conference on Precise Time and Frequency was conducted by the Institution of Radio and Electronics Engineers Australia, Canberra Division, at the Academy of Science, Canberra, Australia on 25-28 August 1980. The Organizing Committee consisted of D.G. Thomas (Chairman), J. McK. Luck, R.O. Cook, K.B. Flynn, J. Jennison, A. Page and R.M. Christie, all of Canberra. The Conference was co-sponsored by URSI and was supported by several Australian agencies.

About 80 participants attended the Conference, the first devoted to this topic in the region for over 15 years. Dr. J.P. Wild, Chairman of CSIRO, addressed the opening session and C.C. Costain of NRC, Canada and R.C. Hall of US Naval Observatory were sponsored guest speakers. One delegate each from India, Pakistan, The Philippines and New Zealand were sponsored by the Organizing Committee. Nine review papers and 30 contributed papers of varying duration were presented over the 2½ days
of formal sessions. A compact exhibition of equipment by 7 companies excited much interest.

Besides the Opening and Closing sessions, there were sessions on National Time and Frequency Systems, Frequency Standards, Time Distribution, Time Scales, Communications, Time Transfer by Satellite, Low Frequency Signals and Developments in Applications. Several recommendations were adopted, e.g. concerning the extension of the Commonwealth Science Council programme of portable clock trips to include ASEAN nations.

A Conference Record of manuscripts is being prepared by IRE Australia. Selected papers will be published in Proceedings of the IRE Australia.

J. McK. Luck

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FIFTH INTERNATIONAL WROCŁAW SYMPOSIUM
ON ELECTROMAGNETIC COMPATIBILITY
17-19 September 1980

This Symposium was opened on Wednesday, 17 September by Professor Zielinski, on behalf of Dr. Rudnicki, Minister of Posts and Telecommunications of Poland, Patron of the Symposium. Professor Struzak, Symposium Chairman, gave a welcome address and, as Programme Chairman, I drew attention to the close relations between EMC symposia and international organizations such as CCIR, CCITT, CISPR and URSI. After a coffee break I chaired the first technical session. Mr. Rutkowski (CCIR), on behalf of Mr. Kirby, lectured on "Electromagnetic Compatibility: Guidelines for the next 20 years; Impact of WARC 1979". Mr. Weinberger (Hughes Aircraft) showed that the communication capacity of the geostationary orbit greatly exceeds global needs for the foreseeable future. Professor Wojnar submitted that EMC strongly depends on subjective properties, and therefore in many cases its measurement has to be based on subjective scores. Digital systems are suitable for objective criteria. Inzoli discussed EMI problems in the design of telephone switching systems.
There were 10 normal sessions and 17 poster sessions. URSI was represented strongly in sessions organized by Professor Kikuchi and Dr. Spaulding. The first session treated power-line radiation and its coupling to the ionosphere and magnetosphere. Professor Boerner (Chicago) spoke on impacts of solar and auroral storms on power-line systems. Pirjola (Helsinki) treated the effect of geomagnetic disturbances on power lines. Professor Kaiser (Sheffield) discussed power-line radiation and the electron slot. One finds maxima of VLF emissions above industrial regions, and probably power-line harmonics are a major cause. Pilatowicz discussed the radio noise level due to power lines and its relation with line design. Umbert discussed a computer model for high-voltage line interference. Kapitanov gave a statistical evaluation of this interference. Spaulding treated the robustness of the locally optimum detectors for non-gaussian noise. Porteanu discussed the use of an on-off element with generalized characteristic to increase the noise immunity in relay control systems. Petrov analyzed pulse interference in electronic equipment.

Mayher organized a session on efficient spectrum utilization. Properties of communication satellite services were discussed by Weiss, Kantor, Timofeev and others. Mayher treated minicomputer software development for spectrum management. Murray lectured on computer-aided spectrum monitoring. Dulovic and Bijelic treated an information and documentation system for radiofrequency spectrum management. Stecher reviewed the properties of smart EMI measuring receivers.

Wiesinger organized the session on Lightning and EMC, with contributions by Lundquist, Le Teinturier, Horvath, Beyer, Lorke, Schüppler, Steinbigler and Wiesinger.

The two books *Electromagnetic Compatibility 1980* contain all papers that were available in time: 912 pages plus indexes. Professor Bem edited these Proceedings. Mr. Moron was active, as always, as Secretary General.

On Thursday afternoon we had a choice of four excursions, e.g. to the broadcasting station Zorawina and the Henrykow Abbey. On Friday afternoon many delegates visited Ksiaz Castle where a meeting of the Programme Committee and Symposium Council reviewed the lessons learned from this Symposium.
Seven firms took part in an exhibition of EMC equipment.

About 210 participants had a lot of space in Wroclaw Technical University; 70 to 80 came from Western Europe and USA, 70 from Poland, and the rest mainly from Eastern Europe. Audience and organizers could be satisfied, looking back on a very successful Symposium. From our Polish hosts I have already mentioned Professors Struzak and Bem, and Mr. Moron. Professor Rotkiewicz, Chairman of the Symposium Council, should also be mentioned.

F. Louis H.M. Stumpers

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ELECTROMAGNETIC WAVES AND BIOLOGY

PUBLICATION OF PROCEEDINGS

The Proceedings of the International Symposium on Electromagnetic Waves and Biology, which was held in Jouy-en-Josas (France) in July 1980, are now available. The 60 papers included in the Proceedings deal with: Cellular physiology; Mechanisms and biochemistry; Behavioural effects; Hyperthermia and cancer; Therapy; Physiology and reproduction; Physio-pathology; Dosimetry and thermometry; Irradiation systems and therapeutic applications.

The price of the Proceedings is FF 170 (or $40) and they can be ordered from the address below:

Dr. Berteaud,
CNRS,
2 rue H. Dunant,
F - 94320 Thiais, France.

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URSI SYMPOSIUM ON ELECTROMAGNETIC WAVES
AVAILABILITY OF PROCEEDINGS

Copies of the Proceedings of the International URSI Symposium on Electromagnetic Waves, which was held in Munich, F.R. of Germany, from 26 to 29 August 1980, can be obtained at the price of DM 60 (or $35) from:

International URSI Symposium,
Postfach 70 00 73,
D - 8000 München 70,
F.R. of Germany.

FOURTH ELECTROMAGNETIC COMPATIBILITY
SYMPOSIUM AND TECHNICAL EXHIBITION, ZURICH
10-12 March 1981

The 4th EMC Symposium and Technical Exhibition will be held from 10 to 12 March 1981 at the Federal Institute of Technology Zurich (ETHZ). The President of the Symposium is Prof. Dr. P. Leuthold. The Organizing Committee is chaired by Dr. T. Dvorak, and the Programme Committee by Prof. F.L. Stumpers.

The technical programme will include 112 papers to be delivered in three parallel daily sessions. The topics are as follows:

- Spread spectrum compatibility
- Characterization of interference and noise and evaluation of system performance
- Intrasytem EMC
- Mathematical and computer methods in spectrum utilization
- Nuclear EMP I and II
- EMI in microelectronics
- Biological effects
- Coupling
- Immunity
- EMC in communications
- Particular EMI sources
EMC measurements options for the future
Reliability, limits, measurements
Available computer programmes for the EMC engineer
Shielding and grounding
Lightning and power lines
EMC analysis and modelling.

In addition, three two-hour workshops will be organized on: EMC diagnostics; EMP hardening of electronic systems; and Applications of programmable calculators and computers for EMI prediction and EMC design.

The full text of all conference papers will be made available in the conference proceedings: EMC 1981.

Copies of the Preliminary Programme with registration forms and further information may be obtained from:
Dr. T. Dvorak,
ETH Zentrum-KT,
CH - 8092 Zurich, Switzerland.

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15TH INTERNATIONAL CONFERENCE ON PHENOMENA IN IONIZED GASES

ICPIG-15 will be held in Minsk (USSR) from 14 to 18 July 1981.

The address of the Organizing Committee is as follows:
Organizing Committee ICPIG-15,
Institute of Physics,
BSSR Academy of Sciences,
Leninskij Prospekt 70,
Minsk 220072, USSR.

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NEWS FROM MEMBER COMMITTEES

Denmark

The Danish URSI Committee celebrated the 50th anniversary of its formation by organizing an URSI Day on 3 June 1980 at the Danish Institute of Technology (Lyngby). Seven technical papers of a general nature were presented.

Federal Republic of Germany

The annual meeting of the URSI Committee was held in Kleinheubach from 22 to 26 September 1980. The programme consisted of 45 technical communications, covering the disciplines of most URSI Commissions.

Spain

The Spanish Committee, under the direction of its dynamic Chairman, Professor Rodriguez-Vidal, decided to extend the scope of its scientific activities. As a first measure, a two-day Symposium was organized on 7 and 8 October 1980 in Madrid, in the pleasant building of the Academy. More than one hundred scientists attended the meeting, in which some 83 papers were presented, representing the activities of almost all URSI Commissions. The Committee intends to organize more gatherings of a similar nature, initially on a triennial basis.

J. Van Bladel

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INFORMATION ON THE UTC SYSTEM

Please note that there will be no leap second at the end of December 1980. The date of occurrence of the leap second will be announced later, at least eight weeks in advance.

B. Guinot
Director
Bureau International de l'Heure

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CHANGES IN THE SCOSTEP SECRETARIAT

As of 31 December 1980 Dr. E.R. Dyer, Jr. will be retiring from the position of Scientific Secretary of SCOSTEP. His successor will be:

Prof. C.H. Liu,
Department of Electrical Engineering,
University of Illinois,
Urbana, IL 61801, USA.

Telephone: (217) 333-9005
TWX: 910-245-2434 PURCH DIV U OF I+

During the period of 1 Jan - 15 June 1981, Prof. Liu will be on sabbatical leave and Prof. C.F. Sechrist on the same address will be Acting Secretary.

As of 15 December 1980, all correspondence should be sent to the Urbana address.

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The Operational Edition of the Calendar (see following pages) has been issued by the International Ursigram and World Days Service (IUWDS) and copies are available on request from:

Dr. P. Simon,
Ursigrammes Observatoire,
F - 92190 Meudon,
France,

or

Miss J.V. Lincoln,
WDC-A for Solar-Terrestrial Physics,
NOAA, D63,
325 Broadway,
Boulder, Colorado 80303,
USA.

On the back of the Calendar, there is a summary (not reproduced here) of the recommended observational programmes in various branches of atmospheric physics and in studies of certain interplanetary phenomena.
# International Geophysical Calendar for 1981

(See other side for information on use of this Calendar).

## JANUARY

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## AUGUST

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JANUARY 1982

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NOTES:


2. An Alpine Experiment (ALPEX), of the WMO/ICSU World Climate Research Program, is scheduled for the period 1 September 1981 through 30 September 1982.
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AND
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Note: The figures in parenthesis at the end of the entries indicate the pages on which references to individuals will be found.


AJAYI, Dr. G.O., Department of Electronic and Electrical Engineering, University of Ife, Ife, Nigeria (35).

AKSENOV, Dr. V.I., Institute of Radioengineering and Electronics, Ac. Sci., Prospekt Marksa 18, g. Moskva, Centr, GSP-3, USSR (31).

ALBRECHT, Dr.-Ing. H.J., Postfach 21 01 43, D-5300 Bonn 2, FR Germany (35).

ALCOK, Mr. G. McK., Physics and Engineering Laboratory, DSIR, Private Bag, Lower Hutt, New Zealand (26).

ALTMAN, Prof. C., Department of Physics, Technion, Haifa, Israel (26).

ALTSCHULER, Dr. Ed., Air Force Geophysical Laboratory, Bedford, Mass., USA (26).

ALTSCHULER, Dr. H., National Bureau of Standards, Physics Building, Rm B 318, Washington, D.C. 20234, USA (22).

ANDREU, Dr. A.M., CORCA, Av. Libertador 327, Vicente Lopez, (BA), Argentina (34).

APEL, Dr. J.P., NOAA, Pacific Marine Environmental Lab., 3711 15th Avenue NE, Seattle, Washington 98105, USA (33, 34).

ARMAND, Dr. N.A., Institute of Radioengineering and Electronics, Ac. Sci., Prospekt Marksa 18, Moskva, Centr, GSP-3, USSR (27).

AUDOUIN, M.C., Laboratoire de l'horloge atomique, Université de Paris-Sud, F-91405 Orsay, France (22).

AUTH, Prof. Dr. J., Humboldt-Universität zu Berlin, Sektion Physik, Hessische Str. 2, DDR-104 Berlin, GDR (25).
AWE, Prof. O., Department of Physics, University of Ibadan, Ibadan, Nigeria (21).

AZNAR, Dr. Enrique Used, Centro de Investigacion y Estudios, Compania Telefonica Nacional de Espana, Avda. de José Antonio num.32, Madrid 13, Spain (26).

BACH ANDERSEN, Prof. J., Institute of Electronic Systems, Aalborg University Center, P.O.Box 159, DK-9100 Aalborg, Denmark (23).

BAGGALEY, Dr. W.J., Physics Department, University of Canterbury, Christchurch, New Zealand (32).

BAILEY, Mr. A.E., Superintendent, Division of Electrical Science, National Physical Laboratory, Teddington TW11 OLW, UK (22).

BAIRD, Dr. R.C., National Bureau of Standards, Room 4085, Boulder, Colorado 80303, USA (22).

BAJAJA, Dr. E., Instituto Argentino de Radioastronomia, Casilla de Correo No 5, 1894 Villa Elisa, Prov. de B.A., Argentina (32).

BAKHRAKH, Prof. L.D., Institute of Radioengineering and Electronics, Ac. Sci., Prospekt Marksa 18, Moskva, Centr, GSP-3, USSR (24).

BARON, Dr. M.J., Radio Physics Laboratory, SRI International, Menlo Park, Calif. 94025, USA (29).

BARZILAI, Prof. G., Istituto di Elettronica, Facolta d'Ingegneria, Via Eudossiana 18, I-00184 Roma, Italy (35).

BATES, Prof. R.H.T., Department of Electrical Engineering, University of Canterbury, Christchurch, New Zealand (20, 24).

BAUDOUX, Prof. F., Université Libre de Bruxelles, 50 av. F.D. Roosevelt, B - 1050 Bruxelles, Belgium (30).

BAUER, Dr. P., CNET/PAB/RPE, 38 rue du Général Leclerc, F-92131 Issy-les-Moulineaux, France. Phone: 638 4979. Telex: CNET ION 20 570 (28).

BECKER, Ltd. Dir. u. Prof. Dr. G., Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-3300 Braunschweig, FRG (22).

BECKER, Prof. Dr. K.-D., Universitat des Saarlandes, Fachrichtung 12.2 Elektrotechnik, D-6600 Saarbrücken, FRG (27).
BENDA, Prof. Dr. O., Slovak Technical University, Vazovova 5, 880-19 Bratislava, Czechoslovakia (23).

BERNARDO, Prof. M.-Y., CNAM, Laboratoire de circuits et mesures, 292 rue Saint-Martin, F-75141 Paris Cedex 03, France (20).

BERTEAUD, Dr. A.J., Groupe du CNRS, 2 rue Henry Dunant, F-94320 Thiais, France (22).

BEYONON, Sir Granville, Department of Physics, University College of Wales, Penglais, Aberystwyth SY23 3BZ, United Kingdom (20, 36).

BIBL, Br. K., University of Lowell Center for Atmospheric Research, 450 Aiken Street, Lowell, Mass. 01854, USA (30).

BLANC, Dr. M., CNET/PAB/RPE, 38 rue du Général Leclerc, F-92131 Issy-les-Moulineaux, France (29).

BOGNAR, Academician Dr. G., Múnnich Ferenc utca 7, H-1051 Budapest, Hungary (35).

BOITHIAS, M.L., CNET, 38 rue du Général Leclerc, F-92131 Issy-les-Moulineaux, France (27).

BOLOMEY, Prof. J.C., Laboratoire de signaux et systèmes du CNRS, Ecole supérieure d'électricité, F-91190 Gif-sur-Yvette, France (23).

BONANOMI, Prof. Dr. J., rue de l'Observatoire 54, CH-2000 Neuchâtel, Suisse (22).

BOOKER, Prof. H.G., Applied Physics and Information Science Department, University of California, Code 014, La Jolla, Calif. 92093, USA (20).

BOOTH, Dr. R.S., Nuffield Radio Astronomy Laboratories, Jodrell Bank, Macclesfield, Cheshire SK11 9DN, UK (32).

BORGNIS, Prof. Dr. F., Bergstrasse 99, CH-8032 Zürich, Switzerland (25).

BOSSY, Prof. L., Institut Royal Météorologique, avenue Circulaire 3, B-1180 Bruxelles, Belgium (28, 34).

BRINK, Dr. J.A., CSIR, P.O. Box 395, Pretoria 0001, South Africa (36).

BRUUN, Prof. G., Electronics Laboratory, Building 344, Technical University of Denmark, DK-2800 Lyngby, Denmark (21).
BURKARD, Univ. Prof. Dr. O.M., Institut für Meteorologie und Geophysik, Universität Graz, Halbärthgasse 1, A-8010 Graz, Austria (30, 34).

BURKE, Mr. R.R., CRPE, CNRS, F-45045 Orleans Cedex, France (28).

BURTZ, M.L., Director, CCITT, 2 rue de Varembe, CH-1211 Geneva 20, Switzerland (21).

BUTTON, Dr. K.J., MIT, Francis Bitter National Magnet Laboratory, 170 Albany Street, Cambridge, Mass. 02139, USA (25).

CAMPBELL, Dr. C.K., Department of Electrical Engineering, McMaster University, Hamilton, Ontario L8S 4L7, Canada (25).

CARPENTER, Dr. D.L., Radioscience Laboratory, Durand Bldg, Stanford University, Stanford, Calif. 94305, USA (31).

CATTERMOLE, Prof. K.W., Department of Electrical Engineering Science, University of Essex, Wivenhoe Park, Colchester CO4 3DU, UK (24).

CEDERBAUM, Prof. I., Department of Electrical Engineering, Technion, Haifa, Israel (23, 24).

CHANDRA, Dr. K., Deputy Director, National Physical Laboratory, Hillside Road, New Delhi 110012, India (22).

CHARLES, Prof. J., Ecole Royale Militaire, Laboratoire des Télécommunications, 30 avenue de la Renaissance, B-1040 Bruxelles, Belgium (24).

CHEN, Prof. Chun-Hsiung, Department of Electrical Engineering, National Taiwan University, Taipei, Taiwan (23).

CHEN, Prof. K.M., Department of Electrical Engineering, Michigan State University, East Lansing, Michigan, USA (22).

CHMURNY, Prof. J., Slovak Technical University, Vazozova 5, 880-19 Bratislava, Czechoslovakia (24).
CHRISTIANSEN, Prof. W.N., c/o Mount Stromlo Observatory, Private Bag, Canberra ACT 2606, Australia. Phone: (062)891111. Cables: Canopus. Telex: AA 62270 (20, 33).

COGNEAUX, M.M., avenue Princesse Paola, B-7030 Saint-Symphorien, Hainaut, Belgium (25).

COLE, Dr. D.G., Ionospheric Prediction Service, P.O.Box 702, Darlinghurst 2010, Australia (30).

CORNLEY, Mr. A.C., Physics and Engineering Laboratory, DSIR, Private Bag, Lower Hutt (22).

COUTREZ, Prof. R., Institut d'Astronomie et d'Astrophysique, Université Libre de Bruxelles, avenue F.D. Roosevelt 50, B-1180 Bruxelles, Belgium (32).

COYNE, Dr. T.N.R., Communications Research Centre, Dept. of Communications, P.O.Box 11490, Station H, Ottawa, Ontario K2H 8S2, Canada (26).

CRANE, Dr. R.K., Environmental Res. & Tech. Inc., 696 Virginia Road, Concord, MA 01742, USA (27, 33).

CRAWFORD, Dr. F.W., Institute for Plasma Research, Stanford University, Via Creapi, Stanford, Calif. 94305, USA (30).

CROCHET, Dr. M., Université de Toulon, La Giponne, boulevard des Armaris, F-83100 Toulon, France (33).

CULLEN, Prof. A.L., Department of Electrical Engineering, University College London, Torrington Place, London WC1E 7JE, UK (23).

CUMMINS, Prof. J.A., Université Laval, Département du Génie Electrique, Cité Universitaire, Québec, PQ G1K 7PA, Canada (23).

DAMBOLDT, Dr. Th., FI 34, Forschunisinstutit der DBP beim FTZ, Postfach 5000, D-6100 Darmstadt, FRG (35).

DANILOV, Dr. A.D., Institute of Applied Geophysics, Hydrometeorological Service of the USSR, 6 Pavlik Morozov St., Moscow, USSR (30).
D'AURIA, Dr. G., Istituto di Elettronica, Facolta d'Ingegneria, Via Eudossiana 18, I-00184 Roma, Italy (27, 35).


DE COULON, Prof. Dr. F., Chemin du Couchant 18, CH-1007 Lausanne, Switzerland (24).

DEGAUQUE, M.P., Université des Sciences et Techniques de Lille 1 (UER Informatique-Electronique-Electrotechnique-Automatique), BP 36, F-59650 Villeneuve d'Ascq, France (26).

DE HOOP, Prof. Dr. A.T., Technische Hogeschool Delft, Afdeling Elektrotechniek, Delft, Netherlands (23).

DE JONG, Mr. A., Dr. Neher Laboratorium, St. Paulusstraat 4, Leidschendam, Netherlands (26).

DELOGNE, Prof. P., Laboratoire de Télécommunications, Bâtiment Maxwell, B-1348 Louvain-la-Neuve, Belgium (28).

DEN, Prof. Chi-Fu, Department of Communication Engineering, National Chiao Tung University, Hsin-Chu, Taiwan (24).

DE PRINS, Prof. J., avenue Stanley 7, B-1980 Tervuren, Belgium (21).

DE SALAMANCA, Dr. J.E., Standard Electrica, S.A., José Ortega y Gasset num. 22, Madrid 6, Spain (24).

DESCHAMPS, Prof. G.A., Department of Electrical Engineering, University of Illinois, Urbana, Ill. 61801, USA (23).


DIEWINGER, Prof. Dr. W., Berlinerstrasse 14, D-3412 Nörten-Hardenberg, FRG (20).

DOHERTY, Dr. L.H., Herzberg Institute of Astrophysics, National Research Council of Canada, Sussex Drive, Room 2073-A, Ottawa, Ontario K1A OR6, Canada (34).

DOWDEN, Prof. R.L., Physics Department, University of Otago, Dunedin, New Zealand (31, 35).
DUDENEY, Dr. J.R., British Antarctic Survey, Madingley Road, Cambridge CB3 0ET, UK (30).

DUNCAN, Dr. L.M., Los Alamos Scientific Laboratories, Los Alamos, New Mexico 87545, USA (33).

DVORAK, Dr. T., Im Wiesengrund 24, CH-8907 Wettswil, Switzerland (26).

EGIDI, Prof. C., Istituto Galileo Ferraris, Corso Massimo d'Azeglio 42, I-10125 Torino, Italy (22).

EKLUND, Mr. F., Research Institute of National Defence, Dept. 3, S-104 50 Stockholm 80, Sweden (27).

ELGARTH, Ass. Prof. Ø., University of Oslo, Astrophysics Institute, Blindernvæn, N- Oslo 3, Norway (32).

ELLYETT, Prof. C.D., Physics Department, Newcastle University, Newcastle 2308 N.S.W., Australia (26).

EVANS, Dr. J.V., MIT, Lincoln Laboratory, Lexington, Mass. 02173, USA (30).

EVIATAR, Prof. A., Tel-Aviv University, Tel-Aviv, Israel (31).

FALTHAMMAR, Prof. C.-G., Royal Institute of Technology, S-100 44 Stockholm 70, Sweden (31).

FANTI, Dr. R., Istituto di Fisica, Universita di Bologna, V. Irnerio 46, I-40126 Bologna, Italy (32).

FARNELL, Prof. G.W., Dean, Faculty of Engineering, McGill University, MacDonald Engineering Bldg, 817 Sherbrooke St. West, Montreal, Quebec H3A 2K6, Canada. Phone: (514) 392-5859. Telex: Canada 05-266510; Overseas 5266510; Answer back code: McGill Univ Mtl.(25).

FEDI, Dr. F., Fondazione Bordoni, Viale Trastevere, I-108 Roma, Italy (28).

FELSEN, Prof. L.B., Polytechnic Institute of New York, 333 Jay Street, Brooklyn, N.Y. 11201, USA (22, 23).
FIALA, Dr. V., Geophysical Institute, Czechoslovak Academy of Sciences, Booni II-1a, 141 31 Praha 4, Czechoslovakia (30).

FINDLAY, Dr. J.W., National Radio Astronomy Observatory, Edgemont Road, Charlottesville, VA 22901, USA (33).

FIOCCO, Dr. G., Istituto di Fisica, Universita di Roma, P.le delle Scienze 5, I-00185 Roma, Italy (25).

FRANCO, Dr. D. Jose Luis Sebastian, Facultad de Ciencias Fisicas, Universidad Complutense, Madrid 3, Spain (36).

FRASER, Dr. B., Physics Department, Newcastle University, Newcastle 2306 N.S.W., Australia (30).

FRAZER, Prof. R.H., School of Electrical Engineering, University of Sydney, Sydney 2006 N.S.W., Australia (25).

FREDRICKS, Dr. R.W., Systems Group Research Staff, TRW Systems, R-1/1070, Redondo Beach, Calif. 90278, USA (31).

FRÜHAUF, Prof. Dr. Ing. H., Technische Universität Dresden, Helmholtzstrasse 18, DDR-8027 Dresden, GDR (35).

GAGNE, Dr. R., Université Laval, Département du Génie Electrique, Faculté des Sciences, Cité Universitaire, Québec G1K 7P4, Canada (30).

GALDON MATEO, Rvdo.P. E., Observatorio de Fisica Cosmica del Ebro, Roquetas-Tortosa (Tarragona), Spain (29).

GAMBLING, Prof. W.A., Department of Electronics, The University, Southampton SO9 5NH, UK (25).

GARBRECHT, Dr.-Ing. K., Siemens AG, WIS WL, Balanstrasse 73, D-8000 München 80, FRG (25).

GARDIOL, Prof. Dr. F., Chemin des Graminées, CH-1012 Pully, Switzerland (23, 36).

GEBBIE, Mr. H.A., Physics Department, Imperial College, South Kensington, London SW1, UK (28).
GEHER, Prof. K., Technical University of Budapest, Stoczek u.2, H-1111 Budapest, Hungary (21, 35).

GENDRIN, Dr. R., CNET/PAB/RPE, 38 rue du Général Leclerc, F-92131 Issy-les-Moulineaux, France (31, 33).

GEROSA, Dr. G., Istituto di Elettronica, Facolta d'Ingegneria, Via Eudossiana 18, I-00184 Roma, Italy (23).

GIESECKE, Dr. A.A., Instituto Geofisico del Peru, Apartado 3747, Lima, Peru (21, 35).

GJESSING, Dr. D., NDRE, N-2007 Kjeller, Norway (27, 33).

GLEDHILL, Prof. J.A., Department of Physics, Rhodes University, P.O.Box 94, Grahamstown 6140, South Africa (29).

GONZALEZ, Dr. Jesus Gomez, Observatorio Astronomico Nacional, Yebes (Guadalajara), Spain (32).

GONZE, Prof. R., Observatoire Royal de Belgique, avenue Circulaire 3, B-1180 Bruxelles, Belgium (26, 34).

GORDON, Prof. W.E., Rice University, P.O.Box 1892, Houston, Texas 77001, USA. Phone: (713) 527 4031 (20, 21, 33).

GORGOLEWSKI, Prof. S., Instytut Radioastronomii, Uniwersytet im. Mikołaja Kopernika, ul. Chopina 12/18, 87 100 Toruń, Poland (32).

GOSSEL, Dr.-Ing. D., c/o Philips GmbH Forschungslaboratorium Hamburg, Postfach 540840, D-2000 Hamburg, FRG (22).

GRAHL, Dr. B.H., Max-Planck-Institut für Radioastronomie, Auf dem Hügel 69, D-5300 Bonn 1, FRG (32).


GUDMANDSEN, Prof. P., Electromagnetics Institute, Bldg 348, Technical University of Denmark, DK-2800 Lyngby, Denmark (27, 33).

GUY, Prof. A.W., Department of Rehabilitation Medicine, RJ-30, University Hospital, Seattle, Washington 98195, USA (22).
HAGEN, Prof. P.J., Pennsylvania State University, 102
Whitmore Laboratory, University Park, Pa. 16802,
USA (21, 33).

HAGFORS, Prof. Dr. T., Department of Electrical Engineer-
ing, NTH, N-7034 Trondheim, Norway (24).

HAGN, Mr. G.H., Stanford Research Institute, SRI-
Washington, 1611 North Kent Street, Arlington,
Virginia 22209, USA (26, 33).

HAHN, Prof. S., Instytut Radioelectroniki, Politechnika
Warszawska, ul. Nowowiejska 15/19, 00-665 Warszawa,
Poland (22, 35).

HAIKONEN, Dr. T., Administration of Posts and Telegraphs,
Radio Department, P.O.Box 511, SF-00101 Helsinki 10,
Finland (27).

HALLIKAINEN, Dipl. Eng. M., Helsinki University of
Technology, E.E. Department, Otakaari 5 A, SF-02150
Espoo 15, Finland (35).

HALME, Prof. S.J., Helsinki University of Technology,
E.E. Department, Otakaari 5 A, SF-02150 Espoo 15,
Finland (24).

HAMAKER, Mr. J.P., Radiosterrewacht Dwingeloo, Dwingeloo,
Netherlands (32).

HANSSON, Dr. L., Swedish Telecommunications Administra-
tion, S-123 86 Farsta, Sweden (36).

HARTMANN, Dr. G.K., Max-Planck-Institut für Aeronomie,
Postfach 60, D-3411 Katlenburg-Lindau 3, FRG (28).

HAUPT, Univ. Prof. Dr. H., Astronomisches Institut der
Universität, Universitätsplatz 4, A-8010 Graz,
Austria (32).

HELLIWELL, Prof. R.A., Radioscience Laboratory, Stanford
University, Stanford, Calif. 94305, USA (33).

HELLWIG, Dr. H., Time and Frequency Division, National
Bureau of Standards, 325 Broadway, Boulder, Colorado
80303, USA (34).

HEWITT, Dr. F.J., Deputy President, CSIR, P.O.Box 395,
Pretoria 0001, South Africa (36).
HU, Mr. Wan-Kao, Department of Technical Service, Telecommunications Laboratories, DGT, MOC, P.O.Box 71, Chung-Li, Taiwan (22).

HOGlund, Prof. B., Chalmers Institute of Technology, S-402 20 Göteborg 5, Sweden (32).

HOLWAY, Dr. D.L., Division of Applied Physics, CSIRO, University Grounds, University of Sydney, Sydney 2006 N.S.W., Australia (21).

HORITA, Dr. R., Department of Physics, University of Victoria, Victoria B.C. V8W 2Y2, Canada (28).

HORNER, Dr. F., 10 Clarence Drive, Egham Sy TW20 ONL, UK (26).

HORVAT, Prof. R., Electrotehnioki Fakultet, Bulevar Revolucionije 73, 11000 Beograd, Yugoslavia (36).

HUANG, Prof. Chun-Ming, Department of Electrical Engineering, National Taiwan University, Taipei, Taiwan (26).

HUANG, Dr. Yinn-Nien, Chief, Department of Planning and Programming, Telecommunication Labs, P.O.Box 71, Chung-Li, Taiwan (31).

HULTqvist, Dr. B., Kiruna Geophysical Institute, Box 704, S-981 27 Kiruna, Sweden. Phone: 0980/122 40. Telex: 6754 GEOPYSK S. (26, 29).

IGBO, Dr. L.A.B., Department of Electronic and Electrical Engineering, University of Ife, Ile-Ife, Nigeria (22).

IRELAND, Mr. W., Physics and Engineering Laboratory, Dept. of Scientific and Industrial Research, Private Bag, Lower Hutt, New Zealand (35).

ISHIKAWA, Prof. H., Research Institute of Atmospherics, Nagoya University, Toyokawa, Aichi 442, Japan (26).

IWANSKY, Dr. A., Akademie der Wissenschaften, Zentralinstitut für Kybernetik und Informationsprozesse, Rudower Chaussee 5, DDR-1199 Berlin-Adlershof, GDR (35).
JEPPSEN, Dr. P., Electromagnetics Institute, Building 348, Technical University of Denmark, DK-2800 Lyngby, Denmark (25).


JONES, Dr. D. Space Plasma Physics Division, Space Science Department, ESA, ESTEC, Noordwijk, Netherlands (31).

JØRGENSEN, Dr. T.S., Geophysics Department, Danish Meteorological Institute, Lyngbyvej 100, DK-2100 Copenhagen Ø, Denmark (30).

JULL, Dr. E.V., Department of Electrical Engineering, University of British Columbia, Vancouver, B.C. V6T 1W5, Canada (34).

KAARLS, Mr. R., Van Swinden Laboratorium, Alphons Diepenbrochhof 2, 's Gravenhage, Netherlands (22).

KALLIOMAKI, Prof. K., University of Oulu, SF-90100 Oulu 10, Finland (22).

KANGAS, Dr. J., University of Oulu, SF-90100 Oulu 10, Finland (30).

KARBOWIACK, Prof. A.E., Electrical Engineering School, University of New South Wales, Box 1, P.O.Kensington 2033 N.S.W., Australia (23).

KARTASCHOFF, Dr. P., La Pistoule 28, CH-2036 Cormondrèche, Switzerland (36).

KEAY, Dr. R.W.J., The Royal Society, 6 Carlton House Terrace, London SW1Y 5AG, UK (36).

KERSTEN, Dr.-Ing. R., Siemens AG - WVZL UEB 43, Hofmannstrasse 51, D-8000 München 70, FRG (24).

KIMURA, Prof. I., Faculty of Engineering, Kyoto University, Yoshida-Honcho, Sakyu-ku, Kyoto-shi, Kyoto 606, Japan (31).

KING, Dr. J.W., Appleton Laboratory, Ditton Park, Slough SL3 9JX, UK (29).
KIRBY, Mr. R.C., Director, CCIR, 2 rue de Varembé, CH-1211 Geneva 20, Switzerland (21).

KHEPPO, Br. I., Electrotechnical Institute, Slovak Academy of Sciences, Dubravska cesta 4a, 809-32 Bratislava, Czechoslovakia (25).

KNOCH, Prof. L., Instytut Radiokomunikacji, Politechnika Gdańska, ul. Majakowskiego 11/12, 80-952 Gdańsk-Wrzeszcz, Poland (27).

KONG, Mr. Pao-Huang, Director, Electronic Industrial Research Centre, Industry Technology Research Institute, No 1021, Kuang-Fu Road, Hain-Chu, Taiwan (25).

KÖNNIEWICZ, Dr. H.R., Zakład Fizyki Doświadczalnej, CIOP, Plac Konstytucji 2, 00 552 Warszawa, Poland (22).

KOSE, Prof. Dr. V., Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-3300 Braunschweig, FRG. Phone: 0531/592 2240. Telex: 9-52 822 (ptd d) (21, 22).

KOVAČEVIĆ, Prof. B., Pariske Komune 23, Novi Beograd, Yugoslavia (22).

KRATENA, Dr. L., Institute of Radioengineering and Electronics, Czechoslovak Academy of Sciences, Lumumbova 1, Praha 8 - Kobylisy, Czechoslovakia (35).

KRUGER, Dr. A., Zentralinstitut für Solar-terrestrische Physik, Rudower Chaussee 5, DDR-1199 Berlin-Adlershof, GDR (32).

KRUL, Prof. L., Technische Hogeschool Delft, Afdeling Elektrotechniek, Delft, Netherlands (27).

KUHN, Dr. U., Rundfunk- und Fernsehtechnisches Zentralamt, DDR-1601 Kolberg Krs. Königs-Wusterhausen, GDR (27).

KUMMER, Prof. Dr.-Ing. M., Technische Hochschule Ilmenau, DDR-63 Ilmenau, GDR (23).

LACOUME, Prof. J.-L., Centre d'étude des phénomènes aléatoires, BP 15, F-38040 Grenoble Cedex, France (24, 31).
LAMPARD, Prof. D.G., School of Electrical Engineering, Monash University, Clayton, Vic. 3168, Australia (24).

LANDMARK, Dr. B., Royal Norwegian Council for Scientific and Industrial Research, Space Activity Division, P.O.Box 309, Blindern, N-Oslo 3, Norway (33, 35).

LASTOVICKA, Dr. J., Geophysical Institute, Czechoslovak Academy of Sciences, Becni II-1a, 141 31 Praha 4, Czechoslovakia (28).

LEDINEGG, Univ. Prof. Dr. E., Institut für Theoretische Physik, Technische Universität, Kopernikusgasse 24, A-8010 Graz, Austria (23).

LEITINGER, Dr. R., Karl-Franzens-Universität Graz, Institut für Meteorologie und Geophysik, Halbärthgasse 1, A-8010 Graz, Austria (30).

LE MEZEC, M.J., CNET, Route de Trégastel, F-22301 Lannion, France (25).

LIANG, Mr. Kang-Ping, Directorate General of Telecommunications, Ministry of Communications, P.O.Box 84, Taipei, Taiwan (36).

LIEBE, Dr. H.J., Institute for Telecommunication Sciences, National Telecommunications Administration, Boulder, Colorado 80303, USA (28).

LIKHTER, Dr. Ya. I., IZMIRAN, Akademgorodok, Moscow Region, USSR (26).

LINCOLN, Miss J.V., WDC-A for Solar-Terrestrial Physics, NOAA, Boulder, Colorado 80303, USA (29).

LINDELL, Prof. I.V., Helsinki University of Technology, E.E. Department, Otakaari 5 A, SF-02150 15, Finland (23).

LITTLE, Prof. A.G., Physics Department, University of Sydney, Sydney 2006 N.S.W. Australia (32).

LITTLE, Dr. C.G., NOAA/ERL/RF3-A450, Boulder, Colorado 80303, USA (36).

LOCKE, Dr. J.L., Herzberg Institute of Astrophysics, National Research Council of Canada, Ottawa K1A OR6, Ontario, Canada (21).
LUNDBOM, Mr. P.O., Chief Engineer, Research Institute of National Defence, Dept. 3, S-104 50 Stockholm 80, Sweden (22).

LUNDQUIST, Prof. S., Institute of High Tension Research, S-755 70 Uppsala, Sweden. Phone: 018/130830 (21, 26, 27, 36).

MAEHLUM, Dr. B., NDRE, N-2007 Kjeller, Norway (31).

MAENHOUT, M.A., Institut Royal Météorologique, avenue Circulaire 3, B-1180 Bruxelles, Belgium (27).

MALHERBE, Dr. J.A.G., Faculty of Engineering, University of Stellenbosch, Stellenbosch 7600, South Africa (23).

MARTINEZ, Dr. Roberto Rivas, Comision de Pesas y Medidas, General Ibanez de Ibero num. 3, Madrid 3, Spain (22).

MASS, Dr. J., Radio Observatory, Haifa, Israel (28).

McNAMARA, Dr. L.F., Ionospheric Prediction Service, Department of Science, P.O.Box 702, Darlinghurst N.S.W. 2110, Australia (29).

MEKHANNIKOV, Dr. A.I., Institute of Radio Engineering and Electronics, Ac. Sci., Prospekt Marksa 18, Moskva, Centr, GSP-3, USSR (22).

MELNICHUK, Dr. Ya., Central Aerological Observatory, Dolgoprudny, Moscow Region, USSR (33).

MENDES VICTOR, Prof. Dr. L.A., Instituto Nacional de Meteorologia e Geofisica, Rua C - Aeroporto de Lisboa, Lisboa 5, Portugal (36).

MERINO, Prof. D. Elias Munoz, ETS de Ingenieros de Telecommunication, Ciudad Universitaria, Madrid 3, Spain (25).

MIGULIN, Prof. V.V., IZMIRAN, Akademgorodok, Moscow Region, USSR (21, 36).

MILI, Mr. M., Secretary General ITU, 2 rue de Varembé, CH-1211 Geneva 20, Switzerland (21).

MITRA, Dr. A.P., Jawaharlal Nehru Fellow, Radio Science Division, National Physical Laboratory, Hillside Road, New Delhi 110012, India. Phone: 585298, Cables: Natphylab New Delhi. Telex: 3726 RSD, NPL (20, 21, 34).
MOBIUS, Dr. K., Amt für Standardisierung, Messwesen und Warenprüfung, Bereich Messwesen, Wallstr.16, DDR-102 Berlin, GDR (22).

MOFFET, Dr. A.T., Owens Valley Radio Observatory, 102-24, California Institute of Technology, Pasadena, Calif. 91125, USA (32).

MOLSKI, Dr. J., ul. Sady Zoliborskie 11, 01 772 Warszawa, Poland (29).

MORRIS, Dr. D., Bldg M-36, Room 1110, Division of Physics, National Research Council of Canada, Ottawa, Ontario K1A 0S1, Canada (21).

MORRIS, Mr. R.A., Physics and Engineering Laboratory, DSIR, Private Bag, Lower Hutt, New Zealand (25).

MORTENSEN, Mr. E., Institute of Circuit Theory and Telecommunication, Building 343, Technical University of Denmark, DK-2800 Lyngby, Denmark (24).

MOSTAFA, Prof. Abd El-Samie, Faculty of Engineering, Electronics and Communications Engineering, Alexandria, Arab Republic of Egypt (35).

MROZIEWICZ, Dr. B., Instytut Technologii Elektronowej, Al. Lotników 32/46, 02 668 Warszawa, Poland (25).

MUHLEISEN, Prof. Dr. R., Astronomisches Institut der Universität Tübingen, D-7980 Rasthalde-Ravensburg, FRG (26).

MUSIL, Dr. J., Institute of Hygiene and Epidemiology, Srobarova 48, Praha 10, Czechoslovakia (22).

NAG, Prof. B.R., University College of Technology, Institute of Radio Physics and Electronics, 92 Acharya Prafulla Chandra Road, Calcutta 700009, India (25, 35).

NANO, Dr. E., Istituto Galileo Ferraris, Corso Massimo d'Azeglio 42, I-10125 Torino, Italy (26).

NICOLSON, Dr. G.D., Radio Astronomy Observatory, c/o National Institute for Telecommunication Research, P.O.Box 3718, Johannesburg 2000, South Africa (32).
NISSEN, Mr. H.C., Danish Research Centre for Applied Electronics, Venlighedsvej 4, DK-2970 Hørsholm, Denmark (26).

O'DONNEL, Mr. M., c/o Royal Irish Academy, 19 Dawson Street, Dublin 2, Republic of Ireland (35).

OKAMURA, Prof. S., Japan Society for Promotion of Science, Yamato Building, 5-3-1 Kojimachi, Chiyoda-ku, Tokyo 100, Japan. Phone: 03-263-1721 (21, 35).

OKOSHI, Prof. T., Department of Electronic Engineering, University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113, Japan (25, 35).

OKOYE, Dr., Department of Physics, University of Nigeria, Nsukka, Nigeria (32).

OKSMAN, Prof. J., University of Oulu, E.E. Department, SF-90100 Oulu 10, Finland (28).

ONI, Dr. C.E., Department of Physics, University of Ibadan, Ibadan, Nigeria (31).

OSHIMA, Dr. S., Kokusai Denshin Denwa KK, 2-3-2 Nishi-Shinjuku, Shinjuku-ku, Tokyo 160, Japan (24).

OWOLABI, Prof. I.E., University of Ilorin, Department of Electrical Engineering, Ilorin, Nigeria (27, 35).

OYINLOYE, Dr. O., Department of Physics, University of Ibadan, Ibadan, Nigeria (28).

PADULA-PINTOS, Prof. V.H., CAERCEM, Julian Alvarez 1216, 1414 Buenos Aires, Argentina (21, 26, 34).

PAI, Prof. Kwang-Hong, Department of Electrical Engineering, National Taiwan University, Taipei, Taiwan (29).

PALMAKESSO, Dr. P., Code 6780, Naval Research Laboratory, Washington D.C. 20735, USA (31).
PARADA, Dr. Nelson de Jesus, Director INPE, C.P. 515,  
Sao Jose dos Campos, Sao Paulo, Brazil (34).

PEEK, Dr. ir. J.B.H., Philips Research Laboratories,  
Eindhoven, Netherlands (35).

PERONA, Dr. G., Politecnico di Torino, Corso Duca degli  
Abruzzi 24, I-10124 Torino, Italy (31).

PETIT, Dr. M., Institut National d’Astronomie et de Geophysics, 77 avenue Denfert-Rochereau, F-75014  
Paris, France (28, 30, 35).

PIEFKE, Prof. Dr. G., Institut für Theoretische Elektrotechnik, Technische Hochschule, Schlossgartenstrasse 8, D-6100 Darmstadt, FRG (23).

PIGGOTT, Dr. W.R., 21 Hillingdon Road, Uxbridge, Middlesex  
UB10 OAD, UK (29).

PILLETT, Dr. G., CNET, 38 rue du Général Leclerc, F-92131  
Issy-les-Moulineaux, France (34, 35).

PIRJOLA, Lic. Ph. R. Administration of Posts and Telegraph, Telegraph Department, P.O.Box 526, SF-00101  
Helsinki 10, Finland (26).

POMOT, M.C., Laboratoire de physique des plasmas, Domaine  
universitaire de St-Martin d’Hères, F-38041 Grenoble  
Cedex, France (30).

POPOVIC, Prof. Dr. B., Electrotechnical Faculty of Belgrade, P.O.Box 816, Beograd, Yugoslavia (36).

PROKOP, Dr. J., Faculty of Engineering, Technical University of Prague, Suchbatarova 4, 166-27 Praha 6,  
Czechoslovakia (27).

PRZEZDZIECKI, Dr. S., Instytut Podstawowych Problemów Techniki, Świętokrzyska 21, 00 049 Warszawa, Poland (23).

RADHAKRISHNAN, Dr. V., Director, Raman Research Institute,  
Bangalore 560 006, India. Phone: 30522. Telex:  

RADICELLA, Prof. S., PRONARP, Arenales 1446, 6° "C",  
1061 Buenos Aires, Argentina (29).

RAMACHANDRA RAO, Prof. B., University Grants Commission, Ba-  
hadurshah Zafar Marg, New Delhi 110002, India (27, 35).

RASTOGI, Prof. R.G., Solar Planetary Physics Division,  
Physical Research Laboratory, Navrangpura, Ahmedabad  
380009, India (28).
RATCLIFFE, Mr. J.A., Huntingdon Road 193, Cambridge CB3 OD, UK (20).

RAWER, Prof. K., Herrenstrasse 43, D-7801 March-Hugstetten, FRG (29, 33, 34).

REIZ, Prof. A., Astronomical Observatory, Øster Voldgade 3, DK-1350 Copenhagen K, Denmark (32).

RIBES, Dr. J.C., Institut National d'Astronomie et de Géophysique, 77 avenue Denfert-Rochereau, F-75014 Paris, France (32, 33).

RICHARDS, Dr. G., Physical Chemistry Laboratory, South Parks Road, Oxford OX1 3QZ, UK (28).

RIEDLER, Prof. Dr. W., Institut für Nachrichtentechnik und Wellenausbreitung, Technische Universität, Infeldgasse 12, A-8010 Graz, Austria (28).

ROBINSON, Dr. B.J., CSIRO, Division of Radiophysics, P.O. Box 76, Epping N.S.W., 2121 Australia (34).

RODRIGUEZ VIDAL, Prof. D. Maximino, Catedratico de la Facultad de Ciencias Fisicas, Universidad Complutense Madrid 3, Spain (23, 36).

ROMERO-SIERRA, Department of Anatomy, Queen's University, Kingston, Ontario, Canada (23).

ROSENTHAL, Prof. S., Microwave Research Institute, Polytechnic Institute of New York, Route 110, Farmingdale N.Y. 11735, USA (22).

RUSH, Dr. C.M., Air Force Geophys. Lab., L.G. Hanscom AFB, MA 01731, USA (29).

RUSSELL, Dr. C.T., Space Science Center, UCLA, Los Angeles, Calif. 90024, USA (31, 33).

RUTKOWSKI, Dr. I., CCIR, 2 rue de Varembe, CH-1211 Geneva 20, Switzerland (33).

SABURI, Dr. Y., Radio Research Laboratories, 4-2-1 Nukii-Kitamachi, Koganei-shi, Tokyo 184, Japan (22).

SAKURAI, Prof. K., Chief, Radio and Opto-Electronic Div., Electrotechnical Laboratory, Ministry of International Trade and Industry, Tanashi, Tokyo, Japan (23).
SALEM, Dr. I.A.M., c/o Academy of Scientific Research and Technology, Dept. of Scientific Societies and International Scientific Unions, 101 Kasr El-Einy Street, Cairo, Arab Republic of Egypt (35).

SANDBACH, Mr. E., Telecommunications Research Laboratories 59 Little Collins Street, Melbourne, Vic. 3000, Australia (27).

SANYAL, Prof. G.S., Radar and Communication Centre, Indian Institute of Technology, Kharagpur 721302, India (23).

SARMA, Dr. N.V.G., Raman Research Institute, Hebbal P.O., Bangalore 560006, India (32).

SAUZADE, M.M., Institut d'électronique fondamentale, Université de Paris-Sud, F-91405 Orsay, France (25).

SCAIFE, Prof. B.K.P., c/o Royal Irish Academy, 19 Dawson Street, Dublin 2, Republic of Ireland (35).

SCHALWIJK, Prof. Dr. J.P.M., Technische Hogeschool Eindhoven, Afdeling Elektrotechniek, Eindhoven, Netherlands (24).

SCHANDA, Prof. Dr. E., Bündackerstrasse 108, CH-3047 Bremgarten, Switzerland (27, 31, 32).

SCHANING, Dr. B., Observatorium für Ionosphärenforschung, Mitschurinstrasse 4/6, DDR-2565 Kühlungsborn, GDR (26).

SCHEFTE, Dr. H., Telefon AB LM Ericsson, DTF, S-126 25 Stockholm, Sweden (23, 24).

SCHWARTZ, Prof. M., Department of Electrical Engineering and Computer Science, Columbia University, Seeley W. Mudd Building, New York N.Y. 10027, USA (24).

SEIDLER, Prof. J., Instytut Telekomunikacji, Politechnika Gdańska, Majakowskiego 11/12, 80-952 Gdańsk-Wrzeszcz, Poland (24).

SEKIGUCHI, Prof. T., Faculty of Engineering, Tokyo Institute of Technology, 2-12-1 Ookayama, Meguro-ku, Tokyo 152, Japan (23).

SENIOR, Prof. T.A.B., Radiation Laboratory, Electrical and Computer Engineering Dept., The University of Michigan, Ann Arbor, MI 48109, USA (36).
SERAFIMOV, Prof. K., bld Ruski 1, Sofia 1000, Bulgaria (29, 34).

SHIRKE, Dr. J.S., Physical Research Laboratory, Navrangpura, Ahmedabad 380009, India (31).

SIEV, Mr. Y., Ministry of Posts, Jerusalem, Israel (22).


SKOVLI, Mr. G., Directorate of Civil Aviation, Storgatan 10 b, N - Oslo 1, Norway (35).

SMITH, Dr. E.K., 114-B13, Caltech Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, Calif. 01103, USA (33).

SMITH, Prof. R.B., Postgraduate School of Studies in Electrical and Electronic Engineering, University of Bradford, Bradford, Yorkshire BD7 1DP, UK (23).

SMOLINSKI, Prof. A., Instytut Podstaw Elektroniki, Politechnika Warszawska, ul. Nowowiejska 15/19, 00-665 Warszawa, Poland. Phone: 25 37 68. Telex: 813 507 itel pl (20, 21, 35).

SPASOV, Dr. A., bld Lenina 72, Sofia 1113, Bulgaria (34).

SPAULDING, Dr. A.D., Radio Spectrum Occupancy Group, US Dept. of Commerce, Office of Telecommunications, Boulder, Colorado 80302, USA (26).

SPRENGER, Prof. Dr. K., Observatorium für Ionosphärenforschung, Mittshurinstr. 4/6, DDR-2565 Kühlungsborn, GDR (28).

STEEL, Mr. J. McA., National Physical Laboratory, Teddington TW11 OLW, UK (22, 34).

STEINHAUSER, Univ. Prof. Dr. F., Zentralanstalt für Meteorologie und Geodynamik, Hohe Warte 38, A-1190 Wien, Austria (27).

STIGMARK, Prof. L., Lunds Institute of Technology, Box 725, S-220 07 Lund 7, Sweden (25).

STOKKE, Mr. K.N., TTR, Norwegian Telecommunication Administration, Universitetsgård. 2, N - Oslo 1, Norway (26).

STRANSKY, Prof. Dr. J., Faculty of Electrical Engineering, Technical University of Prague, Suchbatarova 4, Praha 6 - Dejvice, Czechoslovakia (35).

STUBB, Prof. T., Helsinki University of Technology, E.E. Department, Otakaari 5 A, SF - 02150 Espoo 15, Finland (25).

STUMPERS, Prof. F.L.H.M., Elzentlaan 11, Eindhoven 561 1LG, Netherlands. Phone: (40) - 115512 (20, 21, 35).

SUCHY, Prof. K., Institut für Theoretische Physik (II) der Universität Düsseldorf, Universitätsstr.1, D-4000 Düsseldorf 1, FRG (31).

TANAKA, Prof. H., Tokyo Astronomical Observatory, University of Tokyo, 21-1, Osawa 2-chome, Mitaka, Tokyo 181, Japan. Phone: 0422-32-5111. Telex: 2822307-TAOMTK J (32).

THOMAS, Dr. J.O., Imperial College of Science and Technology, The Blackett Laboratory, Prince Consort Road, London SW7 2BZ, UK (31, 33).

THOMAS, Dr. L., Appleton Laboratory, Ditton Park, Slough SL3 9JX, UK (30).

THOMPSON, Dr. D.C., NZ Meteorological Service, P.O.Box 772, Wellington, New Zealand (27).

THRANE, Dr. E., NDRE, N-2007 Kjeller, Norway (29).

TITHERIDGE, Dr. J.E., Radio Research Centre, Auckland University, Auckland, New Zealand (28).

TIURI, Prof. M., Helsinki University of Technology, E.E. Department, Otakaari 5 A, SF - 02150 Espoo 15, Finland (32, 35).

TLAMICHA, Dr. A., Astronomical Institute, Czechoslovak Academy of Sciences, 251-65 Ondrejov u Prahy, Czechoslovakia (32).
TOLMAN, Dr. J., Institute of Radio Engineering and Electronics, Czechoslovak Academy of Sciences, Lumumbova 1, 180-88 Praha 8, Czechoslovakia (21).

TONNING, Prof. Dr. A., University of Trondheim, Norwegian Institute of Technology, Gløshaugen, N-7034 Trondheim, Norway (22, 25).


TSURUTANI, Mr. B., Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, Calif. 91103, USA (33).

TURNER, Mr. R., National Physical Research Laboratory, CSIR, P.O.Box 395, Pretoria 0001, South Africa (22).

TURSKI, Dr. A., Instytut Podstawowych Problemów Techniki PAN, ul. Świętokrzyska 21, 00-049 Warszawa, Poland (31).

UNGER, Prof. Dr.-Ing. H.-G., Institut für Hochfrequenztechnik, Technische Universität Braunschweig, Postfach der TU 3329, D-3300 Braunschweig, FRG. Phone: (0531) 3912422. Telex: (TU) 952526 tubsw. (23).

UNGSTRUP, Dr. E., Danish Space Research Institute, Lundtoftevej 7, DK-2800 Lyngby, Denmark (28, 35).

UTLAUT, Mr. W., I.T.S., 325 Broadway, Rm. 3020, Boulder, Colorado 80303, USA (33).

VALENZUELA, Dr. G., Naval Research Laboratory, 4555 Overlook Ave. S.W., Washington D.C. 20375, USA (33).

VAN BILJON, Prof. L., Department of Electrical Engineering University of Pretoria, Hillcrest, Pretoria 0083, South Africa (25).
VAN BLADEL, Prof. J., Laboratorium voor Electromagnetisme en Acoustica, Rijksuniversiteit Gent, St-Pieters-nieuwstraat 41, B-9000 Gent, Belgium. Phone: (91)-233821 / ext. 2435 (20, 21, 23).


VESSEUR, Mr. H.J.A., Koninklijk Nederlands Meteorologisch Instituut, De Bilt, Netherlands (26).

VICE, Mr. R.W., Director, National Institute for Telecommunications Research, P.O.Box 3718, Johannesburg 2000, South Africa (26, 27).

VILJOEN, Prof. H.C., Faculty of Engineering, University of Stellenbosch, Stellenbosch 7600, South Africa (24).


VOSS, Prof. W.E., Division of Biomedical Engineering and Applied Sciences, Rm. 247 Civil/Electrical Bldg, University of Alberta, Edmonton, Alberta T6G 2G7, Canada (23).

WAGNER, Dr. Chr.-U., Zentralinstitut für Solar-terrestrial Physik, Bereich Physik der Sonne und Magnetsphäre, Telegraphenberg, DDR-15 Potsdam, GDR (31).

WALDMEIER, Prof. Dr. M., Wirzenweid 15, CH-8053 Zürich, Switzerland (29).

WALKER, Prof. A.D.M., Department of Physics, University of Natal, King George V Avenue, Durban 4001, South Africa (31).

WANG, Prof. Mei-Hwa, Engineering Dept., Directorate General of Telecommunications, P.O.Box 84, Taipei, Taiwan (27, 36).

WATERMAN, Prof. A.T. Jr., Stanford Electronics Laboratories, Durand 203, Stanford, Calif. 94305, USA (27, 34).
WATERS, Mr. J.W., Space Science Division, Jet Propulsion Laboratories, Pasadena, Calif. 91109, USA (28).

WATSON, Dr. P.A., Department of Electrical and Electronic Engineering, The University, Richmond Road, Bradford, BD7 1DP, West Yorkshire, UK (27).

WEBSTER, Dr. A.R., Faculty of Engineering Science, University of Western Ontario, London, Ontario, Canada (27).

WEENINK, Prof., Technische Hogeschool Eindhoven, Afdeling Elektrotechniek, Eindhoven, Netherlands (51).

WEISSGLASS, Dr. P., Chief, Solid State Division, Microwave Institute, Royal Institute of Technology, S-100 44 Stockholm 70, Sweden (23).

WESSEL-BERG, Prof. Dr. T., University of Trondheim, Trondheim, Norway (23).

WHALE, Dr. H.A., Radio Research Centre, Auckland University, Auckland, New Zealand (23).

WHITEHEAD, Prof. J.D., Department of Physics, University of Queensland, St. Lucia QLD 4067, Australia (28).

WICKERTS, Dr. S., Research Institute of National Defence, Dept. 3, S-104 50 Stockholm 80, Sweden (33).

WIEGMANN, Prof. Dr.-Ing. F., Technische Universität Dresden, Sektion Informationstechnik, Mommsenstr.13, DDR-8027 Dresden, GDR (24).

WIELEBINSKI, Prof. R., Max-Planck-Institut für Radioastronomie, Auf dem Hügel 69, D-5300 Bonn, FRG (33).

WITTKE, Dr. P.H., Department of Electrical Engineering, Queen's University, Kingston, Ontario K7L 3N6, Canada (24).

WOJNAI, Prof. A., ul. Sady Żoliborskie 17, m.24, 01-772 Warszawa, Poland (26).

WOLF, Prof. J.K., Department of Electrical and Computer Engineering, University of Massachusetts, Amherst, Mass. 01003, USA. Phone: (413)545-0723 (office); (413)545-2441 (messages). (24).

WRIGHT, Dr. J.W., NOAA/ERL, R43, 325 Broadway, Boulder, Colorado 80303, USA (29, 30).
YEN, Dr. J.L., Dept. of Electrical Engineering, University of Toronto, Toronto, Ontario, Canada (32).

YOKOI, Dr. H., Research Laboratories, Kokusai Denshin Denwa KK, 2-1-23 Nakameguro, Meguro-ku, Tokyo 153, Japan (27).

YONEZAWA, Prof. T., Chubu Institute of Technology, 1200 Matsumoto-cho, Kasugai-shi, Aichi Pref. 487, Japan (28).

ZAKAI, Prof. M. Department of Electrical Engineering, Technion, Haifa, Israel (25).


ZIMA, Prof. V., Institute of Radioengineering and Electronics, Czechoslovak Academy of Sciences, Lumumbova 1, 160-88 Praha 8, Czechoslovakia (24).