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ÉTIENNE VASSY
1905-1969

La disparition brutale du professeur Etienne Vassy, survenue le 30 octobre 1969, a privé l'URSI d'un de ses membres les plus actifs et les plus dévoués. Elle a consterné les nombreux amis qu'il comptait au sein de notre Union, et en particulier au sein du Comité national français (CNFRS), dont il fut Président de 1962 à 1965, et dont il était Président d'honneur depuis 1968.

Né en 1905, Etienne Vassy a eu une carrière caractéristique d'enseignant-chercheur : Docteur ès sciences et Assistant à la Faculté des Sciences de Paris en 1937, il y fut nommé en 1942 Maître de conférences pour y enseigner la « Physique du globe » et il y obtint en 1946 la création d'un enseignement de « Physique de l'atmosphère », pour lequel il fut nommé Professeur titulaire en 1957.

Son enseignement en Physique de l'atmosphère était directement lié à ses travaux de recherche, conduits en collaboration avec Madame Arlette Vassy, puis avec une petite équipe de chercheurs qui devint le « Laboratoire de Physique de l'Atmosphère » de la Faculté des Sciences de Paris. Ces recherches devaient naturellement conduire le professeur Vassy à participer

aux travaux de l'URSI et de l'UGGI : il fut en particulier secrétaire de la Commission inter-Unions pour l'étude des relations Soleil-Terre (en 1952), membre du Comité exécutif de l'Association internationale de météorologie et de physique de l'atmosphère (en 1954), président de la Commission mixte sur la haute atmosphère de l'UGGI (en 1957).

Le professeur Vassy n'a jamais négligé d'examiner les applications de ses recherches en physique de l'atmosphère dans le domaine de la météorologie : il collabora régulièrement avec les services météorologiques français, et participa aux travaux de l'Organisation météorologique mondiale (OMM) : il représentait d'ailleurs récemment l'URSI à la 5e session de la Commission des instruments et des méthodes d'observation qui s'est tenue à Paris du 15 au 30 septembre 1969.

D'autre part, pour mener à bien ses recherches le professeur Vassy a participé activement au développement des techniques radioélectriques qui permettent d'étudier la propagation des ondes dans l'atmosphère et, par là, la structure de l'atmosphère. Il était membre depuis 1945 de la Société française des électroniciens et des radioélectriciens, qui a tenu à lui rendre hommage, lors d'une réunion organisée en commun avec le CNFRS le 18 mars 1970. Des paroles prononcées à cette occasion à la mémoire du professeur Vassy par M. Pierre David, ancien président de la SFER et du CNFRS, nous extrayons les passages suivants :

« Avant de vous donner un aperçu de ses travaux — aperçu très résumé, car il a publié plus de 200 articles, et laissé inachevé un Traité qui devait comprendre cinq volumes — je crois devoir vous faire deux remarques préliminaires :

» La première est que la plupart d'entre nous sont sans doute, comme moi, incapables de l'apprécier tout à fait à sa valeur : parce que nous sommes des radioélectriciens, c'est-à-dire que nous ne nous intéressons à l'atmosphère que d'une façon très « utilitaire » : mis à part que nous y respirons, nous n'y voyons guère qu'un « milieu de propagation » de nos ondes, et nous étudions seulement les combinaisons de ses propriétés qui influencent, en bien ou en mal, la transmission de notre « information ». Au contraire, Etienne Vassy était un vrai « physicien de l'Atmosphère »; il cherchait à comprendre, dans toute leur complexité, toutes ses propriétés physiques et chimiques : température, pression, densité, ionisation, composition, réactions, rôle de l'ozone, etc. Nous avons quelque peine à saisir l'étendue et la difficulté des problèmes qu'il cherchait à résoudre, et dont il était devenu l'un des meilleurs spécialistes.

» Ma seconde remarque est que M. Vassy a eu le privilège de trouver dans la compagne de son existence, une collaboratrice exceptionnelle à

tous ses travaux et à la direction de son laboratoire. Dans la liste de ses publications, il a maintes fois expressément mentionné cette collaboration; et, sans aucun doute, elle était implicite dans beaucoup d'autres. Permettez-moi donc, en vous énumérant les principaux chapitres de son œuvre, de ne pas distinguer la part de chacun, et de la mentionner une fois pour toutes. Nous saurons que dans l'histoire de la Physique de l'Atmosphère, le nom de Madame Arlette Vassy doit être associé à celui d'Etienne Vassy, comme le sont ceux de Pierre et Marie Curie dans l'histoire du Radium.

» Il me semble que l'on peut, sans trop d'arbitraire, répartir les travaux de M. Vassy en trois domaines distincts, mais interdépendants, et dont la relation est tout à fait caractéristique de la Physique moderne.

» Tout d'abord, les *appareils et méthodes de mesure*. Nous ne sommes plus aux temps où Galilée comparait la période du pendule aux battements de son pouls. La plupart des découvertes récentes (relativité, structure de la matière, ...) ont été suscitées par l'observation d'une discordance entre nos premières observations, ou nos premières mesures grossières, et ce que nous révélaient des observations de plus en plus précises. Ceci est vrai de la Physique de l'Atmosphère comme de la Mécanique ou de l'Astronomie, et toute une partie de l'activité de notre collègue a été consacrée à l'étude et à l'amélioration des appareils servant à l'étude de l'atmosphère : spectrophotomètres à enregistrement automatique, polariseurs, cellules, compteurs, multiplicateurs d'électrons, émulsions photographiques. Il a été conduit indirectement à réaliser pour l'étude de la luminescence atmosphérique des sources lumineuses à répartition spectrale « sur mesure »; pour l'étude des décharges et des éclairs naturels, à fabriquer des « éclairs artificiels », par ondes de choc à des températures de 10 000 à 30 000 degrés, qui ont été utiles aussi dans l'étude des charges creuses; il atteignait ainsi des puissances de 600 millions de bougies pendant une microseconde.

» Mais tout cela n'était que des moyens en vue d'une *fin* : le principal était de comprendre ce qui se passe au-dessus de nos têtes, par l'étude des radiations qui nous arrivent, le jour en provenance du Soleil, la nuit des Etoiles, après avoir traversé les différentes couches de l'atmosphère. Cette analyse, étendue depuis l'équateur jusque près des pôles (en Laponie), prolongée de saison en saison pendant des années, donne évidemment une foule d'informations complexes qu'il s'agit de dépouiller et d'interpréter; certains résultats apparaissent simplement, mais il arrive que la poursuite des expériences révèle des anomalies ou des contradictions imprévues, parfois bien décevantes. La contribution apportée par E. Vassy à cette exploration intéressait notamment l'apparition et le dosage de l'ozone, la variation imprévue de température des « calottes polaires » de la strato-

sphère, et l'explication probable de l'ionisation de la couche D en présence du sodium dans l'atmosphère à des altitudes de l'ordre de 75 km.

» Pendant toute cette période, le seul moyen d'*expérimentation* en notre pouvoir était d'envoyer dans l'atmosphère nos ondes électromagnétiques, et nous savons tous que les couches D, E, F nous ont peu à peu livré, grâce à nos patients sondages, quelques-uns de leurs secrets. Mais pas tous : E. Vassy écrivait encore, il y a quelques années : « Il est piquant de constater que même encore aujourd'hui, sur certaines régions de l'atmosphère, on a des idées incomparablement moins nettes que sur le Soleil ou sur d'autres astres ». Lui-même et ses collègues physiciens de l'atmosphère ont donc certainement éprouvé une grande joie, lorsque nous sommes entrés dans l'*Ere de l'Astronautique*, c'est-à-dire qu'il nous est devenu possible d'aller nous-mêmes expérimenter dans l'atmosphère, à toutes les altitudes et à toutes les latitudes (Je dis « nous-mêmes », bien qu'il n'y ait pas encore de laboratoires spatiaux habités; mais cela ne tardera guère, et en attendant, nous opérons « par instruments interposés ».)

» Nous arrivons ainsi à la troisième période dans l'activité du Professeur Vassy : la *participation aux recherches spatiales*. Dès 1954, il obtenait les premiers enregistrements du champ électromagnétique de stations terrestres, à bord d'une fusée Véronique, jusqu'à l'altitude de 104 km. Le 6 mai 1961, il rendait compte des résultats d'une nouvelle série d'essais, au cours desquels, en cinq autres vols de fusées Véronique, avaient été mesurés, non seulement les champs de plusieurs stations terrestres (de fréquences étagées entre 16,8 et 1300 kHz), mais aussi la pression atmosphérique, l'intensité de la lumière solaire diffusée, et l'altitude d'émission de la luminescence nocturne.

» Depuis cette époque, il n'a cessé de contribuer, par ses conseils aux organismes responsables, et par la fourniture d'appareillages spéciaux, à toute la réalisation du programme français de fusées scientifiques : détermination de l'altitude, jauges de pression, et de nouveau, mesures sur la lumière solaire et sur la luminescence nocturne. Ces mesures ont déjà mis en évidence une relation entre « certains réchauffements de la stratosphère et de la mésosphère, et l'épaisseur réduite de la couche d'ozone atmosphérique ».

» Mais le mérite d'un professeur n'est pas seulement d'être un savant. Il consiste aussi dans l'art d'instruire et de former des élèves. Et cela dépend de facteurs humains : la peine qu'il se donne, la confiance et la sympathie qu'il inspire, la cordialité de ses relations avec ses collègues et ses élèves. Etienne Vassy avait gagné l'estime de tous par la clarté de ses exposés, son affabilité, sa franchise, et la courtoisie dont il faisait preuve dans les

discussions. Nous en avons un double témoignage : d'abord dans le nombre de ses élèves étrangers qui sont arrivés à des positions de premier plan, aux Etats-Unis, au Japon, en Iran, en Grèce, en Israël et dans une dizaine d'autres pays; ensuite dans le nombre des associations internationales qui ont fait appel à lui. »

Ses amis de l'URSI se souviendront longtemps, comme ses élèves, de la cordialité des relations avec le professeur Vassy, de la confiance et de la sympathie qu'il inspirait, qui lui permettaient en particulier d'utiliser sa vaste expérience pour promouvoir « cet esprit de franche coopération entre organisations scientifiques internationales » qu'il apportait à l'OMM de la part de l'URSI le 15 septembre dernier.

SILVESTER JARKOWSKI
1908-1970

It is with deep regret that we have to announce the death, on 11 February 1970, in Warsaw of Professor Silvester Jarkowski, Official Member of URSI Commission II and Chairman of the sub-committee on Tropospheric Radio Propagation of the Polish National Committee.

Professor Jarkowski was born in 1908 at Sandomierz. He graduated in 1946 from the Technical University in Warsaw as Master of Science (Eng.) and was appointed Dozent in 1954 and Extraordinary Professor in 1964.

In 1936 Professor Jarkowski was engaged in the State Telecommunications Institute in Warsaw where he carried out pioneer work on the application of ultrasonics to telegraphic and telephonic communications as well as on questions relating to infra-red radiation, both for military purposes.

Later, during the Second World War, he served in the Polish Army. In Great Britain he was seconded to the Signals Research and Development Establishment where he was engaged in research on the propagation of radio waves in the troposphere.

After the war he was entrusted with the management of the Departments for Microwave Radiocommunication and Radio Propagation at the Tele-

communications Institute in Warsaw. Personally he was engaged in the development of radio links and was the author of many scientific papers.

For several years he gave lectures at the Warsaw Technical University. Over a long period of time he took a great interest in and devoted much effort to URSI and its Polish National Committee. He took an active part in international cooperation in the radio field and attended a great number of radio conferences.

Prof. Jarkowski's many achievements received recognition when he was decorated as a knight of the Order Polonia Restituta. With his death, Poland has lost an excellent scientist in the important field of microwave radio communications. His colleagues of the Polish National Committee of URSI regret the early loss of a noble person, and an exceptionally honest frend and fellow worker.

* * *

The Secretary General has written to Professor Hahn, asking him to convey to the Polish Committee and to Prof. Jarkowski's colleagues the condolences of the Board of Officers and especially of Commission II.

SWEDISH URSI COMMITTEE

Professor Stig Lundquist, of the Institute for High Tension Research at Uppsala, has been appointed President of the Swedish National Committee for URSI in place of Dr. Sterky who has retired. Professor Lundquist is, in addition, the Official Member for Commissions IV and VIII.

It is interesting to note that, since its establishment in 1931, the Swedish Committee has had only three Presidents : Professor Henning Pleijel served in this capacity from 1931 until 1945, and Dr. Sterky from 1946 until 1969 before handing over the Presidency to Prof. Lundquist at the beginning of this year.

MEMBERSHIP OF URSI COMMISSIONS

The September issue of the *URSI Information Bulletin* will contain the names of Chairmen, Vice-Chairmen and Official Members of URSI Commissions. The lists of names contained in the records of the URSI Secretariat on 15 August 1970 will be used for this compilation.

Presidents and Secretaries of Committees which have made recent changes in their Official Members are requested to notify the Secretary General of these changes before 15 August.

RÈGLES POUR L'ATTRIBUTION DES MÉDAILLES D'OR BALTH. VAN DER POL ET J. H. DELLINGER

1. La Médaille d'Or Balth. van der Pol et la Médaille d'Or J. H. Dellinger ont été instituées pour rendre hommage à la mémoire de deux hommes de science qui furent étroitement associés à l'URSI pendant de nombreuses années. Les Médailles seront décernées normalement à intervalles de trois ans, à l'occasion de l'Assemblée générale de l'Union. Dans le cas où l'intervalle entre deux Assemblées générales serait nettement supérieur

ou inférieur à trois ans, le Bureau pourra changer la date de l'attribution des Médailles, ainsi que les dates mentionnées aux Articles 2, 3 et 5.

2. Les Médailles seront décernées à d'éminents scientifiques dont les réalisations dans l'une quelconque des branches scientifiques couvertes par les Commissions de l'URSI revêtent une importance particulière. Le travail récompensé devra avoir été accompli, pour l'essentiel, dans la période de six ans qui prend fin un an avant l'Assemblée générale où les prix sont décernés.

3. Les Comités Membres de l'URSI, ainsi que le Bureau, seront invités à présenter chacun deux candidats au plus. Les noms des candidats devront être communiqués au Secrétaire général de l'URSI au plus tard pour le 30 septembre de l'année qui précède celle de l'Assemblée générale.

4. Le nom de chacun des candidats sera accompagné :

a) d'un aperçu général de la carrière et des activités scientifiques du candidat;

b) d'un résumé de ses récentes réalisations, y compris références aux écrits qu'il aura publiés, seul ou en commun avec d'autres auteurs, au cours de la période de six ans mentionnée à l'Article 2;

c) d'un exposé des motifs de la proposition.

5. Le Secrétaire général fera parvenir copie des documents cités à l'Article 4 aux Présidents des Commissions appropriées de l'URSI, en les invitant à exprimer leur opinion sur les mérites relatifs des candidats, au plus tard pour le 31 décembre de la même année.

6. Le Bureau aura tous pouvoirs pour désigner les lauréats. Ce faisant il tiendra compte des renseignements fournis par les Comités Membres et des opinions formulées par les Présidents des Commissions. Il s'inspirera aussi du principe qu'il est souhaitable d'attribuer les Médailles à des candidats travaillant dans différentes branches de la radioélectricité scientifique.

7. Dans le cas où, de l'avis de ses membres, le nombre de candidats suffisamment qualifiés serait inférieur à deux, le Bureau pourra décider de ne décerner qu'une des deux Médailles ou de n'en décerner aucune.

8. Dans le cas où il estimerait que les vues des membres du Bureau ne sont pas suffisamment en accord quant au choix de l'un ou des deux lauréats, le Président pourra faire appel à l'arbitrage des Présidents d'honneur.

RULES
FOR THE AWARD OF THE BALTH. VAN DER POL AND THE J. H. DELLINGER GOLD MEDALS

1. The Balth. van der Pol and the J. H. Dellinger Gold Medals honour the memory of two scientists who were closely associated with URSI for many years. The awards are made normally at intervals of three years on the occasion of the General Assembly of URSI. If the interval between two General Assemblies is considerably greater or less than three years, the Board of Officers is authorised to modify the date on which the next Medals will be awarded and also the dates referred to in Arts 2, 3 and 5.

2. The Medals are awarded to outstanding scientists whose achievements in any of the branches of science covered by the Commissions of URSI have been particularly valuable. The work to which an award refers must have been carried out mainly during the six-year period ending one year before the General Assembly at which the award is to be made.

3. Each of the Member Committees of URSI and the Board of Officers will be invited to submit not more than two candidates. The names of the candidates must be received by the Secretary General of URSI not later than 30 September of the year which precedes that of the General Assembly.

4. The name of each candidate must be accompanied by :

(*a*) a general summary of the candidate's career and scientific activities;

(*b*) a review of his recent achievements, including references to papers published by him, alone or jointly, during the six-year period referred to in Art. 2;

(*c*) an outline of the reasons for the submission of the candidate.

5. Copies of the documents mentioned in Art. 4 will be sent by the Secretary General to the Chairmen of the appropriate URSI Commissions who will be invited to submit their opinions on the relative merits of the candidates not later than 31 December of the same year.

6. The Board of Officers has full authority to select the candidates to whom the awards will be made. In doing so they will take into account the information provided by the Member Committees and the opinions expressed by the Chairmen of Commissions. They will bear in mind also that it is desirable to make the awards to candidates working in different branches of radio science.

7. The Board of Officers has full authority to withhold either or both awards if, in the opinion of the members, the number of sufficiently qualified candidates is less than two.

8. The President can invite the Honorary Presidents to arbitrate if, in his opinion, the views of the members of the Board of Officers are not sufficiently in agreement on the selection of either or both of the candidates who are to receive the awards.

RÈGLES POUR L'ATTRIBUTION DU PRIX APPLETON

1. Le Prix Appleton a été fondé par la Royal Society de Londres pour rendre hommage à la mémoire de Sir Edward Appleton, FRS, Président de l'URSI de 1934 à 1952. Un prix de £100 sera décerné normalement à intervalles de trois ans, à l'occasion de l'Assemblée générale de l'Union. Dans le cas où l'intervalle entre deux Assemblées générales serait nettement supérieur ou inférieur à trois ans, le Bureau consultera la Royal Society, avant de changer la date de l'attribution du Prix ainsi que les dates mentionnées aux Articles 2, 3 et 5. La Royal Society se réserve le droit de mettre fin à l'attribution du Prix.

2. Le Prix Appleton sera décerné pour éminentes contributions dans le domaine de la physique de l'ionosphère. Le travail récompensé devra avoir été accompli pour l'essentiel dans la période de six ans qui prend fin un an avant l'Assemblée générale où le Prix est décerné.

3. Les Comités Membres de l'URSI, ainsi que le Bureau, seront invités à présenter chacun un candidat. Le nom du candidat devra être communiqué au Secrétaire général de l'URSI au plus tard pour le 30 septembre de l'année qui précède celle de l'Assemblée générale.

4. Le nom du candidat sera accompagné :

a) d'un aperçu général de la carrière et des activités scientifiques du candidat;

b) d'un résumé de ses récentes réalisations, y compris références aux écrits qu'il aura publiés, seul ou en commun avec d'autres auteurs, au cours de la période de six ans mentionnée à l'Article 2;

c) d'un exposé des motifs de la proposition.

5. Le Secrétaire général fera parvenir copie des documents cités à l'Article 4 aux Présidents des Commissions appropriées de l'URSI, en les

invitant à exprimer leur opinion sur les mérites relatifs des candidats au plus tard pour le 31 décembre de la même année.

6. Après avoir examiné les renseignements fournis conformément à l'Article 4 ainsi que les opinions formulées par les Présidents des Commissions, le Bureau établira à l'intention de la Royal Society une liste de candidats sélectionnés.

7. La Royal Society aura tous pouvoirs pour désigner le lauréat ou pour décider de ne pas décerner le Prix, si elle estime qu'il n'y a pas de candidat suffisamment qualifié.

RULES FOR THE AWARD OF THE APPLETON PRIZE

1. The Appleton Prize is awarded by the Royal Society of London and honours the memory of Sir Edward Appleton FRS, President of URSI from 1934 to 1952. The price of £100 is awarded normally at intervals of three years on the occasion of the General Assembly of URSI. If the interval between two General Assemblies is considerably greater or less than three years, the Board of Officers will consult the Royal Society before modifying the date on which the next award will be made and the dates referred to in Arts 2, 3 and 5 below. The Royal Society reserves the right to discontinue the award.

2. The Appleton Prize is awarded for outstanding contributions to studies in ionospheric physics. The work to which the award refers must have been carried out mainly during the six-year period ending one year before the General Assembly at which the award is to be made.

3. Each of the Member Committees of URSI and the Board of Officers will be invited to submit one candidate. The name of the candidate must be received by the Secretary General of URSI not later than 30 September of the year which precedes that of the General Assembly.

4. The name of the candidate must be accompanied by :

(*a*) a general summary of the candidate's career and scientific activities;

(*b*) a review of his recent achievements, including references to papers published by him, alone or jointly, during the six-year period referred to in Art. 2;

(*c*) an outline of the reasons for the submission of the candidate.

5. Copies of the documents mentioned in Art. 4 will be sent by the Secretary General to the Chairmen of the appropriate URSI Commissions

who will be invited to submit their opinions on the relative merits of the candidates not later than 31 December of the same year.

6. After considering the information provided in accordance with Art. 4 and the opinions expressed by the Chairmen of Commissions, the Board of Officers will prepare a short-list of candidates for submission to the Royal Society.

7. The Royal Society has full authority to select the candidate to whom the Prize will be awarded or to withhold it if, in its opinion, there is no sufficiently qualified candidate.

PATRONAGE DE CONFÉRENCES SCIENTIFIQUES PAR L'URSI

Les conférences scientifiques de tous genres — symposia, colloques, groupes de travail, etc. — font maintenant partie des activités des chercheurs désireux de procéder à des échanges de vue avec leurs collègues. Ces conférences peuvent se classer en deux catégories principales : d'une part, les réunions organisées par des organisations scientifiques internationales, telles que le Conseil International des Unions Scientifiques et ses Comités et Unions membres et, de l'autre, celles organisées par des organismes nationaux, tels que les Académies des Sciences, les sociétés scientifiques et les instituts de recherche.

De manière générale, l'organisation des conférences de la première catégorie est confiée à un comité composé de représentants de l'organisme international, cependant que les conférenciers et participants viennent des pays membres.

Dans le passé, les conférences organisées par les organismes nationaux étaient avant tout destinées à des participants du pays même. Or, depuis une vingtaine d'années, les transports aériens internationaux permettent aux scientifiques de se déplacer sans trop perdre de temps pour assister à des réunions ayant lieu dans d'autres pays, et même dans d'autres continents. En conséquence, les organismes nationaux non seulement sollicitent la contribution de conférenciers étrangers, mais aussi encouragent la participation de chercheurs venant de l'étranger. Il en résulte que ces réunions tendent souvent à prendre un caractère international. Dans pareils cas, il arrive fréquemment que l'organisme national invite une ou plusieurs organisations internationales à accorder leur patronage à la réunion.

Il a été question jusqu'ici des deux principales catégories de conférences : celles organisées par des organismes internationaux, telles que les Unions membres du CIUS, et celles organisées par des organismes nationaux, telles que les instituts de recherche ou les sociétés scientifiques. A cela s'ajoute une troisième catégorie : celle des réunions qui sont convoquées par de petits groupes de scientifiques de plusieurs pays, lesquels constituent des comités *ad hoc* pour l'étude de sujets présentant de l'intérêt soit à l'échelle régionale, soit à l'échelle internationale.

Au cours de ces dernières années, les membres du CIUS ont reçu d'organismes nationaux et de comités *ad hoc* internationaux un nombre croissant de demandes de patronage, ce qui n'a pas manqué de créer un certain embarras. La cause principale en réside dans le fait qu'au moment où le patronage d'une Union est sollicité, le lieu de la conférence est déjà choisi et les grandes lignes du programme scientifique sont déjà établies. Dans ces circonstances, l'Union ne peut plus jouer qu'un rôle passif dans l'organisation de la conférence et son patronage devient purement nominal, toutes les décisions importantes ayant déjà été prises.

Au cours de sa XII[e] Assemblée générale, le CIUS a invité les Unions à envisager l'adoption de règles de conduite communes dont elles s'inspireraient pour accorder leur patronage aux réunions scientifiques (*Bull. d'Inf. de l'URSI*, N° 169, p. 10). Cette suggestion a été examinée par la XVI[e] Assemblée générale de l'URSI dont la Résolution 11 autorise le Bureau à adopter des règles régissant le patronage de conférences scientifiques par l'Union (*Bull. d'Inf. de l'URSI*, N° 172, p. 11 et *Comptes Rendus des Assemblées générales de l'URSI*, Vol. XV, p. 151).

Ces règles, qui ont été approuvées par le Bureau en février 1970, s'inspirent des normes suggérées par le CIUS et sont reproduites ci-dessous. Elles seront mises en application à partir de 1971, mais serviront déjà de guide pour les réunions qui doivent se tenir en 1970.

Règles et recommandations relatives au patronage de conférences scientifiques par l'URSI

1) Un Comité international du programme, comprenant des représentants du pays ou de l'organisme invitant, de l'URSI et des autres organisations intéressées, sera constitué pour chaque conférence.

2) Le Comité du programme sera chargé du choix des conférenciers et de la mise au point du programme scientifique; il veillera à assurer à celui-ci un niveau digne de l'Union.

3) Le Comité du programme évitera de porter à l'ordre du jour des

sujets ayant déjà été discutés au cours de réunions récentes ou devant l'être dans un proche avenir.

4) Le coût général de la conférence sera couvert par des fonds en provenance de sources nationales. Dans le cas où des subsides supplémentaires seraient accordés par l'URSI, le montant en sera déterminé par le Bureau.

5) Etant donné le nombre important d'ouvrages isolés et inaccessibles, renfermant les communications présentées au cours de symposia, etc., il est recommandé de faire publier celles-ci dans des périodiques scientifiques courants (à l'initiative des auteurs) ou bien sous forme de numéro spécial d'un périodique (suite à des arrangements entre le comité organisateur et l'éditeur).

6) Il est considéré souhaitable de stimuler l'intérêt scientifique dans les pays en voie de développement en y organisant des conférences; il sera toutefois nécessaire d'examiner au préalable les possibilités générales, le coût global de la conférence ainsi que le problème éventuel de l'échange des devises.

CO-SPONSORSHIP OF SCIENTIFIC MEETINGS BY URSI

Scientific meetings of many kinds, such as symposia, colloquia and smaller discussion groups, have become a familiar feature of the activities of research scientists who wish to exchange views with their colleagues. These meetings can be divided into two main types : those which are planned by international scientific organisations such as ICSU and its member Unions and Committees, and those where the initiative is taken by a national body such as an Academy of Sciences, a scientific society, or a research institute.

In general the internationally organised meetings are planned by a committee which includes a cross-section of the members of the international body. Moreover both the speakers and the participants at such meetings come from many countries.

In the past, a meeting organised by a national body was primarily intended for participants from the country in which the meeting was held. However, over the last two decades, international travel by air has made it possible for scientists from one country to attend meetings in another country, or even in another continent, without an unduly great expenditure

of time. In consequence, the national bodies which organise these meetings often invite speakers from other countries and, in addition, they frequently encourage the attendance of participants from many countries. As a result of these practices, the meetings organised by national bodies often tend to become, in effect, international in the sense that many of the speakers and the participants come from countries other than the host country.

When a national body organises an important scientific meeting and when the meeting later develops an international character, as explained above, it frequently happens that the national body then invites one or more international bodies to act as co-sponsors of the meeting.

Reference has been made above only to the two main types of meeting : those organised respectively by a recognised international body, such as a Union of ICSU, and by a national body, such as a research institute or scientific society. A third type of meeting must also be mentioned. It sometimes happens that a small group of scientists from several countries agree among themselves to form an *ad hoc* committee. This committee then organises a meeting on a topic which is of interest either to scientists in many countries or to those in a particular region.

In recent years, the number of requests for co-sponsorship of meetings, received by the members of ICSU from national bodies and from *ad hoc* international committees, has grown considerably and these have caused some embarrassment to URSI and to some other Unions.

The principal cause of this embarrassment is that, by the time the Union is invited to be a co-sponsor, the choice of location for the meeting has already been made and the planning of the scientific programme has usually reached an advanced stage. In these circumstances, the Union can play no active role in the organisation of the meeting; in consequence, its co-sponsorship, if accepted, is purely nominal since the principal decisions have already been taken.

At the XII General Assembly of ICSU, the Unions were invited to consider the adoption of a common practice in deciding whether or not to agree to be co-sponsors of scientific meetings (*URSI Inf. Bull.*, No. 169, p. 10). The ICSU invitation was discussed at the XVI General Assembly of URSI and Resolution 11 authorised the Board of Officers to adopt rules regulating the sponsorship of scientific meetings by URSI (*URSI Inf. Bull.*, No. 172, p. 53 and *Proceedings of URSI Assemblies*, Vol. XV, p. 191). The criteria listed in the URSI Resolution were based on those suggested by ICSU.

The rules and recommendations reproduced below were approved by the URSI Board of Officers in February 1970. They will be used as a general

guide during 1970 and will take full effect for meetings planned for 1971 onwards.

Rules and Recommendations relating to the Co-Sponsorship of Scientific Meetings by URSI

(1) For each meeting, an international Programme Committee shall be established comprising representatives of the country or the organisation that issues the invitation, and also of URSI and other interested organisations.

(2) The Programme Committee will be responsible for planning the scientific programme, for selecting the speakers and for ensuring that the quality of the scientific programme is worthy of sponsorship by a scientific Union.

(3) The Committee must avoid the choice of topics that have recently been discussed at other international meetings or that will be discussed at such meetings in the near future.

(4) Adequate financial support for the main expenses of the meeting must be available from national resources. In cases where a supplementary grant is made by URSI, the amount will be decided by the Board of Officers.

(5) In view of the undesirably large numbers of isolated and inaccessible volumes containing papers presented at symposia etc., it is recommended that the papers be published (on the initiative of the individual authors) in existing scientific periodicals or (following the completion of arrangements between the organising committee and a publisher) in a special issue of a periodical.

(6) It is considered desirable to stimulate interest in science in developing countries by holding meetings in them, provided that this is practicable and that attention is given to the problems of overall cost and foreign exchange.

PROJET D'OBSERVATION D'UN ORAGE IONOSPHÉRIQUE

L'Assemblée générale de l'URSI d'août 1969 a recommandé d'observer de façon intensive les mouvements de l'ionosphère pendant les orages

magnétiques. Le Groupe de Recherches Ionosphériques (GRI) ainsi que le Centre des Prévisions de Meudon ont accepté de prendre la responsabilité d'organiser les observations.

Une lettre circulaire a été envoyée à de nombreuses stations du globe pour leur demander d'effectuer des enregistrements ionosphériques, riométriques, magnétiques, etc..., plus fréquents que de routine pendant une semaine. Le début des observations est déclenché sur alerte pendant la période de septembre, octobre, novembre 1970 à partir de prévisions élaborées à Meudon.

La lettre circulaire, qui sera envoyée sur demande aux observatoires qui ne l'auraient pas reçue, contient les informations nécessaires concernant la façon de participer à cette expérience, sur une grande échelle, des mouvements de l'ionosphère; un calendrier des différentes étapes de la préparation y est proposé.

Les demandes d'informations complémentaires peuvent être adressées à : D^{r} C. Taïeb, GRI - CNET, 3 avenue de la République, 92 - Issy-les-Moulineaux, France.

PROJECT FOR OBSERVATION OF AN IONOSPHERIC STORM

The URSI General Assembly in August 1969 recommended an intensive programme of observations of movements in the ionosphere during magnetic storms. The Groupe de Recherches Ionosphériques (GRI) Paris, together with the Forecast Centre at Meudon have accepted responsibility for the organisation of the observational programme.

A circular letter has been sent to many stations in all parts of the world inviting them to make ionospheric, riometer, geomagnetic and other types of record at more frequent intervals than usual during one week. The beginning of the observations will be notified by means of an Alert, based on the Meudon forecasts, sometime during the period, September, October, November 1970.

A copy of the circular letter will be sent, on request, to any observatory which has not received one. It contains the necessary information concerning participation in this large-scale experiment on ionospheric movements and a proposed timetable for the different phases of the project.

Requests for further information should be addressed to : Dr. C. Taïeb, GRI - CNET, 3, avenue de la République, 92 - Issy-les-Moulineaux, France.

WINTER ANOMALY IN IONOSPHERIC ABSORPTION ; STRATOSPHERE-IONOSPHERE COUPLING

Recommendation III.14 (*URSI Inf. Bull.*, No. 172) referred to the desirability of coordinated studies of the winter anomaly and related phenomena.

All those who are interested in participating in these studies are invited to make contact with one of the area organizers below.

Europe : Dr. H. Schwentek, Max-Planck-Institut für Aeronomie, Institut für Ionosphären-Physik, 3411 Lindau, Germany.

North America : Dr. J. B. Gregory, Institute of Space and Atmospheric Studies, University of Saskatchewan, Saskatoon, Canada.

Australia/New Zealand : Dr. I. A. Bourne, Physics Department, RAAF Academy, Melbourne University, Parkville, Victoria, Australia.

South Atlantic : Mr. W. R. Piggott, Radio and Space Research Station, Ditton Park, Slough, Bucks, United Kingdom.

The programme as a whole is being coordinated by : Professor W. J. G. Beynon, Department of Physics, University College of Wales, Aberystwyth, Cards., United Kingdom.

GLACIER SOUNDING IN THE POLAR REGIONS

For many years radio echo sounding techniques have formed an important part of the scientific programme of URSI and its national committees. Such techniques have been used with success in the investigation, for example, of the troposphere (Commission II) and of the characteristics of the ionosphere on a world-wide scale as well as its vertical structure (Commission III).

Until now, URSI has not been particularly concerned with the sounding of glaciers and ice sheets by means of radio waves, but notable progress in this field has been made in recent years in several countries that are interested in surveys of the Arctic and Antarctic regions.

A symposium on glacier sounding in the polar regions was held at the Royal Geographical Society in London and the papers presented, together with the discussion have been published in *The Geographical Journal*, Vol. 135, pp. 547-563.

The subjects covered were :

I. The VHF Radio Echo Technique (S. Evans, UK).
II. Airborne Radio Echo Sounding of the Greenland Ice Sheet (P. Gudmandsen, Denmark).
III. Airborne Radio Echo Sounding by the British Antarctic Survey (C. Swithinbank, UK).
IV. Results of Radio Echo Sounding in Northern Ellesmere Island 1966 (G. Hattersley-Smith, Canada).
V. Long-Range Radio Echo Flights over the Antarctic Ice Sheet (G. de Q. Robin, UK).

There are certain obvious similarities between the propagation of radio waves in ice and in non-ionized media. For this reason, an informal link has been established between URSI Commission II and the Scientific Committee on Antarctic Research. Dr. F. Eklund (Sweden) has been asked to ensure the necessary liaison between URSI and SCAR and in addition Dr. Gudmandsen (Denmark) has agreed to make his experience available as required. Besides the use of radio waves for sounding glaciers and ice sheets, the possibility is being considered of investigating the characteristics of pack ice by illuminating the ice with radio waves and studying the radiation scattered from the rough surface. This technique is already being developed for making surveys of crops on land and the characteristics of ocean waves.

It seems possible that some URSI Member Committees may be in contact with radio scientists who have experience in these fairly new methods of using radio waves. If so the Secretary General of URSI would be glad to hear from them with a view to broadening the contacts between URSI and SCAR.

GLOBAL ATMOSPHERIC RESEARCH PROGRAMME (GARP)

Planning Conference, Brussels March 1970

The Planning Conference on GARP was held in Brussels in March 1970 under the Chairmanship of Prof. J. Van Mieghem (Director, Institut Royal Météorologique). It was attended by delegations from 25 Members of WMO, as well as delegations from ICSU, WMO, UNESCO, and ESRO. The ICSU delegation included representatives of URSI, IUGG, IAMAP and IGU. In the absence of the President of ICSU, Prof. Coulomb (President of the ICSU Panel on GARP) was the principal ICSU representative.

After the opening meeting, the Conference constituted three Committees which were asked to prepare recommendations on the following questions :
Committee A. GARP Tropical Experiments.
Committee B. First GARP Global Experiment.
Committee C. Organisation of GARP Experiments.

GARP Tropical Experiments.

Each GARP Experiment is part of a GARP Sub-Programme which consists of projects of both theoretical and experimental character to be carried out as part of the overall Global Programme, the central theme of which is the study of the large-scale dynamics of the atmosphere.

The Tropical Experiments form part of the Tropical Sub-Programme which is concerned with obtaining a better understanding of the energy-exchange processes between the various scales of atmospheric motions in the tropical atmosphere.

The Conference accepted the recommendation of Committee A that the Tropical Experiments should take place in the Atlantic Ocean probably in 1974. It was appreciated that the Atlantic experiment would leave unresolved the problems of the behaviour of the tropical atmosphere in other parts of the world. The Joint Organising Committee (JOC) will consider the possibility of conducting experiments in other areas, such as the Western Pacific, at a later date.

The detailed planning of the Experiment will be completed in 1971 but it is already clear that in addition to meteorological satellites due to be launched from 1972 onwards, about 20 specially equipped ships will participate in making observations. The countries along the East and West Atlantic coasts will be responsible for ground-based programmes and will provide bases for possibly 10 aircrafts carrying meteorological instruments.

FIRST GARP GLOBAL EXPERIMENT.

The Conference gave general approval to the proposals already made by the JOC. These imply a horizontal spacing of 400 km - 500 km between observing stations and the collection of observations of many kinds at four or more levels in the troposphere.

It is important to note that the World Weather Watch observational network will form an essential part of the GARP Observing System but there are plans for supplementary types of observations such as geo-stationary and polar orbiting satellites, balloons for making vertical soundings and for operation at constant levels, buoys and land-based stations with automatic recording devices, etc.

In view of the extremely large volumes of data which will result from the GARP Global Experiment, it is considered essential to make the greatest possible use of large modern computers for the analysis of the data. Numerical simulation experiments are proposed to establish these requirements more precisely.

It is provisionally assumed that the Global Experiment will begin in 1975 or 1976 but the JOC has been invited to review the recommendations of the Conference in more detail and to develop a timetable for the different phases by early 1971.

ORGANIZATION.

The JOC will remain responsible for the scientific aspects of GARP. However it is intended to establish a Tropical Experiment Board, which will be responsible for the implementation of the experiment, composed of representatives of the countries which will participate actively in it. Similar Boards may be required for other experiments.

It was considered premature to consider the management of the Global Experiment and the JOC has been asked to give further consideration to this question.

The basic principle was agreed that, in the interests of economy, the maximum possible use should be made of existing national and international facilities, including the Secretariats of WMO and ICSU. Stress was placed also on the need to ensure that the data derived from the experiments shall be made available for scientific study and that a number of scientific groups should be asked to carry out special studies.

PUBLICATIONS.

This account of the GARP Planning Conference is quite informal and is subject to confirmation when the report of the Conference becomes available, possibly in the GARP Publications Series which is published jointly by ICSU and WMO. The following numbers have already appeared :
No. 1 An Introduction to GARP (October 1969).
No. 2 Systems Possibilities for an Early GARP Experiment (January 1969).
No. 3 The Planning of the First GARP Global Experiment (October 1969).
No. 4 The Planning of GARP Tropical Experiments (January 1970).

By arrangement between ICSU and WMO, copies of GARP publications can be purchased from : World Meteorological Organisation, Case Postale No. 1, CH-1211 Geneva 20, Switzerland.

During the Brussels Conference, the Chairman of JOC submitted a document representing a Supplement to GARP Publication No. 3 which takes account of a report prepared by a special meeting of COSPAR Working Group 6 held in February 1970.

INTER-UNION COMMISSION ON RADIO METEOROLOGY

Report of Business Meeting

OTTAWA, 26 AUGUST 1969

1. — PLACE.

This meeting was held on the campus of Carleton University, Ottawa, Canada at the time of the XVI General Assembly of URSI.

2. — ATTENDANCE.

Present : R. Bolgiano (President), D. Atlas (Secretary), B. R. Bean, F. Eklund, D. T. Gjessing*, Dr. Ishimine (for K. Naito), Dr. Jeske (for K. Brocks), J. A. Lane*, E. T. Pierce, J. A. Saxton.

Absent : K. Brocks, J. S. Marshall, K. Naito, C. J. Readings*, W. C. Swinbank*, J. W. Strohbehn*, V. I. Tatarsky.

Observers : C. I. Beard (Chairman, US URSI Commission II), I. Katz (Secretary, US Commission II).

3. — DISCUSSION AND ACTION.

(a) *Post-mortem on 1969 Stockholm Colloquium.*

President Bolgiano reviewed the responses received to his questionnaire concerning reactions to the colloquium. By and large the response was quite favorable. The size of the meeting (about 50 people) was thought to be about right, and the fields covered were not too broad. There were mixed feelings about the need for tutorial papers, although Bean thought that review papers were necessary at such cross-disciplinary meetings in order to bring the participants up-to-date on topics to be treated. Misme thought there were too many papers and inadequate time for discussion. Bean did not see how a meeting could be any longer than the ten days we had, although we should have allowed more time for the working groups. Atlas suggested that the available time was not well distributed because there was no specific program plan until the participants arrived. It was proposed that the working groups be organized well in advance of the next meeting so that attention could be focused on specific problems and sessions arranged to deal with these. This would also permit a better distribution of time between subject areas and speakers.

Bean and Saxton reported that the final proceedings were completed according to schedule and shipped to the Editor of *Radio Science* for publication in the December 1969 issue. This will be quite an accomplishment in publication speed. IUCRM will receive 200 copies for distribution to participants and the various sponsoring agencies. Bean assumed responsibility for distribution. He will also investigate the possibility of having *Radio Science* offer an option of purchasing hard cover copies. Bean will also prepare announcements of the forthcoming proceedings for publication in the various meteorological and radio journals.

* Newly nominated members.

President Bolgiano proposed, and the membership agreed unanimously, a strong vote of appreciation to Drs Saxton and Bean for the tremendous task of getting the Proceedings together. A debt of gratitude is also owed to the Radio and Space Research Station, Slough, England for having absorbed the significant costs of reproduction, mailing, and clerical assistance. Appreciation was again expressed to Drs Eklund and Wickerts and their Swedish colleagues for their great part in making the colloquium a success.

Dr. Eklund presented a final balance sheet of the colloquium expenses (not reproduced here). A late gift by a Swedish firm increased the remaining balance to 1,492.22 Kroner. Dr. Saxton will check with Dr. Minnis to determine how this balance can be returned to IUCRM's general account.

(b) *Future Colloquia.*

(1) Next in series of Moscow/Stockholm Colloquia.

President Bolgiano appointed a committee of four to plan the next colloquium in this series or another colloquium. The members are : Bean (Chairman), Gjessing, Lane, and Readings. They are to report back to IUCRM by mail by February 1970 in order that we can have sufficient time to secure necessary funding from our parent unions.

(2) Radiometry Colloquium.

Misme had nothing to report, but will advise us as plans develop.

(3) Joint Symposium with IAMAP Cloud Physics Commission — XV General Assembly of IUGG, Aug. 1971.

The IUCRM members polled by Atlas by mail favored participation in this symposium which will deal with the dynamics of clouds and precipitation and the use of radar and lidar in cloud physics. No special IUCRM funds will be required for this meeting. Bolgiano appointed Atlas (Chairman), Lane, and Naito as a subcommittee to work with Dr. Weickmann of IAMAP in organizing the program.

(c) *IUCRM Position on Atmospheric Electricity.*

Pierce agreed with the position taken by IUCRM at Stockholm with respect to its interest in atmospheric electricity, but recommended minor modifications (in italics below) of Paragraph 3 of the IUCRM Statement adopted there. The new Paragraph 3 follows :

"3) The Commission now considers, therefore, that its limited interests in the field of atmospheric radio electricity should be recognized; specifically that these interests are *concentrated on* investigations which facilitate the understanding of the interaction of the non-ionized atmosphere

(including clouds and precipitation) with *electromagnetic* waves of frequencies greater than about 30 MHz."

(d) *New Members and Officers.*

Dr. Saxton noted that it has been general practice to rotate the IUCRM officers between IUGG and URSI. However, the officers could be re-elected for a second three-year period. The new members are reminded that the president and secretary cannot be from the same Union. Secretary Atlas will act as a "housekeeping" officer of IUCRM until the election of new officers is completed.

Secretary Atlas will poll all the members (on the assumption that the new members will be confirmed) for nominations of the officers.

Since the election cannot take place until the new members are confirmed by the parent Unions, Atlas was asked to write to the President of IUGG to request confirmation at the earliest possible time. The new URSI members will have been confirmed by the end of the Ottawa General Assembly.

Atlas will also write to Dr. Pinus in the USSR once more to request their recommendations of a member from the Soviet Union. If no names are forthcoming, then we should proceed to nominate another IUGG member. Misme suggested that the realm of interest be considered primarily in the choice rather then national origin.

The following names were offered as possibilities in the event no suitable candidate from the USSR is proposed : Owen Phillips (USA), Robert Stewart (Canada), H. Panofsky (USA), J. H. Dutton (USA), Businger (USA), W. Roach (UK), J. D. Woods (UK), Reggy Newell (USA), Bullrich (West Germany), Schotland (USA).

Consultants will be appointed by the new members after the latter are confirmed.

(e) *URSI Report on Remote Atmospheric Probing.*

Although Bolgiano and Atlas relied essentially on the report of the US National Academy of Sciences Panel on Remote Atmospheric Probing in their presentation to the URSI General Assembly, it was considered inappropriate to publish this side by side with the corresponding report on probing the upper atmosphere prepared by the international URSI Panel under Prof. Gordon's chairmanship, firstly because the study was not an international effort, and secondly, because of the difference in treatment. It was therefore proposed to URSI President Silver that the upper atmosphere report be published alone, and that Atlas should take

independent action to see that the US lower atmosphere report be published separately. Atlas will also see that all IUCRM members receive copies of the US N.A.S. report when available.

(f) *Appreciation to Retiring Members.*

President Bolgiano proposed, and the members present supported, a vote of deep appreciation to retiring members Saxton and Misme for their long and effective service to IUCRM. We also note, with regret, the absence of Prof. Marshall from the meeting and express our gratitude to him for his many contributions to IUCRM. Finally, the members voiced their appreciation to retiring President Bolgiano for his devoted service and particularly for his extensive efforts in connection with the 1965 Moscow and 1969 Stockholm colloquia. It was largely through his vision that they were undertaken and through his work that they succeeded.

David Atlas,
Secretary, IUCRM.

NOTE : *The revised membership of IUCRM was published in* URSI Information Bulletin, *No.* 174, *p.* 78.

INTERNATIONAL SYMPOSIUM ON THE ROTATION OF THE EARTH

Japan, May 1971

Preliminary Announcement

The international symposium on "The Rotation of the Earth" proposed by Prof. P. Melchior, President of Commission 19, IAU, was announced in the *IAU Information Bulletin*, No. 23 (January 1970), page 58.

A local committee has been organized in Japan early this year, with Dr. T. Okuda (Director of the International Latitude Observatory of Mizusawa) as the Chairman, to prepare this symposium.

The Local Organizing Committee considers that it would be a great convenience to those who might be interested in the Symposium to have

some advance information about it as early as possible, even if it might be modified slightly in the future.

Tentative planning by the Local Organizing Committee is that :

1. The Symposium is scheduled to be sponsored by the IAU in cooperation with the IUGG.

2. The principal purpose is to find a method of eliminating difficulties in the derivation of the correct coordinates of the pole and rotation of the earth. For this purpose, the Symposium will discuss and interpret the results of astronomical observations in connection with geophysical problems such as continental drift, excitation of polar motion, atmospheric perturbations, geopotential surface and so on. It will also discuss the development of new techniques and instruments to measure anomalies of rotation and the geophysical phenomena.

3. Dates : 9 (Sunday) to 15 (Saturday) May 1971.

4. Place : Morioka (near Mizusawa), Japan.

5. The main topics will be

(*a*) Coordinates of the pole in a uniform system.
(*b*) Comparison of time and latitude results.
(*c*) Analyses of the polar motion and their interpretations.
(*d*) Theory of rotation of the earth.
(*e*) Stability of the figure of the earth or geopotential surface and atmospheric perturbations.
(*f*) New instruments and techniques (laser, long base-line interferometry, palaeontology, ancient eclipses and so on).

P. Melchior
President,
Organising Committee.

T. Okuda
Chairman,
Local Organizing Committee.

S. Yumi
General Secretary,
Local Organizing Committee,
International Latitude Observatory of Mizusawa,
Mizusawa-shi, Iwate-ken,
023 Japan.

1971 EUROPEAN MICROWAVE CONFERENCE

AUGUST 23-28, STOCKHOLM

The above international conference is being organized by the Royal Swedish Academy of Engineering Sciences in cooperation with IEE (England), IEEE (region 8) and the Swedish Member Committee of URSI.

The main topics of the conference will be :
Microwave solid state devices.
Microwave components and computer analysis.
Microwave integrated techniques.
Microwave antennas.
Microwave applications.
Microwave acoustics.

The call for papers and further details about the conference will be published in due course. Advance information is available from : Dr. H. Steyskal, Secretary General, 1971 European Microwave Conference, Fack 23, 104 50 Stockholm 80, Sweden.

INTERNATIONAL SYMPOSIUM ON ANTENNAS AND PROPAGATION

SENDAI, JAPAN. 1-3 SEPTEMBER 1971

The 1971 International Symposium on Antennas and Propagation, Japan, (ISAP) will be held at Tohoku University in Sendai, Japan, September 1 (Wednesday) through September 3 (Friday), 1971.

This Symposium is sponsored and organized by the Institute of Electronics and Communication Engineers of Japan, and supported by the Science Council of Japan, the Professional Group on Antennas and Propagation of the Institute of Electrical and Electronics Engineers, Inc., and the Electronics Association of Japan.

The Chairman of the Organizing Committee and of the Executive Committee is Prof. H. Uchida.

CALL FOR PAPERS

The Symposium is open to any interested person from any nation, and will specialize in subjects of current importance in regard to "Electromagnetic Field Theory, Theory and Practice of Antennas and Propagation". Papers dealing with the following subjects are encouraged : Electromagnetic Field Theory; Antennas for Spacecraft; Low Noise

Antennas; Active Antennas; Scanning Antennas; Array Antennas; Propagation of Millimeter, Submillimeter and Light Waves; Propagation in Plasma; Propagation in Space; Radio and Atmosphere; Engineering Application of Radio Propagation; Radio Astronomy.

Authors are requested to submit, in English, two copies of a 400-600 word abstract of their papers for selection. The abstract should be typed in double spacing on one side of the paper (21.5 cm × 27.5 cm). The author's name, affiliation and complete return address must appear on the first page. Tables and Figures should be included in two pages.

The abstract should reach the Chairman of the Papers Committee not later than November 30, 1970 : Dr. F. Ikegami, c/o The Institute of Electronics and Communications Engineers of Japan, Kikai-Shinko-Kaikan Bldg., Shiba Park 21-1-5, Minato-ku, Tokyo 105, Japan.

The acceptance of papers will be notified to the authors by February 15, 1971.

Special sheets for the preparation of summaries for the proceedings of accepted papers will then be sent to the authors with detailed information about the manuscripts. The length of the summaries will be limited to two sheets, including figures.

The deadline for receipt of the summaries is the end of April, 1971.

In addition to the technical sessions, visits to nearby scientific research laboratories and sightseeing trips are being planned. Furthermore, special programs for ladies will be arranged, so they may also enjoy their trip to Japan.

The registration fee is about 7,000 Yen in Japanese currency (about $20).

Detailed information about hotels and registration, the program of the symposium and social events will be sent out by the end of May, 1971.

Additional information can be obtained from Dr. K. Nagai, Secretary, Executive Committee of 1971 ISAP, Japan, c/o The Institute of Electronics and Communication Engineers of Japan, Kikai-Shinko-Kaikan Bldg, Shiba Park 21-1-5, Minato-ku, Tokyo 105, Japan.

THE RECORD OF THE IQSY

IQSY (International Years of the Quiet Sun) was the name given to the international project designed to investigate a wide range of solar and geophysical relationships during the period of minimum solar activity which

occurred in 1964-1965. The seven volumes published in the series *Annals of the IQSY* contain a compact record of the achievements of this project, the success of which was largely due to the close and continued cooperation of the 70 or more countries which participated in it.

The first volume surveys the recommended basic techniques of observation which were used and which ensured, as far as possible, that all the resulting data could be intercompared with each other no matter where they originated. A very full daily record of solar and geophysical activity, as monitored by observations of a variety of parameters during the years 1960-1965, is contained in Volume 2. Volumes 3-5 form the kernel of the *Annals* : they contain reports on the scientific research undertaken during the IQSY, and a preliminary discussion of the results as presented at a Symposium held in London in July 1967. Volumes 6 and 7 provide information relating to the data that are available for study.

The coordinated programme of solar and terrestrial observations, made during the IQSY in all parts of the world, has a unique value since, for the first time, it is now possible to compare the characteristic features of many geophysical and extra-terrestrial phenomena under very different conditions : during the IQSY, (1964-1965) when they were least affected by solar activity, and during the IGY, (1957-1958) which coincided with the highest level of solar activity ever recorded. These data will, in addition, serve as valuable references for comparison with those that will be acquired during the future solar cycles.

Volumes 6 and 7 of the *Annals*, which have recently been published, include information concerning the various types of data acquired during the IQSY and outline the ways in which the data can be used. Tables are given which show the types of data recorded at each station for the whole period 1957-1965; these data are available at the World Data Centres in Europe, the USSR and the USA. These two volumes contain also an account of the origin and organisation of the IQSY, an extensive bibliography, and an index to the complete series.

The series *Annals of the IQSY* is published by The MIT Press, Cambridge, Mass., USA : in Europe they are distributed by Book Centre Ltd., London N.W. 10.

The contents and prices of the individual volumes are given below; a reduction of 20 % is allowed on subscriptions to the whole series.

Contents of the *Annals of the IQSY*

Volume 1 — *Geophysical Measurements : Techniques, Observational Schedules, and Treatment of Data.* In order to ensure that material collected

during the IQSY period had the greatest possible value, it was necessary to coordinate both the types of measurements made and the times at which they were made in different parts of the world. Instruction manuals were prepared describing techniques for measurement in the various geophysical disciplines covered : aeronomy, aurora, airglow, ionosphere, solar activity, cosmic rays and space research; these manuals are collected together and published in volume 1 of the *Annals*. ($20.00)

Volume 2 — *Solar and Geophysical Events 1960-1965 (Calendar Record)*. Simultaneity of observation during the IQSY was ensured by the organisation of "World Days" and special systems of "Alerts" at the onset of sudden phenomena; the complete record of these and of all relevant geophysical activity is set out in volume 2. ($15.00)

Volume 3 — *The Proton Flare Project (The July 1966 Event)*. This volume contains a unique collection of scientific papers surveying detailed observations on a spectacular solar proton flare. These flares are rare phenomena since they are caused only by particular configurations of solar-active processes and no such comprehensive series of observations has hitherto been achieved. ($22.50)

Volumes 4 and 5 — *Solar-Terrestrial Physics (Proceedings of the Joint IQSY-COSPAR Symposium, London* 1967, *Parts I and II)*. These two volumes contain preliminary surveys of the observations made during the IQSY and their scientific analysis and assessment.

Volume 4, *Solar Aspects*, covers : the activity of the quiet sun, interplanetary space, the cosmic radiation, the earth's radiation belts, aurora and airglow. ($19.50)

Volume 5, *Terrestrial Aspects*, covers : meteorology, ionospheric measurements, ionospheric processes, the earth's atmosphere, geomagnetism. ($22.50)

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