
U. R. S. I.

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XVIII URSI GENERAL ASSEMBLY

Lima, Peru, August 1975

On the invitation of Dr. A. A. Giesecke and the URSI Committee in Peru, the XVIII General Assembly of URSI will be held in Lima. The Opening and Closing Meetings will be held on Monday 11 and Tuesday 19 August 1975.

PARTICIPATION.

It is important to note that the scientific sessions being organised by the Commissions and the three Symposia will be open to anyone who wishes to attend, even if he is not a member of the Delegation sent by the URSI Committee in his country. The President has formally notified Member Committees and others concerned in his letter of 22 October 1974 (see page 9).

TIMETABLE.

Note : Meetings of the Board of Officers and of the URSI Council are open to members only.

August 1975

Friday 8	Board of Officers (morning) URSI Council (afternoon)
Saturday 9	URSI Council (all day)
Sunday 10	Chairmen of Commissions (morning) Registration (all day)
Monday 11	Registration (all day) Opening Meeting (morning) Business Meetings of Commissions (afternoon)
Tuesday 12	Commissions and Working Groups (all day) Symposia A, B and C
Wednesday 13	Commissions and Working Groups (all day) Symposia A, B and C
Thursday 14	Commissions and Working Groups (all day) Symposia A, B and C

Friday 15	Commissions and Working Groups (all day) Symposium A URSI Council (afternoon)
Saturday 16	Free
Sunday 17	Free
Monday 18	Commissions and Working Groups (all day) Symposia A and C
Tuesday 19	Commissions and Working Groups (morning) Symposia A and C Closing Meeting (afternoon)
Wednesday 20	Incoming Board of Officers (morning)

The topics for the Symposia are as follows :

- Symposium A Radio Waves and the Ionosphere
- Symposium B Non-Stationary Signal Analysis
- Symposium C Telecommunications Noise and the Interference Environment.

Details of the topics to be covered by the Symposia were given in *URSI Bulletin* No. 192. The latest dates for the acceptance of contributed papers to these Symposia have been changed to 1 March 1975. Titles and abstracts of papers should be submitted to :

for Symposium A : Prof. S. A. Bowhill, Department of Electrical Engineering University of Illinois, Urbana, Illinois 61801, USA;

for Symposium B : *Mathematical aspects and technical aspects* : Prof. T. Kaylath, Stanford Electronics Laboratories, Stanford, Calif. 94305, USA and Prof. B. Picinbono, Laboratoire d'Etude des Phénomènes Aléatoires, Université Paris-Sud, 91405 Orsay, France;

Magnetospheric aspects : Prof. R. L. McPherron, Institute of Geophysics and Planetary Physics, UCLA, Los Angeles, Calif. 90024, USA and Dr. D. Jones, Space Science Department, ESTEC, Domeinweg, Noordwijk, Netherlands;

Acoustical aspects : Prof. B. Escudie, Institut de Chimie et Physique Industrielles, 25 rue du Plat, 69288 Lyon Cedex 1, France;

Astronomical aspects : Prof. M. Cohen, California Institute of Technology, Pasadena, Calif. 91109, USA and Dr. J. C. Ribes, Observatoire de Paris, Place Jules Janssen, 92190 Meudon, France;

for Symposium C : Mr. G. H. Hagn, Stanford Research Institute, 1611 North Kent Street, Arlington (Va) 22209, USA.

REGISTRATION FEE.

The Registration Fee for the Assembly and Symposia will be approximately US\$ 49, subject to variations in the rate of exchange of the dollar. The Fee includes the cost of the *Book of Abstracts*, to be prepared by the Peruvian Committee, and *Review of Radio Science 1972-1974* which is being edited by Prof. Bowhill with the close cooperation of the Chairmen of the URSI Commissions. The Registration Fee for ladies and accompanying persons will be approximately US\$ 15.

GROUP TRAVEL ARRANGEMENTS : EUROPE-LIMA

As announced in Bulletin No. 192, it will be possible for delegates to make great economies if they travel in groups of at least 10 persons, rather than individually. The normal air return fare from Paris to Lima is at present 60,860 Belgian francs, whereas the group travel plans proposed below cost 64,000-65,000 Belgian francs, including bed and breakfast in hotels.

Two alternative programmes are being planned :

Programme A : Peru — Bolivia — Brazil,

Programme B : Peru — Brazil.

Enquiries about these Programmes should be addressed to :

Wagons-Lits//Cook,
Special Traffic and Congress Department,
Place de Brouckère 17,
B-1000 Brussels, Belgium,
Telephone : Brussels 2182405
Telex : 24186

Reservations must be confirmed by a desposit of 15,000 Belgian francs, payable before 1 May 1975, into the bank account of Wagons-Lits//Cook :

Société Générale de Banque, Brussels
Account No. 210-0000140-95.

Notification of confirmation of reservations will be sent to participants at the beginning of June 1975. Full information will be provided, in due course, about passports, visas, vaccinations, etc.

Participants from European countries other than France will usually be able to travel to Paris at a special reduced rate.

PROGRAMME A : PERU — BOLIVIA — BRAZIL

AUGUST 6th : *Europe — Lima.*

The participants will join at Paris in the morning. Departure from Paris by Air France flight to Lima (departure at 11.00 hrs — arrival at 21.50 hrs). Upon arrival in Lima, welcome and transfer to your hotel. Overnight.

AUGUST 7th TILL 19th : *Lima.*

Stay at your hotel and participation in the sessions of the General Assembly of URSI.

AUGUST 20th : *Lima — Cuzco.*

Morning departure by plane to Cuzco. Transfer to your hotel. Lunch at your hotel. Afternoon free. Dinner and overnight.

AUGUST 21st : *Cuzco.*

Breakfast at the hotel. Full day excursion by train to the Inca ruins of Macchu Pichu. Lunch en route. Return to Cuzco in the evening. Dinner and overnight.

AUGUST 22nd : *Cuzco — Puno.*

Breakfast at the hotel. Early morning transfer to the railway station for departure to Puno. By the highest railway in the world through the Andes Mountains to Puno. Lunch will be served in the restaurant car. Upon arrival in Puno, transfer to your hotel, dinner and overnight.

AUGUST 23rd : *Puno — La Paz.*

Breakfast. Morning departure by bus to La Paz. Crossing the Lake Titicaca by hydrofoil. Lunch en route. Arrival in La Paz in the evening. Dinner and overnight.

AUGUST 24th : *La Paz.*

Breakfast. Whole day tour of La Paz, visiting the Indian Markets, Open Air Museum, Casa Murillo, the Moon Valley and the small Indian villages around Calacoto. Lunch and dinner at the hotel. Overnight.

AUGUST 25th : *La Paz — Rio de Janeiro.*

Breakfast. Transfer to the airport for departure by plane to Rio de Janeiro via Buenos Aires. Upon arrival, welcome and transfer to your hotel. Overnight.

AUGUST 26th : *Rio de Janeiro.*

Breakfast. Full day sightseeing in Rio de Janeiro : the beaches and the Tijuca forest, including ascent of the Sugar Loaf and the Corcovado Mountain. Overnight.

AUGUST 27th : *Rio de Janeiro — Europe.*

Breakfast. Day at leisure. Evening transfer to the airport for departure to Paris by Air France flight leaving at 23.20 hrs.

AUGUST 28th : *Paris.*

Arrival at 14.35 hrs. Continuation to the different points of origin. End of services.

PRICE PER PERSON - MINIMUM PARTICIPATION : 10 PERSONS.

Twinbedded room : 64,890,- BF.

Single room supplement : 5,980,- BF.

This price includes :

- air ticket Paris/Lima/Cuzco and La Paz/Rio de Janeiro/Paris in economy class.
- railways tickets Cuzco/Macchu Pichu and Cuzco/Puno.
- transfers between airports and hotels or railway stations and hotels.
- stay in first class hotels in rooms with bath.
- breakfast in Lima and Rio de Janeiro.
- full board in Cuzco, Puno and La Paz.
- excursions and sightseeing with guides as mentioned in the programme.
- taxes and gratuities.

The prices are based on tariffs and exchange rates current on January 1st 1975 and may, therefore, be varied.

PROGRAMME B : PERU — BRAZIL

AUGUST 6th : *Europe — Lima.*

The participants will join at Paris in the morning. Departure from Paris by Air France flight to Lima (departure at 11.00 hrs — arrival at 21.50 hrs). Upon arrival in Lima, welcome and transfer to your hotel. Overnight.

AUGUST 7th till 19th : *Lima*.

Stay at your hotel and participation in the sessions of the General Assembly of URSI.

AUGUST 20th : *Lima — Sao Paulo*.

Breakfast. Transfer to the airport for departure by plane to Sao Paulo. Upon arrival, welcome and transfer to the hotel. Dinner and overnight.

AUGUST 21st : *Sao Paulo — Iguazzu*.

Breakfast. Transfer to the airport and departure by plane to Iguazzu. Upon arrival, transfer to your hotel. Lunch. Afternoon tour to view the marvellous waterfalls. Visit to the Devil's Gorge, etc. Dinner and overnight.

AUGUST 22nd : *Iguazzu — Brasilia*.

Breakfast. Free morning. Lunch at your hotel. Afternoon transfer to the airport for departure to Brasilia. Upon arrival, transfer to the hotel. Overnight.

AUGUST 23rd : *Brasilia — Belo Horizonte*.

Breakfast. Whole day sightseeing in Brasilia : Cathedral, Avenida Ministerio, etc. Evening transfer to the airport and departure to Belo Horizonte. Upon arrival, transfer to your hotel. Overnight.

AUGUST 24th : *Belo Horizonte*.

Breakfast. Whole-day excursion to Congaonhas and Our Preto, a gold mining centre in the eighteenth century. Lunch en route. Dinner and overnight.

AUGUST 25th : *Belo Horizonte — Rio de Janeiro*.

Breakfast. Morning sightseeing in Belo Horizonte, with visit to Pampulha. Lunch. Afternoon transfer to the airport for departure to Rio de Janeiro. Transfer to your hotel. Overnight.

AUGUST 26th : *Rio de Janeiro*.

Breakfast. Full-day sightseeing in Rio de Janeiro : the beaches and the Tijuca forest, including ascent of the Sugar Loaf and the Corcovado Mountain. Overnight.

AUGUST 27th : *Rio de Janeiro — Europe*.

Breakfast. Day at leisure. Evening transfer to the airport for departure to Paris by Air France flight leaving at 23.20 hrs.

AUGUST 28th : *Paris*.

Arrival at 14.35 hrs. Continuation to different points of origin. End of services.

PRICE PER PERSON - MINIMUM PARTICIPATION - 10 PERSONS.

Twinbedded room : 64,200,- BF.

Single room supplement : 7,590,- BF.

This price includes :

- air tickets Paris/Lima/Sao Paulo/Iguazu/Brasilia/Belo Horizonte/Rio de Janeiro/Paris in economy class.
- transfers between airports and hotels.
- stay in first-class hotels in rooms with bath.
- breakfasts in Lima and Rio de Janeiro.
- full board in Sao Paulo/Iguazu/Brasilia/Belo Horizonte.
- excursions and sightseeing with guides as mentioned in the programme.
- taxes and gratuities.

The prices are based on tariffs and exchange rates current on January 1st 1975 and may, therefore, be varied.

The URSI Committee in the UK intends to organise a group, starting from London, which will return direct from Lima to London immediately after the end of the Assembly. Further information about this group is available from

Mr. C. R. Argent,
The Royal Society,
6 Carlton House Terrace,
London SW1Y 5AG, United Kingdom.

22 October 1974.

To Presidents and Secretaries
of Member Committees.

Dear Colleague,

XVIII General Assembly of URSI, Lima, August 1975

In my letter of 6 May, I informed you of the proposal of the Board of Officers to organise the scientific sessions of Commissions III, IV and

VIII as symposia, attendance at which will be open to all, whether or not they are members of the National Delegations which our Member Committees will send to the Assembly. I invited you to say whether you had any strong objections to this proposal and I am glad to say that I have received none. In view of this, the Programme Committees for the Symposia have already started work as announced in *URSI Bulletin* No. 192.

Commissions I, II, V, VI and VII do not, on this occasion, wish to arrange open Symposia, but the Chairmen have no objection to the attendance, at their scientific sessions, of anyone who wishes to be present, whether or not he is a member of a Delegation.

I am sure that the lifting of the present restriction on participation in the scientific sessions in Lima is an experiment worth trying. The URSI Council will have the opportunity, in Lima, of expressing its views on the success, or otherwise, of the experiment and of deciding whether open scientific sessions should be a permanent feature of our Assemblies.

Yours sincerely,

W. J. G. Beynon,
President.

cc : Board of Officers
Chairmen and Vice-Chairmen of Commissions.

MEETING OF URSI BOARD OF OFFICERS

The Board of Officers met in London on 10 and 11 December 1974. The principal matters discussed were the internal reorganisation of the Union and the financial problems with which URSI, and other ICSU bodies, will be faced during the coming years.

REORGANISATION OF URSI.

The Board reviewed the important discussions that had taken place earlier :

- (a) during the Board Meetings in 1973 and 1974, and
- (b) at the meetings of the representatives of Commissions I, II, V, VI and

VII in September 1973, and of Commissions III, IV and VIII in March 1974, and of all the Commissions in July 1974.

At its meeting in March 1974, the Board took note of the opinions that had been expressed by Member Committees of the Union following the circulation, in 1973, of an interim report on reorganisation and the tentative proposals made by Prof. Booker and M. Voge. The comments and suggestions of Member Committees were examined again at the December meeting. The Board studied also a new document, submitted jointly by Prof. Booker and M. Voge, which included draft proposals for submission to the URSI Council in Lima.

After a thorough discussion of this document and of the results of the discussions at the meetings referred to above, the Board agreed unanimously on the text of a document which will be sent to all Member Committees of the Union in January 1975, after the approval of the Minutes. This document reviews URSI's objectives and makes specific proposals for the reorganisation of the Union, as called for in Res. C1 adopted by the URSI Council in August 1972.

It is hoped that Member Committees will submit their reactions to these proposals in order to give the Board of Officers an opportunity of considering them at its next meeting in March 1975. The decision on the reorganisation of the Union will be taken by the URSI Council at its meeting in Lima.

FINANCES.

The Board recognised the basic causes of the financial problems of URSI, namely :

- (a) the decrease in the income of the Union resulting from the fall in the value of the US dollar, the currency used in defining the annual dues payable by Member Committees;
- (b) the rapid increase in the cost of goods and services of all kinds in recent years.

URSI has been able to maintain its normal level of activity, since the Assembly in 1972, by making use of the Reserve Fund which had been built up over many years with the intention of reducing the effects of a future financial crisis.

For the period 1976-1978, however, the Board agreed (a) that it would be necessary to ensure that income and expenditure were equal, (b) that it would be necessary to increase the unit contribution in 1977 at the latest,

(c) that this increase should be limited as far as possible by reducing expenditure in various ways.

The Treasurer and the Secretary General were asked to prepare a document incorporating the specific suggestions made during the Board Meeting. This document will be sent to Member Committees of URSI in January 1975. Decisions on the financial arrangements for the period 1976-1978 will be taken by the URSI Council at its meeting in Lima.

YOUNG SCIENTISTS SCHEME : LIMA.

The Board noted that no candidate for the Young Scientists Scheme had been proposed by Member Committees. The Board regretted the necessity of reducing the grants offered to \$ 250 or \$ 500 and appreciated that, in most cases, these represented only a small fraction of the funds needed to cover travel and other expenses for a participant at the Assembly in Lima.

NEXT MEETING.

The Board will meet in Brussels on 26 and 27 March 1975.

NOBEL PRIZE FOR PHYSICS : 1974

In October 1974, the announcement was made of the award of the Nobel Prize for Physics to Sir Martin Ryle and Dr. Antony Hewish, both of the Cavendish Laboratory at the University of Cambridge. This double event will give particular pleasure in URSI circles because of the association of both laureates with Commission V (Radioastronomy) and also because the Balth. van der Pol and the J. H. Dellinger Gold Medals had already been awarded respectively to Sir Martin Ryle in 1963 and to Dr. Hewish in 1972.

This is the first occasion on which the Nobel Prize for Physics has been awarded for work in radioastronomy and the event is of especial interest to URSI because of the rôle which the Union has played, over a period of 40 years, in this relatively modern branch of astronomy. At the URSI Assembly in 1934, the Commission on Atmospheric discussed Jansky's first observations and, in particular, his paper on "electrical disturbances apparently of extra-terrestrial origin", which had been published in October 1933. The Assembly recognised that further observations at widely sepa-

rated locations would be needed to confirm the existence of the “disturbances”, and also to determine their direction of arrival more accurately. Also, in order to acquire information about their origin and mode of propagation, it was recommended that measurements be made of the variation of the intensity of the radiation with frequency.

Coutrez and Gonze (1) have commented on the fact that Jansky’s discovery of galactic noise preceded, by 10 years, the detection of radio noise from the Sun. It was not until February 1942 that the radar stations of the Royal Air Force and the British Army first identified the Sun as the source of certain interfering noise signals that had been detected over a period of several days.

The wartime development of radar equipment, operating at much higher frequencies than hitherto, prepared the ground for the spectacular post-war growth of radioastronomy. The new results were discussed at the URSI Assembly in 1946 and a working group was set up to report on radio noise of extra-terrestrial origin within a year. Because of the rate at which new results were being published, and the desirability of including references to them in the Report, it was not possible to complete the draft before the Assembly in 1948. The addition of further fresh information made it necessary to defer publication until 1950 (2).

Since 1934, extra-terrestrial radio noise had been dealt with in the Atmospherics Commission. In 1948 the present Commission V was formed, at that time with the title Radio Noise of Extra-Terrestrial Origin, since when its successive Chairmen have been D. F. Martyn, M. Laffineur, A. C. B. Lovell, W. N. Christiansen, E. J. Blum, C. A. Muller and, since 1972, J. L. Locke.

REFERENCES

1. R. COUTREZ and R. GONZE in Chapter V of *URSI Golden Jubilee Memorial* (URSI, 1963).
2. *URSI Special Report No. 1 on Solar and Galactic Radio Noise* (URSI, 1950).

STANDARD FREQUENCY AND TIME SIGNAL EMISSIONS

The XIII Plenary Assembly of the CCIR (Geneva 1974) approved Recommendation 460-1 which is applicable as from 1 January 1975. The text of the Recommendation is as follows :

The CCIR,

considering

- (a) that the Administrative Radio Conference, Geneva, 1959, allocated the frequencies $20 \text{ kHz} \pm 0.05 \text{ kHz}$, $2.5 \text{ MHz} \pm 5 \text{ kHz}$ ($2.5 \text{ MHz} \pm 2 \text{ kHz}$ in Region 1), $5 \text{ MHz} \pm 5 \text{ kHz}$, $10 \text{ MHz} \pm 5 \text{ kHz}$, $15 \text{ MHz} \pm 10 \text{ kHz}$, $20 \text{ MHz} \pm 10 \text{ kHz}$, and $25 \text{ MHz} \pm 10 \text{ kHz}$ to the standard-frequency and time-signal service, requesting the CCIR to study the question of establishing and operating a world-wide standard-frequency and time-signal service;
- (b) that additional standard frequencies and time signals are emitted in other frequency bands;
- (c) the provisions of Article 44, Section IV of the Radio Regulations;
- (d) the continuing needs for close cooperation between Study Group 7 and the Intergovernmental Maritime Consultative Organization (IMCO), the International Civil Aviation Organization (ICAO), the General Conference of Weights and Measures (CGPM), the Bureau International de l'Heure (BIH) and the concerned unions of the International Council of Scientific Unions (ICSU);
- (e) the desirability of maintaining world-wide coordination of standard-frequency and time-signal emissions;
- (f) the need to disseminate standard frequencies and time signals in conformity with the second as defined by the 13th General Conference of Weights and Measures (1967);
- (g) the continuing need to make Universal Time (UT) immediately available to an accuracy of one-tenth of a second;

unanimously recommends

1. that all standard-frequency and time-signal emissions conform as closely as possible to Coordinated Universal Time (UTC) (see Annex I); that the time signals should not deviate from UTC by more than one millisecond; that the standard frequencies should not deviate by more than 1 part in 10^{10} , and that the time signals emitted from each transmitting station should bear a known relation to the phase of the carrier;
2. that all standard-frequency and time-signal emissions should contain information on the difference between UTI and UTC (see Annexes I and II); (Details concerning the Annexes are available on request from the Secretary General of URSI);

3. that this document be transmitted by the Director, CCIR, to all Administrations Members of the ITU, to IMCO, ICAO, the CGPM, the BIH, the International Union of Geodesy and Geophysics (IUGG), the International Union of Radio Science (URSI) and the International Astronomical Union (IAU);
4. that the standard-frequency and time-signal emissions should conform to Recommends 1 and 2 above as from 1 January 1975 ⁽¹⁾.

IONOGRAM INTERPRETATION AND REDUCTION

The 2nd Edition of the *URSI Handbook* (Ed. W. R. Piggott and K. Rarwer) was published in English in November 1972 (see *URSI Inf. Bull.* No. 186). Thanks to the initiative of Dr. Isao Kasuya, Director of the Radio Wave Division of Radio Research Laboratories in Tokyo, a translation of the *Handbook* in the Japanese language is now available (pp. xiv + 404). The volume is self-contained since it includes reproductions of the photographs and diagrams which appeared in the English edition. In making the translation, Dr. Kasuya was assisted by several of his colleagues (T. Cho, H. Hojo, M. Ichinose, T. Koizumi, N. Matsuura, K. Sinno, K. Takeoka, K. Tao, and M. Yamaoka). The need to adopt standard international rules for the interpretation of ionograms is well known to scientists interested in ionospheric physics and our Japanese colleagues are to be congratulated on the production of this translation which will greatly facilitate the task of the observers at Japanese ionospheric sounding stations.

Enquiries concerning the availability of the Japanese translation should be addressed to

Dr. I. Kasuya,
Director, Radio Wave Division,
Radio Research Laboratories,
2-1 Nukui-Kitamachi 4-chome,
Koganei-shi, Tokyo 184, Japan.

⁽¹⁾ CCIR Report 517 is valid until 1 January 1975; after that date the Report should be considered as cancelled.

INTERNATIONAL GEOPHYSICAL CALENDAR 1975

The operational edition of the International Geophysical Calendar for 1975 has been issued by the International Ursigram and World Days Service and has been widely distributed. Copies are available from Dr. P. Simon, Ursigrammes, Observatoire, F-92190 Meudon, France or from Miss J. V. Lincoln, WDC-A (STP), NOAA, Boulder, Col. 80302, USA. The reverse side of the Calendar provides information about recommended observational programmes in various branches of geophysics : aeronomy, airglow and aurora, atmospheric electricity, cosmic radiation and interplanetary phenomena, geomagnetic, ionospheric and solar phenomena, and meteorology. In order to ensure the maximum coordination of such observations, they should be made preferably on the recommended days. Participating research institutions are invited to consult the Calendar for further details.

International Geophysical Calendar for 1975

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

JANUARY

S	M	T	W	T	F	S
			1	2	[3]	[4]
5	6	7	8*	9	10	11
12	13	[14]	[15]	[16]	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

FEBRUARY

S	M	T	W	T	F	S
						1
2	3	4	5*	6	7	8
9	10	[11]	[12]	[13]	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

MARCH

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	[11]	[12]	[13]	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

APRIL

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9*	10*	11	12
13	14	[15]	[16]	[17]	18	19
20	21	[22]	[23]	24	25	26
27	28	29	30			

MAY

S	M	T	W	T	F	S
				1	2	3
4	[5]	[6]	7	8	9	10
[11]	12	[13]	[14]	[15]	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

JUNE

S	M	T	W	T	F	S
	1	2	3	4	5	6
[7]	[8]	[9]	[10]	[11]	[12]	13
14	15	16	17	18	19	20
21	22	[23]	[24]	25	26	27
28	29	30				

JULY

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8*	9*	10	11	12
13	14	[15]	[16]	[17]	18	19
20	21	22	23	24	25	26
27	[28]	[29]	[30]	[31]		

AUGUST

S	M	T	W	T	F	S
					1	2
3	4	5	6*	7*	8	9
10	[11]	[12]	[13]	[14]	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

SEPTEMBER

S	M	T	W	T	F	S
		1	2	3*	4*	5
6	7	8	9	10	11	12
13	14	15	[16]	[17]	[18]	19
20	21	22	23	24	25	26
27	28	29	30			

OCTOBER

S	M	T	W	T	F	S
			1	2	3	4
5	6	7*	8*	9	10	11
12	13	[14]	[15]	[16]	17	18
19	20	[21]	[22]	23	24	25
26	27	28	29	30	31	

NOVEMBER

S	M	T	W	T	F	S
						1
2	[3]	4*	5*	6	7	8
9	10	[11]	[12]	[13]	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

DECEMBER

S	M	T	W	T	F	S
		1	2	3*	4*	5
6	7	8	9	10	11	12
13	[14]	[15]	[16]	[17]	[18]	19
20	21	[22]	[23]	24	25	26
27	28	29	30	31*		

JANUARY 1976

S	M	T	W	T	F	S
				1*	2	[3]
[4]	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	[20]	[21]	[22]	23	24
25	26	27	28*	29*	30	31

[14] Regular World Day (RWD)

[15] Priority Regular World Day (PRWD)

[12] Quarterly World Day (QWD)
also a PRWD and RGD

8 Regular Geophysical Day (RGD)

[11] Day of Solar Eclipse

14* Dark Moon Geophysical Day (DMGD)

[5 6] World Geophysical Interval (WGI)

[3] Day with unusual meteor shower activity,
Northern Hemisphere

5] Day with unusual meteor shower activity,
Southern Hemisphere

[10 11] Airglow and Aurora Period

NOTE: For the Antarctic and Southern Hemisphere Aeronomy Year (ASHAY) there are plans to coordinate experiments within the 18 months September 1975 through March 1977. Contact is S. Radicella (Argentina).

EEMTIC 1975

The Electrical and Electronic Measurement and Test Instrument Conference (EEMTIC) will be held in Ottawa, Canada, from 13-15 May 1975. It is sponsored by the Ottawa Section of IEEE and the IEEE Group on Instrumentation and Measurement. The URSI Committee in the USA (Commission I) will be a participating sponsor.

The theme will be New Directions on Instrumentation and Measurement and original papers (which have not been submitted elsewhere) are invited on

- (1) Innovative instrumentation developments in the areas of DC and AC measurement from low frequency through microwave frequencies;
- (2) The development of instrumentation standards in the newer fields of environmental quality and pollution control;
- (3) The use of microprocessors and other LSI devices for the enhancement of instrument capability;
- (4) The design and specification of computer- or calculator-controlled instrumentation systems;
- (5) Advances in time and frequency technology;
- (6) New instrumentation in the area of digital measurement.

Presentations will be limited to 20-30 minutes, plus time for discussion. The papers will be published in a special issue of *IEEE Trans-IT*.

Three copies of an abstract (200 words) and a summary (500-1,000 words) of each paper should be submitted, by 31 December 1974, to

Mr. Donald E. Lawrence,
Hewlett-Packard Co.,
Automatic Measurement Division,
974E. Arques Avenue,
Sunnyvale, Calif. 94086, USA.

General information about the Conference is available from the Chairman

Mr. Richard F. Clark,
National Research Council,
Division of Physics,
Montreal Road, Bldg M-36,
Ottawa, Ontario K1A 0S1, Canada.

COLLOQUE INTERNATIONAL SUR L'ELECTRONIQUE ET LA MESURE

26 au 30 mai 1975

1^{re} ANNONCE

ORGANISATION ET PATRONAGE.

Fédération Nationale des Industries Electroniques (FNIE).
Société des Electriciens, des Electroniciens et des Radioélectriciens (SEE).
Union des Associations Techniques Internationales (UATI).
Union Radio-Scientifique Internationale (URSI).

LIEU ET DATE.

Le colloque aura lieu à Paris, du 26 au 30 mai 1975.

MOTIVATION.

Ce colloque, organisé dans le cadre des cérémonies du Centenaire du Bureau International des Poids et Mesures, a pour but :

- de faire le point sur la détermination précise des grandeurs fondamentales et des procédés métrologiques concernant l'électronique,
- de dégager les tendances nouvelles qui se manifestent dans l'élaboration, le traitement, le transport d'un signal de mesure et dans l'affichage des résultats.

SUJETS DES COMMUNICATIONS.

Les communications porteront notamment sur les points suivants :

- la détermination précise des grandeurs fondamentales utilisées en métrologie électronique (Volt, Ampère, Farad, Ohm, Seconde),
- la mesure de précision en continu, basses et hautes fréquences (tension, courant, puissance, fréquence, etc.),
- la transformation d'un signal de mesure en signal électrique (nouveaux principes de capteurs, avantage et limitation du phénomène choisi pour assurer la transformation en signal électrique de la grandeur physique à mesurer, conditionnement du signal à l'intérieur du capteur, caractérisation métrologique et étalonnage des capteurs, influence des condi-

- tions d'environnement, problèmes posés par le développement et l'industrialisation des capteurs),
- le transport à distance du signal électrique supportant la mesure,
 - le traitement du signal électrique supportant la mesure (systèmes analogiques et digitaux, optimisation du rapport signal sur bruit, etc.),
 - les systèmes d'acquisition de données,
 - l'instrumentation électronique,
 - l'affichage et l'exploitation des résultats de mesures.

INTERPRÉTATION SIMULTANÉE.

L'interprétation simultanée de l'ensemble des séances sera assurée en français et en anglais. La durée prévue pour chaque communication est de 15 à 20 minutes y compris les discussions.

INSCRIPTION.

Les droits d'inscription seront précisés ultérieurement. Ils comprendront d'une part, la participation aux travaux et d'autre part, la fourniture aux Congressistes à l'ouverture du Colloque des textes complets des communications dans la langue d'origine (français ou anglais).

Les conférenciers ne sont pas dispensés du paiement des droits d'inscription.

Pour tous renseignements complémentaires, s'adresser au

Secrétariat du Colloque International sur
l'Electronique et la Mesure,
16 rue de Presles
F-75740 Paris Cedex 15.

ATMOSPHERIC ELECTRICITY

During the IUGG General Assembly in Grenoble, a Symposium will be held on Saturday, 30 August 1975 on High Atmosphere and Space Problems of Atmospheric Electricity. There will be no invited papers, but contributed papers will be accepted on the following topics :

- (A) Magnetosphere-ionosphere-troposphere electric coupling, including Sq, L, Sq^P, DP1, DP2, dynamo effects and their consequences for the

lower atmosphere; mapping of electric field up and down; other influences from tropospheric processes to the higher layers.

- (B) Solar-terrestrial relationships using or acting on atmospheric electric parameters.
- (C) Global electric circuits in general and under special consideration of distribution of ionospheric potential;
parameters of sources and sinks;
total resistance of the whole atmosphere;
extension of global circuits.
- (D) Electric processes in the atmospheres of moon and other planets.
- (E) VLF, SLF, ULF, ELF (up to 30 kHz) sources in atmosphere and space, especially considering penetration from one domain into the other.
- (F) Ions (composition, distribution, mobility and conductivity), especially comparisons and relations of the situations in mesosphere, stratosphere and troposphere.

The deadline for the submission of abstracts and summaries is 20 February 1975.

ABSTRACTS. — One page double-spaced typewritten abstracts (in English or French) should be sent to

Dr. W. L. Godson,
Secretary, IAMAP,
Atmospheric Environment Service,
4905 Dufferin Street,
Downsview, Ontario M3H 5T4, Canada,

and a copy to the Convener, Dr. H. Dolezalek.

SUMMARIES. — One or two pages of single-spaced text, which supplement the Abstract, should be sent to

Dr. H. Dolezalek,
International Commission on Atmospheric Electricity,
1812 Drury Lane,
Alexandria, Virginia 22307, USA.

Authors will be notified before 31 March 1975 as to whether their papers have been accepted. Enquiries for further information should be addressed to Dr. Dolezalek.

ELECTROMAGNETIC WAVE THEORY

For more than 60 years, major scientific and technological advances have stimulated the development of new and better radio transmitters and receivers. However, the effectiveness of a radiocommunications link is not determined solely by the quality of the terminal equipment; it is equally important to ensure that proper attention has been given to the theoretical, and often less tangible, problems associated with the travel of the radio waves across the space between the transmitter and the receiver and to and from the antennas at the ends of the link.

The need for a scientific study of these problems was recognised, in 1913, in the Statutes of the International Commission which preceded URSI and whose first objective was “research on the propagation of electric waves”. Later, in his address to the URSI Assembly in 1927, the President (Gustave Ferrié) stated : “the study of wave propagation is certainly the most important for our Union, at least at present”. This statement is equally valid today even though the current problems in electromagnetic wave theory may differ considerably from those which were of interest to URSI half a century ago.

URSI's continuing interest in this branch of science is demonstrated by its sponsorship of the series of Symposia, which began in 1955, dealing with electromagnetic theory and with closely related matters such as propagation in waveguides and the design of antennas. The latest in this series was held in London from 9-12 July 1974 at the invitation of the Royal Society and the Institution of Electrical Engineers.

AA4/ The broad international participation in the Symposium provides evidence for the widespread interest in the subject; in addition to authors from 10 East and West European countries, others came from Canada, Egypt, Israel, Japan and the USA. The 280 pages of *IEE Conference Publication No. 144* contain extended summaries of 92 papers. As might be expected, about half of the contributions refer to the propagation, diffraction and scattering of electromagnetic radiation and to studies of the design and the characteristics of antennas and antenna arrays of various kinds. In addition to the papers which dealt with the main topics, others treated more specialised subjects such as, for example, the closely allied topic of acoustic waves, underground communications using radio waves, optical resonators for lasers, and the use of radio waves for the remote probing of inhomogeneities in dielectric media.

The availability of computers has made it possible to obtain numerical solutions to electromagnetic problems formerly regarded as intractable. Although the Symposium was concerned primarily with theory, it is worth noting that attention was given to the practical difficulties and the pitfalls associated with the computational aspects of such problems and also to experimental observations relevant to the theory.

The Symposium performed a service in bringing together a group of radio scientists having a detailed knowledge of the mathematical and experimental techniques used in the application of Maxwell's equations to almost every conceivable type of electromagnetic wave phenomenon, and also of the more intimate physical properties of the media through which waves can be propagated.

4^e CONGRÈS EUROPÉEN DES HYPERFRÉQUENCES

Montreux, 10-13 septembre 1974

Le Quatrième Congrès Européen des Hyperfréquences, qui s'est tenu à la Maison des Congrès de Montreux, a remporté un net succès en attirant 767 délégués en provenance du monde entier. Ce Congrès, présidé par le Professeur F. Gardiol de l'Ecole Polytechnique Fédérale de Lausanne, était patronné par l'Association Suisse des Electriciens, en collaboration avec la Convention des Associations d'Electriciens d'Europe de l'Ouest, la Région 8 et les sociétés MTT, AP et ED de l'IEEE (Institut des Ingénieurs Electriciens et Electroniciens), le "International Microwave Power Institute", le Comité Suisse de l'URSI et l'Ecole Polytechnique Fédérale de Lausanne.

Le Congrès fut officiellement ouvert par M. J. J. Cevey, syndic de Montreux et conseiller national, qui souhaita la bienvenue aux délégués et leur parla de la vocation internationale de la ville de Montreux. Le discours d'ouverture fut ensuite présenté par M. W. Klein, directeur de la recherche et du développement des PTT à Berne, qui mit en évidence l'importance des hyperfréquences dans les télécommunications et la part prise par la Suisse au développement des systèmes hertziens.

Le Congrès comporta 22 séances, couvrant les différents aspects des techniques et applications des hyperfréquences, dont 4 consacrées à neuf exposés de synthèse présentés par d'éminents spécialistes, et 18 aux 119 contributions retenues, sur un total de 350 propositions, comme étant

celles présentant les développements récents les plus significatifs. Cinq séances furent consacrées aux dispositifs à semi-conducteurs, quatre aux télécommunications, trois aux antennes et réseaux, les autres séances couvrant respectivement les éléments passifs, les mesures, les tubes, les applications industrielles et la conception assistée par ordinateur. Les textes complets des présentations ont été publiés dans l'ouvrage *Proceedings of the 4th European Microwave Conference* en vente aux prix de £ 17,50 (port payé) auprès de Microwave Exhibitions and Publishers, 21 Victoria Road, Surbiton, Surrey, Grande Bretagne.

Une exposition internationale d'équipement hyperfréquences accompagnait le congrès, présentant les réalisations les plus récentes sur le plan mondial, aussi bien en composantes qu'en systèmes, de 100 compagnies de 8 pays. Le nombre de visiteurs a été estimé à 2 500.

La réussite incontestable du congrès et de l'exposition ont été dus non seulement au programme technique, mais également à l'agencement extrêmement favorable de la Maison des Congrès, qui accueillait simultanément les deux manifestations, favorisant ainsi grandement les rencontres entre spécialistes de diverses disciplines sans pour autant donner lieu à des interférences indésirables. Le temps magnifique qui régna durant toute la semaine a aussi joué un rôle des plus favorables. Un vin d'honneur offert au Château de Chillon par la Commune de Montreux et le Canton de Vaud, un banquet-buffet folklorique sur la terrasse du Grand Hôtel et un "cocktail party" offert par le Consul Général de Grande Bretagne ont de plus agrémenté les soirées.

Le Cinquième Congrès Européen des Hyperfréquences aura lieu du 1^{er} au 4 septembre 1975 au Congressentrum de Hambourg, sous la présidence du Dr H. J. Schmitt, Philips Forschungslaboratorium, Postfach 54 08 40, D-2000 Hambourg 54. Poursuivant la formule inaugurée avec succès à Montreux, il sera accompagné de l'exposition Microwave '75 pour laquelle la moitié des stands disponibles ont d'ores et déjà été retenus par les exposants.

MICROWAVE SCATTERING AND EMISSION FROM THE EARTH

The URSI Specialist Meeting on Microwave Scattering and Emission from the Earth was held in Berne, Switzerland from 23-26 September 1974

and was attended by 68 participants from Austria (3), Canada (3), Denmark (3), Finland (1), France (10), F. R. Germany (16), India (1), Italy (2), Netherlands (3), Sweden (2), Switzerland (6), USA (17), USSR (1).

This was the first international meeting devoted solely to the emission and scatter of microwave radiation from the Earth and it provided an excellent opportunity for workers from different parts of the field to meet and to discuss their points of view. The fact that about 80 % of the participants were present at the actual sessions demonstrates the breadth of interest of those present. The topics dealt with in the papers presented were distributed as follows :

Passive microwave emission from water		3
Radar reflections from water		
at grazing angle	2	
at greater angles	2	
spectral measurements	3	
	—	7
Oil films on water		2
Sea ice		
passive	3	
active	1	
	—	4
Land ice and snow		
passive	6	
active	4	
	—	10
Images		
passive	1	
active	2	
	—	3
Dielectric properties (active measurements) . . .		2
Deep probing of the Earth		1
		—
TOTAL		32
		=

Credit for the success of the meeting is due to the members of the Organising Committee and especially to Prof. R. K. Moore (Chairman) from the University of Kansas and to Prof. E. Schanda (Local Chairman) from the University of Berne.

MEMBER COMMITTEES OF URSI ; URSI COMMISSIONS

The lists reproduced below give the names and addresses of :

- (a) the members of the Board of Officers;
- (b) the Presidents and Secretaries of the URSI Member Committees;
- (c) the Chairmen, Vice-Chairmen and Official Members of URSI Commissions I-VIII.

The information is based on the records in the URSI Secretariat on 15 December 1974. It would be appreciated if notification of changes or corrections could be sent to the Secretary General in Brussels before 15 May 1975 for inclusion in the June issue of the Bulletin. The next full list will appear in the issue dated December 1975.

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- Peru : Ing. J. Menacho, c/o Dr. A. A. Giesecke, Instituto Geofisico del Peru, Ministerio de Fomento, Apartado 3747, Lima.

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USSR : Dr. F. N. Petrosyan, Institute of Radioengineering and Electronics Ac. Sci., Prospekt Marksa 18, g. Moskva, Centr, GSP-3.

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