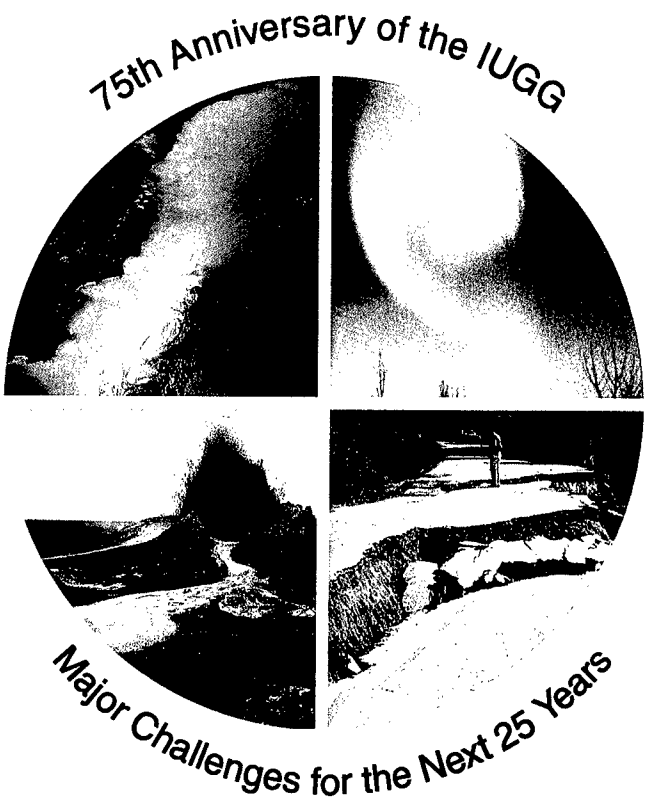
International Union of Geodesy and Geophysics
Union Géodésique et Géophysique Internationale



Comptes Rendus

XXI General Assembly

Boulder, Colorado
July 2-14 1995

Geophysics and the Environment

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The report "Comptes Rendus of the XXI General Assembly of the IUGG" contains the proceedings of the International Union of Geodesy and Geophysics (IUGG) General Assembly, the statutes and bylaws of the IUGG and each of its seven Associations, and a listing of the assembly registrants. "Geophysics and the Environment" was the theme for the XXI General Assembly of IUGG. Contributed papers covered all areas of geophysics. The officers of the Union, fiveUnion lectures, and the resolutions adopted by the Union at the General Assembly are provided in their entirety. The administrative, scientific, and financial reports from the meeting are included. In addition, reports from the Unioncommissions, IUGG Liaison officers, and IUGGrepresentatives on ICSU and other committees are enclosed for perusal. This report also provides an account of the Association Presidential addresses, the minutes from the Council meetings, the meeting program, and resolutions adopted at the XXI General Assembly by IUGG Associations.

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8 September 1997

Defense Technical Information Center
Building 5, Cameron Station
Alexandria, VA 22314

Dear To Whom It May Concern:

Enclosed is the publication from the proceedings of the 1995 IUGG XXI General Assembly, *Comptes Rendus of the XXI General Assembly of the IUGG, July 2-14, 1995.* This completes our final report, mailed to you earlier, for grant number N00014-95-1-0628.

If you have any questions, please contact me or Ms. Jennifer Giesler at 202-939-3220.

Sincerely,

A. F. Spilhaus, Jr.
Executive Director

Final Report for ONR

Grant No. N00014-95-1-0628

P.I. A.F. Spilhaus, Jr.

Through this grant, ONR partially funded the American Geophysical Union's (AGU) support of general operations for the International Union of Geodesy and Geophysics' (IUGG) XXI General Assembly, 2-14 July 1995 in Boulder, CO.

The AGU successfully:

- operated the meeting, at minimum cost, to meet the scientific goals of the IUGG and participating scientists,
- made all financial commitments for registration, exhibit fees, logistical planning, and contracting of all goods and services,
- provided support for the Local Host and Fundraising Committees,
- served as contact with the University of Colorado Office of Conference Services (CU-OCS) on all conference logistics and administration, and
- worked with the Program Committee to ensure that deadlines, schedules, and programming procedures were followed.

In the near future, proceedings from the conference will be published. We will provide you with a copy as soon as they are available.

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b. Total outlays this report period							1,859,555
c. Less: Program income credits							1,538,938
d. Net outlays this report period (Line b minus line c)							320,617
e. Net outlays to date (Line a plus line d)							320,617
f. Less: Non-Federal share of outlays *							65,146
g. Total Federal share of outlays (Line e minus line f)							255,471
h. Total unliquidated obligations							-0-
i. Less: Non-Federal share of unliquidated obligations shown on line h.							-0-
j. Federal share of unliquidated obligations							-0-
k. Total Federal share of outlays and unliquidated obligations							-0-
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b. RATE	c. BASE	d. TOTAL AMOUNT	e. FEDERAL SHARE	
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I certify to the best of my knowledge and belief that this report is correct and complete and that all outlays and unliquidated obligations are for the purposes set forth in the award documents.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL

DATE REPORT SUBMITTED: 29 Mar 1996

TYPED OR PRINTED NAME AND TITLE: A.F. Spilhaus, Jr.

TELEPHONE (Area code, number and extension): 202-462-6900

Executive Director

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COMPTES RENDUS

OF THE
XXI GENERAL ASSEMBLY
OF THE

IUGG

BOULDER, COLORADO
JULY 2-14, 1995

DTIC QUALITY INSPECTED 5

IUGG XXI General Assembly

July 2-14, 1995
Boulder, Colorado

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PART I

PROCEEDINGS OF THE GENERAL ASSEMBLY

LETTER OF INVITATION

On behalf of the National Academy of Sciences, I am pleased to extend a cordial invitation to the International Union of Geodesy and Geophysics (IUGG) to hold its 21st General Assembly in the United States in 1995. This invitation will be formally presented to the 20th General Assembly of the IUGG by the chairman of the delegation from the United States.

If this invitation is accepted, plans are to hold the 21st General Assembly on the campus of the University of Colorado in Boulder. The Chancellor of the University is enthusiastic about the prospect. The American Geophysical Union would undertake full responsibility for managing the meeting and ensuring its financial viability. I hope that this invitation to meet once again in the United States will be viewed favorably.

With warm greetings and best wishes for the full success of the 1991 General Assembly in Vienna, Austria.

Frank Press
President of the National Academy of Sciences

OFFICERS OF THE UNION, ASSOCIATIONS, AND COMMISSIONS

Officers of the Union for 1991-1995

Bureau

President: H. Moritz (Austria)
Vice-President: P. Wyllie (USA)
Secretary General: G. Balmino (France)
Treasurer: S. Gregersen (Denmark)
Members: D. Ye (China), G. McBean (Canada), A.S. Monin (Russia)
Assistant Secretary General: P. Pinet (France)
Assistant Treasurer: F. Madsen (Denmark)

Executive Committee

The Bureau (listed above)
Past-President of the Union: V.I. Keilis-Borok (Russia)
Editor of the Chronicle: P. Melchior (Belgium)
Presidents of the International Associations:

IAG: W. Torge (Germany)
IASPEI: A.V. Nikolaev (Russia)
IAVCEI: P. Gasparini (Italy)
IAGA: D.J. Williams (USA)
IAMAP: B.J. Hoskins (UK)
IAHS: U. Shamir (Israel)
IAPSO: R.D. Muench (USA)

Finance Committee

President: J. O. Cardus (Spain)
Secretary: J. Somogyi (Hungary)
Members: A. Ashour (Egypt), F. Spilhaus (USA), M. Hamlin (UK)

Secretaries of the International Associations

IAG: C. Boucher (France)
IASPEI: E. R. Engdahl (USA)
IAVCEI: R. W. Johnson (Australia)
IAGA: M. Gadsden (UK)
IAMAP: M. Kuhn (Austria)
IAHS: H. J. Colenbrander (Netherlands)
IAPSO: R. E. Stevenson (USA)

IUGG Advisory Board on Scientific Policy

P. Wyllie, Vice President (USA)

The Presidents of the International Associations

IUGG Commission on Revision of the Statutes

P. Wyllie, Ye Duzheng, G. Balmino (Bureau Members)

IUGG Chronicle

P. Melchior, Honorary Secretary General (Belgium)

Inter Association Committee on Mathematical Geophysics

Chairman: W. R. Peltier (Canada)
Vice Chairman: R. Snieder (Netherlands)
Secretary: D. Rothman

Inter Association Committee on the Study of the Earth's Deep Interior

Chairman: D. Doornbos (Norway)
Vice Chairman: J.-L. Le Mouël (France)
Secretary: D. E. Loper (USA)

Working Group on Global Change

Chairman: J. C. I. Dooge (Ireland)
Members: P. Angus-Leppan (Australia), A. E. Beck (Canada), A. Berger (Belgium), H.-J. Bolle (Germany), K. Cole (Australia), V. Klemes (Canada), M. Kuhn (Austria), K. Labitzke (Germany), L. Mysak (Canada), N.E. Peters (USA), S. Ruttenberg (USA), H. Sigurdsson (USA), J. Thiede (Germany), G. B. Tucker (Australia)

Tsunami Commission

Chairman: E. N. Bernard (USA)
Vice-Chairmen: V. Gusiakov (Russia), N. Shuto (Japan)
Secretary: G. T. Hebenstreit (USA)
Members: W. M. Adams (USA), R.D. Braddock (Australia), F.E. Camfield (USA), G.C. Dohler (Canada), J.R. Houston (USA), L.S. Hwang (USA), H. Kanamori (USA), H. Pararas-Carayannis (USA), A.A. Poplavsky (Russia), R.O. Reid (USA), N.K. Saxena (USA), Y. Shokin (Russia), S.L. Soloviev (Russia), W.C. Van Dorn (USA), S.S. Voyt (Russia), S.O. Wigen (Canada)

IUGG Liaison Officers With Intergovernmental Organizations

United Nations: V. Keilis-Borok, Past-President (Russia)
United Nations Educational, Scientific and Cultural Organization (Unesco): R. Adams (UK)
Cartographic Office of the United Nations: J. Kakkuri (Finland)
World Meteorological Organization (WMO): M. Kuhn (Austria)
International Hydrographic Organization: Ch. Le Provost (France)

IUGG Representatives on ICSU Committees

Federation of Astronomical and Geophysical Data Analysis Services (FAGS):
O.B. Andersen (Denmark), P. Melchior (Belgium), D. Pugh (UK)
ICSU Panel on World Data Centres:
R. McPherron (USA), P. Pâquet [Earth Rotation] (Belgium)
Committee on Data for Science and Technology (CODATA):
C.C. Tscherning (Denmark)
Committee on Space Research (COSPAR):
D. Williams (USA)
Committee on Science and Technology for Developing Countries (COSTED):
A. Ashour (Egypt)
Committee on the Teaching of Science (CTS):
A. Ashour (Egypt)
Committee on Water Research (COWAR):
Scientific Committee on Antarctic Research (SCAR):
T. Hirasawa (Japan)
Scientific Committee on the Problems of the Environment (SCOPE):
R. E. Munn (Canada) and M.O. Andreae (Germany)
Scientific Committee on Oceanic Research (SCOR):
J. J. O'Brien, D. Lal (USA)
Ex officio:
R.D. Muench (President, IAPSO); B.J. Hoskins (President, IAMAP)
Scientific Committee on Solar-Terrestrial Physics (SCOSTEP):
A. Ebel (Germany), T. Obayashi (Japan)
International Geosphere-Biosphere Program (IGBP):
G. McBean, Bureau Member (Canada)

Special Committee for the International Decade for Natural Disaster Reduction (IDNDR)

Chairman: V.I. Keilis-Borok (Russia)
Secretary: G. Panza (Italy)

IUGG Representatives on Inter-Union Commissions

Inter-Union Commission on the Lithosphere (ICL): S. Gregersen, Bureau Member (Denmark)

IUGG Representatives on Other Bodies

Pacific Science Association (PSA): M. Yoshino (Japan)
Instituto Panamericano de Geografia e Historia (IPGH): J.G. Tanner (Canada)

PROGRAM COMMITTEE

Chairman: David S. Chapman (USA)

IUGG Bureau Representative: Peter J. Wyllie (USA)

Ex-officio Member: Helmut Moritz (Austria)

IAG: Jean O. Dickey (USA)

IAGA: Michael Gadsden (Scotland)

IAGA North American Representative: JoAnn Joselyn (USA)

IAHS: Richard Hadley (USA)

IAMAS: Peter Taylor (Canada)

Ocean Sciences Program Representative: Christopher N. K. Mooers (USA)

IASPEI: E. Robert Engdahl (USA)

IAVCEI: Richard W. Carlson (USA)

AGU Representative: Marshall Moss (USA)

THE COLORADO HOST COMMITTEE

Carl Kisslinger, Chair
Michael Chinnery
George Reid
Stan Ruttenberg
Rick Wendlandt
John Wood
Julie McKie
Debbie Cook

OPENING CEREMONY AND PLENARY SESSION

PROGRAM

Welcoming Remarks

On behalf of the U.S. National Academy of Science
Professor Christopher G.A. Harrison, Chair, U.S. National Committee for IUGG

On behalf of the City of Boulder, Colorado
Mr. Tim Honey, City Manager

On behalf of the University of Colorado at Boulder
Chancellor Roderic B. Park

Reports of the Officers of IUGG and the Opening of the XXI General Assembly

Treasurer Søren Gregersen
Secretary-General Georges Balmino
President Helmut Moritz

Keynote Address

"Environmental Stewardship, Economic Prosperity and National Security: Building a Foundation for the 21st Century"
James Baker, U.S. Undersecretary of Commerce for Oceans and Atmosphere, and Administrator of the National Oceanic and Atmospheric Administration

Musical Program

Master of Ceremonies: Carl Kisslinger, Chair, Colorado Host Committee
Ars Nova Singers Thomas Edward Morgan, Artistic Director
An American Classic: Agnus Dei Samuel Barber
The New Art: Hear my Prayer, Oh Lord Henry Purcell/Sven-David Sandström
Music from Colorado and Around the World:
Golden Apples of the Sun Bill Douglas (Boulder)
Polegnala e Todora Bulgaria
Down by the Sally Gardens Ireland, arr. Henry G. Mishkin
Irish Tune from County Derry Ireland, arr. Percy Grainger
Hallelujah! Vincent Youmans, arr. Robert Sund
(from 1920's Broadway musical *Hit the Deck*)
Colorado Music Festival Chamber Ensemble Alan Yamamoto, Conductor
Appalachian Spring Aaron Copland

WELCOME ADDRESS

Carl Kisslinger

Chair, Colorado Host Committee

Good evening ladies and gentlemen. On behalf of the Colorado Host Committee, I am pleased to greet so many good friends and distinguished colleagues from around the world on this occasion of the opening plenary session of the 21st General Assembly of the IUGG.

Before presenting those who will speak to you, I would like to recognize those on the stage who will not speak, but who have played essential leadership roles in the preparations for this assembly and the administration of IUGG and its Associations during the past four years:

- Professor Peter Wyllie, Vice-President of IUGG
- Professor A. S. Monin, Member of the Bureau of IUGG
- Professor Vladimir Keilis-Borok, Past-President of IUGG and Member of the Executive Committee
- The Presidents of the seven Associations of IUGG, in whose hands is the responsibility for the development and fulfillment of the scientific programs of the Union
- Father Cardus, chair of the Finance Committee
- Professor David Chapman, the chair of the Program Committee for this assembly

I also wish to recognize Dr. Fred Spilhaus and Ms. Brenda Weaver, seated in the front row, who have led the AGU planning and actions to organize this complex assembly. In addition, I want to acknowledge the contributions of Professor James Corbridge, who completed his term as Chancellor of the Boulder campus last year, and without whose enthusiastic support it would have been impossible to initiate the required planning and arrangements during the past several years.

The Union is meeting in our country in response to the invitation of the National Academy of Science of the United States. To greet you on behalf of the Academy, I call on Professor Christopher Harrison, the chair of the U. S. National Committee for IUGG. (Remarks by Professor Harrison)

The City of Boulder is very pleased to be the venue for this important scientific meeting, the largest and most comprehensive meeting devoted to the sciences of the Earth ever to be held here. I next introduce Mr. Tim Honey, the City Manager of Boulder, to greet you on behalf of our community. (Remarks by Mr. Honey)

The University of Colorado at Boulder is one of our country's major research universities, with strong programs of teaching and research in all of the natural sciences, including the geophysical sciences, as well as the social sciences and humanities. To greet you on behalf of our university, I introduce our Chancellor, Dr. Roderic B. Park, who is himself a distinguished scientist.
(Remarks by Chancellor Park)

I now turn the session over to the officers of the Union, who will present their reports to the assembled delegates. First will be Dr. Sören Gregersen, Treasurer, followed by Dr. Georges Balmino, Secretary-General, and then our distinguished President, Professor Helmut Moritz.

Then, our keynote speaker, Dr. James Baker, will be introduced by Chairman Christopher Harrison.

OPENING ADDRESS

S. Gregersen

Treasurer, International Union of Geodesy and Geophysics

Welcome to Boulder. The IUGG Bureau have been here already several days, and we have found a very nice campus in University of Colorado in Boulder.

Don't worry I will not present the accounts of IUGG. I will tell you that the meeting of the IUGG council today has been very fruitful, and that our American hosts have presented so much for us that we believe this 21st General Assembly of IUGG will be a very good one.

Just as in a family we have already had both joy and irritation. All kinds of small grumbles have been squared away, some remain to be taken care of. But it all happens with a tone of optimism.

About finances I will give you just a few informations about IUGG. The financial status of IUGG can be called healthy. Two thirds of the member countries have paid their dues for 1994, so they are up to date. And this means that the income we planned in the budget 4 years ago has almost been reached. IUGG is almost solely dependent on these membership fees. Only about 5 % of our income come from publications. Our spending is a bit under the budget. So these are all signs of good health.

About the future we have already started some fruitful negotiations. The Associations will, if all goes after the plan, receive more directly to them.

At this meeting we will also discuss the possibility of following inflation in the membership fees. It would seem better than previous difficult discussions about adjustments.

It all indicates that we will have a fruitful General Assembly.

OPENING ADDRESS

G. Balmino

Secretary General, International Union of Geodesy and Geophysics

Honoured guests, ladies and gentlemen, dear colleagues. It is a pleasure for me to report on my first four-year term as Secretary General of the Union. It has been a difficult period for a secretary, in a rapidly changing world, with many challenges, budget cuts in many countries, trendy science sometimes competing with basic science, but also and fortunately with more and more people eager to do good science in our area and to contribute to the life of the Union and its Associations.

The membership in the Union increased.

Since the closing of the Vienna Assembly in 1991: Russia replaced the ex-USSR; Czechoslovakia membership was transferred to the two daughter states: Czech Republic and Slovakia; Estonia, Croatia and Slovenija became members, also Mongolia, the Ex-Yugoslavia Republic of Macedonia, the Academy of Sciences located in Taipei as accepted by the Council today.

During this period, many other countries expressed their desire to apply for membership. Correspondence with scientists from these countries is continued.

The core of the Administration was done by e-mail, letters, faxes, and telephone. A great deal was also accomplished at regular meetings of Union officers.

The Bureau met briefly in Vienna just before the closure of this last Assembly. It then met: in Beijing, China (June, 1992), in Paris, France (Nov., 1993), in Boulder, last year in July and here three days ago.

The Bureau meetings in 1992 and 1993 and last week were followed by an Executive Committee meeting.

The Bureau, on these occasions and by correspondence, dealt with all administrative matters. Some decisions were taken which, in conformity to the Statutes, did not require the consultation of the Executive Committee. In other cases, items were debated and then presented to this Committee for decisions.

The Executive Committee formally met three times: in Beijing, in 1992, in Paris, in 1993, and two days ago.

In addition, a meeting of the Associations Presidents with the Bureau was held here last year.

At the Beijing meeting, important discussions took place on the consequences of the recent geopolitical changes, and especially as concerns the former Soviet Union. Among other matters, a change in statute 4 was analyzed and discussed, which resulted in an important proposal made to and accepted by the Council today.

The Paris meeting was a key one in that it was largely devoted to the preparation of this Assembly. The Chairman of the Program Committee at Boulder was invited and the main items of the program of Union symposia and interdisciplinary symposia were established. For the first time, the seven Secretaries General of the Associations held a separate meeting which was very fruitful in exchanging views on day-to-day business and the general running of the Associations.

Boulder was chosen as the place of the last meeting before this 21st. General Assembly, since this offered the opportunity to everyone concerned to visit the premises and have a better view of the facilities. At all meetings and also by correspondence, important questions on structural changes were discussed under the guidance of the Advisory Board on Scientific Policy of which the chairman is our Vice-President, and which has been very active over this period.

The Secretariat work has been growing rapidly over these years due to a constant increase of the number of documents to be circulated. This was performed thanks to two part time secretaries and the help of the Assistant Secretary General. A large part of the logistics was covered by the French Space Agency.

We managed the daily administration of the Union, the announcement of meetings, the circulation of all information, reports of administrative or scientific nature, of which many were published in the Chronicle. We prepared the agendas and the minutes of the meetings of the Bureau and Executive Committee and participated in all of them. We also prepared and circulated the program and agendas of the meetings that the Council, the Executive Committee and the Bureau will hold during these two weeks.

I visited the Union President, the Vice-President, the Treasurer and the Honorary Secretary General, for administrative discussions and on the occasion of personal travel for scientific business. I was appointed secretary of the IDNDR Committee (after the transfer of its prerogative to the Executive Committee) and prepared its meetings, agendas and minutes in 1993 and 1994; in this position I attended the UN Conference on IDNDR in Yokohama, last year, and my staff and I prepared a brochure on this part of the Union activities, with the help of the Associations. I also participated in the FAGS Council Meeting last April, as new representative of IUGG.

We prepared the annual reports to ICSU as well as the requests for ICSU-UNESCO grants every year, following inputs from the Associations. We also managed the allocation of grants to the organizers of twenty symposia, workshops, schools in different areas, and of grants to individuals to attend this General Assembly.

We organized the provisional admission of new Member Countries and prepared the proposals for changes in the Union Statutes and By-Laws which are discussed here by the Council.

The scientific part of the activities of the Union is in the hands of its seven Associations and of its inter-Association and inter-Union commissions.

These activities have been reported at each meeting of the Executive Committee and are the core of the annual activity report to ICSU. Reports also appeared in several issues of the Chronicle.

Six Associations (including IAMAS and IAHS which did it jointly) organised a scientific assembly during this period; each one was very well attended and successful.

IAPSO, which is unfortunately not with us today, has planned a joint scientific meeting with IAMAS for 1997, in Melbourne.

The Commissions on Mathematical Geophysics, on Tsunamis, and SEDI (Study of the Earth Deep Interior) have also been quite active and held several meetings of high level.

The International Commission of the Lithosphere is a joint commission of the International Union of the Geological Sciences and of IUGG; it is unanimously recognized as serving an important role in improving collaboration between these two families and, after having completed many activities, is going to start here its fourth five-year term.

Our President has had the responsibility of our relationship with ICSU and our links with various Committees of ICSU are quite good thanks to our representatives. Let me especially quote COSPAR, SCAR, SCOPE, SCOR, SCOSTEP and naturally FAGS.

The Union also has very active representatives or liaison officers with other bodies such as IAU, UNESCO, WMO, who provided reports to this General Assembly.

Besides the various journals and publications of the Associations, the Union has one publication: the Chronicle. The continuation of its publication since 1991 has been the responsibility of P. Melchior in his position of Honorary Secretary General. Twenty issues (207-226) have been published over this period, at a rate of five issues per year.

Unfortunately the Chronicle experiences a very severe crisis: it has been more and more difficult to get publishable material in the last years from the Associations, commissions, and the National Committees.

Solutions to continue such a publication or to find a substitute are to be discussed during this General Assembly.

To conclude, I would say that taking over the position of my brilliant predecessor P. Melchior, has been quite a task, although it was made easier by his constant help as I was setting out in office. His help from time to time, when I discovered new facets of my responsibilities, is also gratefully acknowledged.

I heartily thank all those who also helped me, regularly or on occasion, and especially the Union President, Bureau Members, and many Association Presidents and Secretaries General.

Thank you!

PRESIDENTIAL ADDRESS

H. Moritz

President, International Union of Geodesy and Geophysics

Honoured guests, dear colleagues, ladies and gentlemen. I have the honor to be the last speaker, so I can be brief.

It is a privilege to open a General Assembly in a nation which all scientists admire, and in a city which is representative of this nation's nature, culture and science.

Let me start with two personal remarks.

My first IUGG General Assembly was held also in USA: in Berkeley, California, in 1963, 32 years ago. As a young man, I had the opportunity to listen and talk to all the eminent scientists whom I had known only from the literature. It was an unforgettable experience to me, an experience which was decisive for my future career in science and was the beginning of my love for IUGG.

I mention this because the need for such big interdisciplinary General Assemblies is frequently questioned. A General Assembly and small special meetings are mutually complementary; both types of meetings are necessary.

The second remark is on the city of Boulder: here the US National Geodetic Survey has provided an ideal opportunity to the British Brigadier Martin Hotine to write the book "Mathematical Geodesy" (1969) which has proved enormously influential in Geodesy. I am sure similar things have happened in other branches of Geophysics as well.

So IUGG has ample reasons to be extremely grateful to the U.S. National Committee for IUGG and the American Geophysical Union to have invited us to this scientifically, culturally and naturally exciting place.

IUGG has been in existence now for more than 75 years. Basic research has provided an extensive quantitative understanding of our Planet (and other planets as well). We must understand precisely how the System Earth, from the Earth's core and mantle to oceans and atmosphere works if we want to make applications in the present directed towards a better future. As in other sciences as well, theory and practice are inseparably intertwined, and basic research is essential for applications.

I need not go into details: you will be abundantly exposed to them in this General Assembly. Let me only mention some obvious applications: weather forecasting, prediction of natural disasters such as earthquakes and floods, the evolution of climate. To give just one example: everybody speaks about global warming but nobody can give an exact quantitative estimate in degrees per year. Cooperation with such projects as Global Change (the Geosphere-Biosphere Program) and the International Decade of Natural Disaster Reduction is natural.

The various branches of Geophysics are both visibly independent and subtly interrelated: the Earth forms a complex system in the precise meaning in which Complexity Theory is now understood. The Theory of Complexity and its application to the Earth System are only at the beginning; further research should provide fascinating and important results.

The considerable independence of various branches of geophysics is the reason why the bulk of the work of IUGG is performed by the Associations: from Geodesy and Seismology to Meteorology, Hydrology and Oceanography. Therefore, the independence of the Associations has been a strong tradition in IUGG, which has proved to be extremely efficient. In this sense during my Presidency, the IUGG Executive Committee has adopted several measures to strengthen the position of the Associations within IUGG.

Unfortunately, immediately after an excellent and promising business meeting in Boulder a year ago, we got a terrible setback in precisely this direction: IAPSO unilaterally decided not to meet with us in Boulder here, but to have a separate Assembly in Hawaii next month. The USNC, the IUGG Secretary General, and myself tried very hard to dissuade IAPSO from doing so, but unfortunately in vain. Although the fault situation is clear, I consider this the greatest defeat in my deliberately Association-oriented Presidency. Fortunately, the USNC took a positive measure to minimize the negative consequences of IAPSO's decision, especially as regards joint symposia (which provide the coherence between the Associations!), also offering a strong oceanography program at Boulder, especially for the benefit of international participants.

With respect to foreign participants we received another formidable blow less than two months ago: the International Science Foundation which was expected to finance participants from the countries of the former Soviet Union, announced that for lack of funds it was unable to provide this financial support. Imagine that this was announced after the IUGG already has disposed of all its travel grant money. Furthermore, no Geohost Program was available this time.

This means a serious limitation of the internationality of IUGG that is one of its basic strengths. As a matter of fact, the International Science Foundation is beyond our influence, but nevertheless I offer my official and sincere apologies to the colleagues from FSU who, for this reason, have been unable to come to Boulder. As a matter of fact, this is also a great loss to the scientific work to be done at this Assembly.

I have talked to you about our shortcomings rather than about achievements. Strong criticism is particularly inappropriate because 1995 has been declared internationally the Year of Tolerance. Fortunately most of you will hardly notice the shortcomings and will have ample opportunity to be acquainted with the latest achievements in geodesy and geophysics, through Union Symposia and Union Lectures, Association and Inter-Association meetings and, last not least, through informal discussions and exchange of ideas, as well as making new scientific friends.

I wish you all a busy and fruitful General Assembly, such an Assembly being the greatest scientific event we have in Geodesy and Geophysics.

Thus I declare the General Assembly of IUGG open.

ENVIRONMENTAL STEWARDSHIP, ECONOMIC PROSPERITY, AND NATIONAL SECURITY

Building a Foundation for the 21st Century

D. James Baker

U.S. Undersecretary of Commerce for Oceans and Atmosphere, and
Administrator of the National Oceanic and Atmospheric Administration
A Presentation for the XXI General Assembly of the
International Union of Geodesy and Geophysics (IUGG)
Boulder, Colorado
July 2, 1995

Thank you, Chris, President Moritz, Chancellor Park, and Dr. Kisslinger. It's a great pleasure and honor to be here to talk to you tonight. We're facing turbulent times and an uncertain future, but these beautiful Colorado surroundings make me think back to the early explorations of the West.

In August 1842, Captain Fremont was doing a survey for the War Department along the Green River just north of here and wrote in his journal:

> The air at sunrise is clear and pure, and the morning extremely cold, but beautiful. A lofty snow peak of the mountain is glittering in the first rays of the sun. The long mountain wall to the east, rising two thousand feet abruptly from the plain, is still dark, and cuts clear against the glowing sky. Later, winding our way up a long ravine, we came unexpectedly in view of a most beautiful lake, set like a gem in the mountains. Proceeding a little further, we came suddenly upon the outlet of the lake where it found its way through a narrow passage between low hills. The current was very swift, and the water cold and of a crystal purity.
>
> In crossing the stream, I met with a great misfortune, in having my barometer broken. It was the only one. A great part of the interest of the journey for me was in the exploration of these mountains. So much had been said that was doubtful and contradictory. And now, their snowy peaks rose majestically before me and the only means of giving them authentically to science was destroyed. We had brought this barometer in safety one thousand miles, and now this. As soon as camp was formed, I set about repairing the instrument. I had with me a number of vials of tolerably thick glass to replace the cistern. Among the powder horns I found one which was very transparent. I boiled and stretched it, then secured it in place with strong glue made from buffalo. It worked! Our success in this little incident diffused pleasure throughout the camp and we immediately set about our preparations for ascending the mountains.

I like this story because it symbolizes for me the independence and ingenuity of the Earth scientist—qualities you all share.

Well, that was the state of Earth science in 1842. It was not long afterwards that nations began to come together to discuss sharing of global information from ships at sea and then from the International Polar Years, which led to the International Geophysical Year (IGY). Sidney Chapman, in his history of the IGY, tells about the early days of the IUGG.

It was 1919 when the IUGG was established. At that time, the political passions of World War I were still intense. Scientists from the defeated nations were excluded from membership by the IUGG's parent organization, the International Research Council. This created great resentment among those who had been excluded and led to heated debate within the Council. The issue was finally resolved when the International Research Council was transformed into the International Council of Scientific Unions.

The unions themselves continued under ICSU, but all remaining exclusions were removed. The precedent was set. In 1945, when WWII ended, there was no question of excluding scientists from any nation in scientific programs and there was a sense of

optimism that we could work together to solve common problems. In fact, over the next fifty years science has flourished as nations understood the need for science as a base for strong national defense and for improving the human condition. We have learned much about the Earth from research supported by both military and civilian agencies.

In the areas covered by the IUGG, for example, geodesy has been greatly advanced by space techniques ranging from Very Long Baseline Interferometry to the Global Positioning System. In seismology and physics of the Earth, we have made major advances in understanding the geology, processes, and history of the Earth through deep seismology, ocean drilling, and spaceborne systems ranging from optical to radar. In volcanology, we have learned more about the genesis of volcanoes and have begun to appreciate the role of aerosols and the effects they may have on stratospheric ozone and climate. In geomagnetism and aeronomy, we have learned much about the impacts of solar winds and chemistry of the stratosphere. In meteorology and the atmospheric sciences, we have greatly increased our understanding and ability to predict weather and climate. In hydrology, we are continuing to learn about global energy and water cycles. And in the physical sciences of the ocean, we have made major strides in understanding and predicting seasonal to interannual climate patterns of the El Niño and in establishing long term trends in ocean processes. None of these advances would have been possible without the international collaboration fostered by organizations like the IUGG.

One of the greatest success stories of international cooperation was the IGY in 1957-58. The purpose of IGY was simple and had a wide appeal—"the common study of our planet by all nations for the benefit of all." The IGY not only increased our understanding of the Earth, but also stimulated the development of new technologies. With the advent of satellites at that time, we began a whole new era of scientific investigation. Now global programs, internationally managed, are the order of the day. We have learned much about the Earth. New technology and new scientific insights have led to important applications that have direct impacts on mankind. We are poised to do much more.

National and Global Needs in a Confused World

But even with this success, questions have arisen about the importance of science, and our funding is not increasing at the rate required to fully support the programs that we need to advance our understanding. Why is this?

Today, we face a confused world, with the end of the Cold War and the emergence of many regional conflicts. The economic picture is changing rapidly. Nations must provide for their citizens, build their economies, and, at the same time, maintain national security. With rising costs, governments find it more and more difficult to find adequate funding for their operations. A skeptical public is in agreement with the old saying: "If your outgo exceeds your income, then your upkeep will be your downfall!"

But even in a limited budget world, investments are critical. We must make the case to the public about the importance of what we do, and why science is a key to policy decisions. Our accomplishments are good, but not always explained well. We must show how we can relate to national and global needs.

I'll mention here a few examples of how we can do this—the relation of environmental stewardship to economic growth, the forecasting and mitigation of natural disasters, and the dual use of technology for observing systems.

Environmental and Natural Resource Stewardship

All people want to meet their basic human needs and have an acceptable standard of living. But this becomes more difficult with increasing population. Only through continued economic growth will we be able to meet human needs and ensure an improvement of living standards around the world. Economic growth, in turn, will only be possible if we protect the environment and manage the Earth's resources for current and future generations. We don't want to be like the man in the *New Yorker* cartoon who said to his friend: "You want a higher standard of living, you have to settle for a lower quality of life."

With advances in technology and industry, many countries around the world have enjoyed improve-

ments in their standard of living. At the same time, we have had to face the harmful impacts of human activities on the environment—from pollution of the air, water, and soil, to the depletion of natural resources, to the disturbance of ecosystems.

In the past 25 years, we have made significant progress in forecasting natural events, improving air and water quality, understanding the processes that lead to climate change, addressing stratospheric ozone depletion, and understanding ecosystem interactions. This progress comes from improved scientific understanding and technical advances that have made it possible for us to begin to address the effects of human activities on the Earth system.

But the job is not complete. The natural environment has changed more since the end of World War II than during any other 50 years in the Earth's existence. The next 50 years may be pivotal in determining whether a sustainable balance will be achieved between natural, life-supporting processes and human activity. We will all need to develop policies and investment strategies to deal with the emerging problems of environmental degradation.

It is reasonable to expect that continued technological advances will lead to improvements in manufacturing processes, transportation, goods, and services and to the consumption of fewer resources and less energy and the generation of less waste. But ongoing research and input from the scientific community will be essential to ensure that we make the right choices—both economic and environmental. These right choices require adequate scientific understanding of the processes involved that affect these real-world problems. This is an important point we need to get across to the public.

Operations Other Than War

This leads me to a topic which I will call Operations Other Than War. As the 20th century draws to a close, we are entering a new era of national security. We can no longer think of security as being based solely on military power. Both national and global security are increasingly dependent on having a strong economy, an adequate and equitable distribution of resources, and a safe and healthy environment. As populations grow, resource scarcities and environmental damages are likely to increase. This is likely to lead to increasing conflicts over natural resources and environmental issues. Given this new context, it is more important than ever to provide long-term support for science, technology, and environmental stewardship. These will be critical to ensuring the future prosperity and security of the world. Only an economically vital and physically healthy populace can defend itself.

The social conditions associated with environmental degradation often result in famine, the outbreak of disease, and civil or international conflict. There is a growing realization by world leaders that while humans are dependent on the natural world, they have the ability to alter it on a global scale and sometimes irreversibly. Increasing competition for the dwindling resources of uncontaminated air and water, arable land, fisheries and other food sources, once considered "free" goods, is already a very real risk to regional stability around the world.

The U.S. military is increasingly being tasked with missions that involve countering the effects of environmental degradation. These tasks have been called Operations Other Than War. When the U.S. military is assigned to areas such as Haiti, Rwanda, or Somalia, to conduct Operations Other Than War, there is a direct effect on U.S. security. In many cases, troops of the U.S. and other countries have not been trained or received special funding for this, and they are vulnerable to disease and sometimes to violence, as in Somalia.

It seems likely that the United States and other countries will be increasingly involved in Operations Other Than War, if the current trends in population growth and environmental degradation continue. The results of environmental degradation could be a weakening of public health in poorer regions and mass migrations of people in search of more benign environmental conditions (e.g., adequate fresh water, food, and energy). Mass migrations can then led to violent conflict as the indigenous people resist the migrants. And the conflict can lead to environmental degradation in these regions as well.

Natural Disaster Warning and Mitigation

In many cases, science offers the only substantial alert to governments and the public of emerging problems. A major security concern, especially as populations grow, is the vulnerability to natural

disasters. Natural hazards—such as floods, droughts, hurricanes, tornadoes, earthquakes, tsunamis, volcanic eruptions, landslides, and wildfires—lead to the loss of thousands of lives and billions of dollars in property losses every year. The poorest nations are the least prepared to deal with the impacts of natural disasters. For many of these nations, a single event can reduce the annual gross domestic product by 25 percent.

The floods in Europe and California and the earthquake in Kobe, Japan, earlier this year were dramatic reminders of our vulnerability to natural hazards. They disrupted transportation and communication systems, drinking water supplies, and gas and other pipelines. They also had major impacts on financial markets, insurance practices, and government functions.

Natural disasters are not confined to a single nation's borders. For example, Holland complained that the flooding of the Rhine was exacerbated by Germany's actions or lack of action upstream. And the Kobe earthquake had economic impacts not just in Japan, but also on trading partners around the world.

We can not prevent natural hazards, but we can reduce our vulnerability to them. In recent years, the number of casualties due to natural hazards declined due to better warning and evacuation systems and improved construction materials and architectural designs. In 1903, the Galveston Hurricane killed 6000 people; in 1992, Hurricane Andrew killed only 24 people because of greatly improved warnings. But while we have been successful in minimizing the loss of human lives, economic losses have continued to escalate. Andrew and Iniki cost $17 billion. This is due primarily to urban population growth, construction in hazard-prone areas, and the increased value of urban infrastructure.

We can better prepare for natural hazards by improving natural hazard forecasting and prediction systems. Technologies to monitor and predict natural hazards are one example of technologies that promote global security. The United States is in the final stages of a $4 billion investment to modernize the National Weather Service. We have deployed a new generation of Doppler weather radars, automated surface observing systems, and geostationary and polar-orbiting satellites. A new Water Resources Forecasting System will make it possible to improve predictions of flooding and to mitigate U.S. flood losses. In addition, efforts are underway to better communicate hazardous weather conditions through an expanded NOAA Weather Radio network.

The United States regularly provides technical assistance and equipment to other countries to help them predict and assess changes in the natural environment. For example, we recently entered into an agreement with the People's Republic of China to furnish technical services for a prototype flood forecasting system for the Huai River Basin. Efforts such as this will help minimize the loss of lives and property due to natural disasters. They will also enhance the likelihood of economic, environmental and social stability abroad.

The United States will continue to participate in the International Decade for Natural Disaster Reduction. This United Nations activity is facilitating collaboration among member nations to reduce the impact of natural hazards.

Further scientific research and technological development are essential to improving our understanding of the processes behind natural hazards. We need to understand why explosive storms develop and why weather patterns sometimes remain stationary for long periods of time, as they did during the 1993 Midwest flood. We also need to better understand the coupled oceanic and atmospheric processes that lead to climate variability. We need to know the conditions that precede and follow earthquakes and volcanoes and the impacts of tsunamis.

A good example of international cooperation came in September 1994, when a volcano erupted on the Russian Kamchatka Peninsula. The ash plume reached 60,000 feet and disrupted the North Pacific air routes linking the Orient and Russia with the United States for a period of three days. The Russian Kamchatkan Volcanic Eruption Response Team, the Japanese Meteorological Agency, the Alaska Volcano Observatory, the Federal Aviation Administration, and NOAA worked together to provide warnings to aviation. The warnings were based on volcanic ash forecasts and transport dispersion model forecasts provided by NOAA's Air Resources Laboratory. These warnings made it possible for

FAA to safely reroute more than 25 aircraft, saving potentially millions of dollars.

I focused on natural disasters here, but many of these same systems can be used to monitor man-made disasters such as nuclear power accidents such as those that have been experienced around the world.

Dual-Use Systems

Natural disasters are a problem; dual-use systems contribute to the solution. As Earth scientists, we know the critical importance of observations. The complex nature of the Earth means that we need comprehensive observations. One of the things I have personally worked on in the past few years is the application and use of technology designed for other purposes.

For example, we have in place today a number of observing systems that were designed primarily for military purposes, but can also be used for civilian purposes. One good example of this is the 24-satellite Global Positioning System (GPS). GPS provides a good example of how we are using advanced technology and scientific expertise to promote security. GPS is making it possible to develop more precise surveying and mapping techniques and to monitor tectonic movements. At the same time, geographic information systems (GIS) are making it easier to monitor and assess land-use patterns and ecosystem changes in ways that were previously impossible.

An example: NOAA and the U.S. Agency for International Development (USAID) are providing Romania with technical training and equipment to establish GPS and GIS capabilities. The World Bank and the European Union are also involved, ensuring that a coordinated approach is taken to assisting the country. The use of GPS and GIS is accelerating the surveying and mapping of Eastern Europe. These tools are also facilitating Romania's divestiture of state-owned farms, and the land reforms are helping to stabilize regional economies.

GPS also offers the opportunity to use its signals for monitoring the atmosphere. Signals from GPS are now being used to measure water vapor and temperature in the atmosphere. The GPS is important because it represents a tool for accomplishing a primary mission—navigation and positioning—and also provides added value for other missions. What was a source of noise for navigation and positioning is a valuable signal for meteorology and climate. This is a simple example of dual-use technology which may, in the end, help us build more robust data systems.

A second example includes observing systems. I just returned from Russia, where a United States/Russian Bilateral Commission, headed by Prime Minister Viktor Chernomyrdin and Vice President Al Gore, is developing new cooperative activities in trade and investment, energy, defense conversion, agriculture, health, science and technology, space, and the environment. These activities will help Russia as it builds its economy and moves toward free market capitalism. They will also help the U. S. by facilitating the sharing of vital information. Environmental science is an important aspect of the Commission's activity, and environmental science will be a key to Russia's finding a sustainable economy.

One of the areas we discussed during the meeting in Moscow was how to utilize the national security systems developed for the Cold War for environmental and global change applications. Over the past 50 years, both Russia and the United States created highly sophisticated national security systems to conduct space-based, airborne, and ocean-based observations. These systems have already contributed to world stability by providing factual information about each other's country and by verifying adherence to various treaties. By combining the resources of both countries, we can improve the spatial and temporal coverage of our databases. The real-time access and distribution of information can help us predict disasters, manage disasters as they occur, guide remediation efforts, and prevent future damages. This exchange of information could be particularly useful in dealing with severe weather conditions, earthquakes, volcanoes, forest fires, and nuclear accidents.

International Data Exchange

My final example is from the data and information field. We are faced today with a major change in our way of doing business—this is the fact that information is becoming easier and easier to get. Handling data of massive proportions and learning

how to live in a world of information overload is part of our daily lives, and will become more so.

I mentioned the IGY at the beginning of my talk. A key component of the IGY was the agreement that most observations should be collected at World Data Centers. In fact, Boulder is the home of five of the nine discipline centers of World Data Center A (glaciology, marine geology and geophysics, solar-terrestrial physics, solid earth geophysics, and paleoclimatology). Any scientific organization or investigator can obtain copies of data for not more than the cost of reproduction and transmission. The information is available to all countries, whether or not they participate in the investigations. This free and open data exchange is considered essential to advancing our understanding of the Earth system.

Now, with the growth of the information society and widespread availability of massive computing power, data and information issues are at the forefront of discussions. For example: in recent weeks, the Congress of the World Meteorological Organization has been engaged in intense discussions about the exchange of data. But the debate has been driven as much by economic and commercial concerns as by traditional security concerns—this reflects a real shift in global thinking. The international scientific community was again called upon to assert its belief in free and open data exchange for scientific purposes, but to do this in a new context. The Congress came up with a good solution, one that mandated exchange of a broad range of critical data, and recognized the needs for conditions on some data of commercial value. Other groups will have to do the same, and can use the WMO agreement as a model.

Building a Foundation for the 21st Century

Let me conclude with a few words about building a foundation for the 21st century. The scientific opportunities in the years ahead are endless. New systems—such as small satellites, new *in situ* techniques and information technologies—will lead to even greater insights about the Earth system. Greater collaboration and the sharing of information among countries around the world will in turn accelerate the pace of scientific progress. And stronger partnerships among government agencies, the private and nonprofit sectors, academic institutions, and communities will help ensure that scientific research and development are applied to the needs of society.

But will we really get there from here? Or will we have a world that is marked by increasing vulnerability to natural and man-made environmental change and a decreasing standard of living for all? Our institutions are a key to our survival. International organizations like the IUGG can help by taking a new look at the role of science and technology in society. As we look to the 21st century, it is more important than ever for us to reexamine and communicate our priorities. Continued investments in scientific research and technology are essential if we are to further our understanding of the Earth system, protect the environment, and manage the Earth's resources for current and future generations. At the same time, the scientific community can help apply new knowledge and technologies to the needs of society. The military saying is "It's cheaper to counter a known threat."

I have talked about some near-term issues: budgets, natural disasters, and national security. In today's budget climate, it is easy to get caught up in concerns about immediate funding. Norm Augustine of Lockheed-Martin has described the situation this way: We are always in a position of having to respond to four-year Presidents, two-year Congresses, one-year budgets, 100-day contracts, and daily newspapers. But if we focus on only the short-term issues, we risk losing the long-term battle for sustainable development and global security.

As members of the scientific community, we can not afford to compromise the future by focusing only on short-term budgets. Long-term research is necessary for the understanding required to make short-term forecasts. Without that investment in the future, we will not be able to deliver either short-term or long-term results. Science and technology are in danger of being squeezed out by social services and deficits. And the situation in the United States is not unique. Other countries are facing similar budget problems. There is broad support from the President, the public, and Congress for reducing the Federal budget, but we must also continue to make investments for the future. Jessica Matthews of the Council of Foreign Relations put it

best: "What could be less conservative than choosing to fly blindly into the future? What could be more rash than deciding not to know the dimensions of a future threat?" You as scientists must take this message to the public and your elected representatives so they understand what can be done.

I would like to close with a short story: There was once a great flood, and each day the waters continued to rise. Before many days had gone by, it was clear that the area would have to be evacuated. One man had lived there for many, many years and had managed to live through the worst of storms. He was a man of great faith and believed that no matter how bad things appeared, he would be able to survive and save his home. The rain continued to fall, and a rescue worker drove by in a car and encouraged the man to come with him. The man refused, assuring the worker that there was no need to worry. Before long, the roads were impossible, and another rescue worker came by in a boat and offered to take the man to higher ground.

Again the man refused. By this time, the waters were so high that the man retreated to the roof of his house. A helicopter then came to rescue him, warning that it would soon be too late to help him at all... but still he refused assistance. Well... the man drowned and went to heaven. When he arrived in heaven, he said to God, "Why didn't you help me?" And God answered 'Well, I did... Who do you think sent the car, the boat, and the helicopter?"

As scientists, we know that the tools we offer can provide help for the problems of society. It is incumbent on us to make sure that we clearly explain to the public what we can do and why it is important. The 21st century will be one of Operations Other Than War, one where we should be able to have warnings and mitigation of natural and human-induced disasters, both those we know about and those that may arise in the future. Only groups and individuals like you can do it.

LIST OF COLLEAGUES HAVING PASSED AWAY SINCE THE VIENNA ASSEMBLY

Alexidze M.	IASPEI	Georgia
Anderle Richard J.	IAG	USA
Ansell J. H.	IASPEI	New Zealand
Arteme'ev Mikhail E.	IASPEI	Russia
Avaste Olev	IAGA	Estonia
Bates David Robert	IAGA	Ireland
Bultot Franz	IAHS	
Christiansen Peter	IAGA	UK
Czobor Arpad	IAG	Hungary
Davies Arthur	IAMAS	UK
Deutsch Emilio R.	IASPEI	Mexico
Doornbos Durk J.	IASPEI	Norway
(Former President of SEDI)		
Eiby George A.	IASPEI	New Zealand
Elsasser Walter M.	IASPEI	USA
Gringauz Konstantin I.	IAGA	Russia
Hatherton Trevor	IASPEI	New Zealand
Iranga Mwita D.	IASPEI	Tanzania
Ivanova Lydia N.	IAGA	Russia
Jacka Fred	IAGA	Australia
Jegou Jean-Pierre	IAGA	France
Kamela Czeslaw	IAG	Poland
Kanyanta Joses H.	IASPEI	Zambia
Karnik Vit	IASPEI	Czech Republic
Keller Hans M.	IAHS	Switzerland
Laclavère Georges	IAG	France
(Former IUGG Secretary General, 1951-1963)		
Lehmann Inge	IASPEI	Denmark
Lomnitz-Adler Jorge	IASPEI	Mexico
Maehlum Bernt Neeb	IAGA	Norway
Marsh James G.	IAG	USA
Molodensky M.S.	IAG	Russia
Mossop Stan	IAMAS	Australia
Nagata Takesi	IAGA	Japan
(Former President of IAGA, 1967-1971)		
Nersessov Igor L.	IASPEI	Russia
Nozharov Peter	IAGA	Bulgaria
Obenson Gabriel	IAG	Nigeria
Pekeris Chaim L.	IASPEI	Israel
Pellinen Leonard P.	IAG	Russia
Perelmuter Avraam	IAG	Israel
Poland Joseph F.	IAHS	
Radu Cornelius	IASPEI	Romania
Richardson Donald. A.	IAG	USA
Ringwood A.E.	IASPEI	Australia
Rinner Karl	IAG	Austria
Roach Franklin E.	IAGA	USA
Rodier Jean	IAHS	France
(IAHS Past President)		
Rothwell Pamela	IAGA	UK
Sadovsky Mikhail A.	IASPEI	Russia
Sedunov Yuri	IAMAS	Russia
Simonsen Ove	IAG	Denmark
Slov'ev Sergei L.	IASPEI	
Solonenko V.	IASPEI	Russia
Soumi Vern	IAMAS	USA
Wadati Kiyoo	IASPEI	Japan
Webb John P.	IASPEI	Australia
Whitten Charles	IAG	USA
(Former President of IAG, 1960-1963)		
Willmann Charles	IAGA	Estonia
Willmore Patrick	IASPEI	UK
Wilson J. Tuzo	IASPEI	Canada
(Former President of IUGG, 1957-1960)		
Wolf Helmut	IAG	Germany
Wyrzykowski Tadeusz	IAG	Poland
Yukutake Hideo	IASPEI	Japan
Zidarov Dimiter	IAGA	Bulgaria
Zwi Gal-Chen	IAMAS	USA

CLOSING PLENARY SESSION

Friday, July 14, 1995, 17:00-19:00

Introduction (H. Moritz)
Resolutions: read in French and in English (G. Balmino)
Introduction of New President (P. Wyllie) by H. Moritz
Presentation of the new Bureau Members, the new Finance Committee and the new Association Presidents (P. Wyllie)
Announcement about the next General Assembly
Formal Closing of XXI General Assembly

RESOLUTIONS OF THE UNION ADOPTED AT THE XXI GENERAL ASSEMBLY Boulder, July 13, 1995

Resolution 1

The International Union of Geodesy and Geophysics

recognizing that:
1. since its establishment in 1988, the International Earth Rotation Service (IERS) has successfully developed a comprehensive observation and analysis system to realize the International Terrestrial Reference System (ITRS) and the International Celestial Reference System (ICRS), and to permanently link them by monitoring the Earth's orientation,
2. IERS achievements are entirely due to the contributions of national agencies in terms of technical development, network operation, and data analysis;

noting that:
1. the IERS-published reference systems are of high quality and are used in a wide range of research and applications in geodesy and geophysics to provide quantities that the user would otherwise have to determine for himself and at his own expense,
2. the IERS Directing Board has published a strategy statement describing the optimal combination of the astronomical and space techniques to fulfil the IERS missions;

recommends that:
- national agencies and institutions contribute to the operation of IERS by providing observations and products in compliance with the IERS Strategy.

Resolution 2

The International Union of Geodesy and Geophysics

referencing:
- IUGG Resolution 4 of the XXth General Assembly in Vienna (1991) on the urgent need for an improved determination of the global gravity field of the Earth;

noting: – that several space agencies, such as ESA and NASA, have plans to realize a mission for the improvement of the Earth's gravity field and that such a mission will have important consequences for geodesy, solid earth physics and oceanography;

strongly recommends: – the implementation of a dedicated satellite gravity mission.

Resolution 3

The International Union of Geodesy and Geophysics

noting that: – Resolution C3 of the International Astronomical Union (IAU) at its XXIInd General Assembly in the Hague (1994) recommended rescinding Resolution 4 of its XVth General Assembly (1976) which established the Modified Julian Day (MJD) system, and using Julian Days as the only time scale for archiving and exchanging time-based astronomical phenomena,

recognizing that:
1. the Julian Day is not defined in terms of an internationally recognized time scale,
2. modified Julian Days are widely used in geodesy and geophysics, particularly for the slow changing parameters of the Earth Sciences, and that any change would cause confusion and risk of error,
3. Earth Sciences require the exchange of astronomical as well as geodetic and geophysical data,

requests: the International Astronomical Union:
1. to reconsider its 1994 Resolution C3 regarding the use of Julian Days and to maintain the modified Julian Days scale wherever it is commonly used in geodesy and geophysics.
2. to prepare a recommendation, common to IAU and IUGG, for the precise definition of a time scale including a convention for the continuous counting of days, and adapted to the archival and exchange of time dependent data used in analysis of astronomical as well as geodetic and geophysical phenomena.

Resolution 4

The International Union of Geodesy and Geophysics

considering: – the need to improve secular variation modelling of the geomagnetic field by the addition of ocean-bottom magnetic observatories to obtain a balanced global coverage, and

noting: – the high cost and long time needed to develop an ocean-bottom magnetic observatory prototype,

urges: – support of research programs aimed at the design, deployment, and running of ocean-bottom magnetic observatories.

Resolution 5

The International Union of Geodesy and Geophysics,

noting: – the IUGG's objectives to provide advice and assistance to developing countries, and to facilitate the participation of the scientists from developing countries in Union activities, especially attendance at the General Assemblies, and

noting: – the need to attract young scientists from all countries to geodesy and geophysics in general and to IUGG in particular, and to encourage their participation in General Assemblies,

urges: – the inviting countries for the General Assemblies to make all efforts to develop a Geohost Program in order to subsidize travel, registration fees, and other expenses of scientists from developing countries and of young scientists from all countries.

Resolution 6

The International Union of Geodesy and Geophysics,

recognizing: – the increasing complexity of the financial and other arrangements of an international meeting the size of the IUGG General Assembly, and

recognizing: – that considerable time may be required for evaluation of invitations and for negotiations and adjustments of the proposals involving scientific facilities, IUGG and Association office support facilities, residential facilities, social activities, and other issues, and

noting: – that it is desirable for invitations to be considered in detail by the IUGG Council during a General Assembly,

requires: – that the organizations inviting IUGG to hold a General Assembly in their country should submit their detailed invitation to reach the IUGG Secretary General not later than 3 months before the General Assembly preceding the General Assembly of the invitation.

Resolution 7

The International Union of Geodesy and Geophysics

gratefully records its appreciation for the organization and arrangements made for the XXI General Assembly. On behalf of all participants, the Council expresses its warm thanks to the U.S. National Committee for IUGG, the American Geophysical Union, the Program Committee, the Local Host Committee, The University of Colorado, and all others concerned in making the XXI General Assembly such a scientifically successful and enjoyable meeting in the beautiful city of Boulder.

RÉSOLUTIONS DE L'UNION ADOPTÉES à LA XXI ASSEMBLÉE GÉNÉRALE Boulder, 13 Juillet 1995

Résolution 1

L'Union Géodésique et Géophysique Internationale

reconnaissant:

1. que depuis sa création en 1988, le Service International de la Rotation Terrestre (IERS) a développé avec succès un système global d'observation et d'analyse pour réaliser le Système International de Référence Terrestre et le Système International de Référence Céleste et les relier entre eux d'une manière permanente par la mesure de l'orientation de la Terre; et
2. que les réalisations de l'IERS sont entièrement dues aux contributions des agences nationales aux développements technologiques à l'opération de réseaux et à l'analyse de données;

notant:

1. que les systèmes de référence publiés par l'IERS sont d'une grande qualité et qu'ils sont utilisés dans de nombreux domaines de recherche et d'applications en géodésie et en géophysique afin de fournir les paramètres que, dans le cas contraire, l'utilisateur devrait déterminer lui-même, à ses propres frais;
2. que le Comité Directeur de l'IERS a publié les lignes de conduite pour combiner de manière optimale les résultats des techniques astronomiques et spatiales pour remplir les missions de l'IERS;

recommande:

– que les Institutions et Agences nationales contribuent au fonctionnement de l'IERS en fournissant des observations et des produits en accord avec la stratégie de l'IERS.

Résolution 2

L'Union Géodésique et Géophysique Internationale

se référant:

– à la Résolution no. 4, adoptée lors de l'Assemblée Générale tenue à Vienne (1991), au sujet de la nécessité urgente de l'amélioration de notre connaissance du champ de gravité global de la Terre,

notant:

– que plusieurs agences spatiales, telles que l'ASE et la NASA, ont des projets de réaliser une mission pour l'amélioration des modèles du champ de gravité de la Terre et qu'une telle mission aura des conséquences importantes pour la géodésie, la géophysique et l'océanographie;

recommande vivement:

– la mise en place d'un satellite consacré à la cartographie du champ de gravité.

Résolution 3

L'Union Géodésique et Géophysique Internationale

notant:

- que la Résolution C3 adoptée par l'Union Astronomique Internationale au cours de la XXIIème Assemblée Générale tenue à La Haye (1994), recommande de retirer la Résolution No. 4 de sa XVème Assemblée Générale (1976) qui établissait le système du Jour julien Modifié (MJD) et d'utiliser les Jours juliens comme unique échelle de temps pour l'archivage et l'échange de données relatives à des phénomènes astronomiques dépendant du temps,

reconnaissant:

1. que le Jour julien n'est pas défini en tant qu'échelle de temps reconnue internationalement;
2. que le Jour julien Modifié est largement utilisé en géodésie et en géophysique, particulièrement pour les paramètres lentement variables en Sciences de la Terre, et que tout changement provoquera de la confusion et des risques d'erreur;
3. que les Sciences de la Terre requièrent l'échange de données géodésiques et géophysiques aussi bien que de données astronomiques,

demande:

à l'Union Astronomique Internationale:

1. de reconsidérer sa résolution C3 de 1994 relative à l'utilisation des Jours juliens et de maintenir l'échelle des Jours juliens Modifiés, dans les domaines de la géodésie et de la géophysique où son usage est habituel.

   de préparer une recommandation, commune à l'UAI et l'UGGI, pour la définition précise d'une échelle de temps incluant une convention pour le comptage continu des jours, et adaptée pour l'archivage et l'échange de données temporelles utilisés pour les analyses tant des phénomènes astronomiques que des phénomènes géodésiques et géophysiques.

Résolution 4

L'Union Géodésique et Géophysique Internationale

considérant:

- la nécessité d'améliorer la modélisation de la variation séculaire du champ géomagnétique par l'installation d'observatoires magnétiques dans le fond des océans en vue d'obtenir une couverture globale équilibrée, et

notant:

- le coût élevé et les longs délais nécessaires pour développer un prototype d'observatoire magnétique destiné à être installé dans le fond des océans;

demande:

- instamment de soutenir les programmes de recherche visant à mettre au point, installer et faire fonctionner des observations magnétiques dans le fond des océans.

Résolution 5

L'Union Géodésique et Géophysique Internationale

notant:

- les objectifs de l'UGGI de fournir une expertise et assistance aux pays en voie de développement, et à faciliter la participation des scientifiques de ces pays aux activités de l'Union, en particulier leur participation aux Assemblées Générales;

notant: – la nécessité d'attirer les jeunes scientifiques de tous les pays vers la géodésie et la géophysique en général et vers l'UGGI en particulier, et d'encourager leur participation aux Assemblées Générales;

demande – instamment aux pays hôtes des Assemblées Générales de ne pas ménager leurs efforts en vue de la création d'un programme "GEOHOST" destiné à subventionner les frais de voyage, les frais d'inscription et autres dépenses des jeunes scientifiquers de tous pays, et des scientifiques des pays en voie de développement.

Résolution 6

L'Union Géodésique et Géophysique Internationale

reconnaissant: – l'accroissement de la complexité de l'organisation financière et pratique d'une réunion internationale de la dimension d'une Assemblée Générale de l'UGGI, et

reconnaissant: – qu'un délai important peut être nécessaire pour l'évaluation, les négociations et les adaptations des propositions comprenant les moyens scientifiques, les bureaux mis à la disposition de l'UGGI et des Associations, les résidences, les activités sociales et autres besoins;

notant: – qu'il est souhaitable que les invitations soient examinées en détail par le Conseil de l'UGGI durant une Assemblée Générale;

demande: – que les organisations invitant l'UGGI à tenir une Assemblée Générale dans leur pays soumettent leur invitation argumentée au Secrétaire Général de l'UGGI au moins trois mois avant l'Assemblée Générale précédant celle qui fait l'objet de l'invitation.

Résolution 7

L'Union Géodésique et Géophysique Internationale

exprime sa gratitude pour l'organisation de la XXI Assemblée Générale. Au nom de tous les participants, le Conseil remercie chaleureusement le Comité National des Etats-Unis d'Amérique pour l'UGGI, l'American Geophysical Union, le Comité des Programmes, le Comité d'Accueil Local et tous les individus et organisateurs qui ont fait de cette XXI Assemblée Générale une réunion aussi agréable que scientifiquement réussie dans la belle ville de Boulder.

BUREAU OF THE UNION FOR 1995-1999

President: P. Wyllie (USA)
Vice-President: U. Shamir (Israel)
Secretary General: G. Balmino (France)
Treasurer: S. Gregersen (Denmark)
Members: J. Chen (China), A.S. Monin (Russia), S. Uyeda (Japan)
Assistant Secretary General: P. Pinet (France)
Assistant Treasurer: P. Knudsen (Denmark)

EXECUTIVE COMMITTEE FOR 1995-1999

- The Bureau
- The Past President of the Union: Professor H. Moritz (Austria)
- The Editor of the Chronicle: Professor P. Melchior (Belgium) (1995-1996)
- The Presidents of the Associations:

IAG:	*President:*	K.P. Schwarz (Canada)
	Secretary General:	C.C. Tscherning (Denmark)
IASPEI:	*President:*	C. Froidevaux (France)
	Secretary General:	ER. Engdahl (USA)
IAVCEI:	*President:*	G. Heiken (USA)
	Secretary General:	R.W. Johnson (Australia)
IAGA:	*President:*	M. Kono (Japan)
	Secretary General:	J.A. Joselyn (USA)
IAMAS:	*President:*	R.A. Duce (USA)
	Secretary General:	R. List (Canada)
IAHS:	*President:*	J.C. Rodda (UK)
	Secretary General:	G.J. Young (Canada)
IAPSO:	*President:*	R.D. Muench (USA) (1995-1996)
	Secretary General:	F.E. Camfield (USA)

(The Secretaries General of the Associations may attend any meeting of the Executive Committee of the Union in an advisory capacity.)

FINANCE COMMITTEE FOR 1995-1999

President: A.A. Ashour (Egypt)
Secretary: A.F. Spilhaus (USA)
Members: V.K. Gaur (India), E. Groten (Germany), M.J. Hamlin (UK)

ADMINISTRATIVE AND SCIENTIFIC REPORTS

Report of the IUGG Secretary General for the Period from the XX General Assembly to March 31, 1995

1. Membership in the Union

At the closing of the 20th General Assembly in Vienna, there were 79 member countries with the following distribution:

Europe	27
North and Central America	5
Asia	20
Africa	19
South America	6
Oceania	2

Since then, Russia replaced the ex-USSR; Czechoslovakia membership was transferred to the two daughter states: Czech Republic and Slovakia in 1993 after unanimous vote of the Executive Committee; Estonia, Croatia and Slovenija became provisional members respectively in 1992, 1993, 1994 after a vote by correspondence of the Adhering Bodies. All these memberships have to be ratified by the Council when it meets in July 1995.

During this period, many other countries expressed their desire to apply for membership, e.g. Costa Rica, Latvia, Moldova, Mongolia, Ukraine, Yemen. Correspondence with some scientists from these countries is continued by the Secretary General or via the Associations.

It must be noted that Guinea and Burundi, whose membership was accepted in 1987, have been suspended due to non payment of dues since that date.

Several other countries, being unfortunately in serious arrears of payment, are in observer status according to Statute 14.

2. Administration

Bureau

The Bureau elected at the XX General Assembly met briefly in Vienna (Aug. 23, 1991) just before the closure of this Assembly. It then met:

- in Beijing, China (June 1-3, 1992)
- in Paris, France (Nov. 16, 1993).
- in Boulder, Colorado, USA (July 18, 1994).

Each one of these meetings was followed by an Executive Committee meeting (in Beijing and Paris) or by a meeting of the Association Presidents (in Boulder).

The Bureau, on these occasions and by correspondence, dealt with all administrative matters. Some decisions were taken which, in conformity to the Statutes, did not require the consultation of the Executive Committee. In other cases, items were debated and then presented to the Executive Committee for decisions.

Executive Committee

It formally met two times:

- in Beijing, China (June 3-5, 1992)
- in Paris, France (Nov. 17-18, 1993) in accordance with by-law 12.

In addition, a meeting of the Association Presidents with the Bureau took place in Boulder, USA (July 19–20, 1994).

At the Beijing meeting, important discussions took place on the consequences of the recent geopolitical changes, and especially the policy to be adopted with respect to the Republics of the former Soviet Union; the decision was to be in line with ICSU policy by which those Republics could become member with no formality, should they so desire. A change in statute 4 was also analyzed and discussed, which resulted in the proposal made this year to the Council (together with other proposals for changes in various items of the statutes and by-laws). The Associations reported at length on their scientific activities and fruitful exchanges took place. The agenda for the meeting (Reading, UK, Dec. 1992) of the Fluid Earth Sciences Committee was also

prepared, with emphasis on geochemistry and environmental problems.

The Paris meeting was a key one in that it was largely devoted to the preparation of the 21st General Assembly. The Chairman of the Program Committee at Boulder was invited and the main items of the program of Union symposia and interdisciplinary symposia were established. Proposals for Union lectures were also discussed. Besides regular administration matters and reviews, it was decided that: the Fluid Earth Sciences Committee (which met for a short time in Paris) would lie dormant because all past problems had been clarified. The Finances of the Associations were discussed, following works of and correspondence between the Finance Committee chairman (who was present at the meeting), the President of IAGA and the Treasurer. An adhoc committee was formed to prepare a well documented proposal for the next year. An important proposal on changes of statutes and by-laws of IAVCEI was discussed; some items were found to be in conflict with the Union statutes and IAVCEI was asked to make proper revisions. For the first time, the seven Secretaries General of the Associations held a separate meeting which was very fruitful in exchanging views on day-to-day business and the general running of the Associations.

Boulder was chosen as the place of the last meeting before the 21st General Assembly, since this offered the opportunity to everyone concerned to visit the premises and have a better view of the facilities. An account of the logistics and local organization was given by the Local Host Committee (chaired by the past Vice-President of IUGG). During the meeting, at which the Program Committee Chairman was invited, many features of the scientific program itself but also of the overall organization were reviewed. On the other hand, important questions were discussed: structural changes proposed by the Associations Secretaries General (versus other proposals and versus the study and report of the Advisory Board on Scientific Policy—see further down), revised proposal for changes of the IAVCEI statutes, proposal for the finances of IUGG and of the Associations (made by the adhoc committee formed in Paris). Furthermore the chairmen of the Committee on Mathematical Geophysics and of the Inter-Union Commission on the Lithosphere were invited and came to deliver a report on their activities.

Advisory Board on Scientific Policy

This special Board was established by the Bureau in 1989. Following the "Recommendations concerning missions and objectives of IUGG" (Chronicle 204, pp. 4-9, 1991), this committee continued to operate under the chairmanship of the Vice-President, with the Association Presidents and two outsiders as members. The committee mostly worked by correspondence. The 1991 document was revised. The implementation of recommended actions was found difficult. However, an outcome is a set of modifications to the IUGG Statutes and By-Laws which are to be presented to the Council at Boulder (they were prepared by a smaller committee).

Secretariat

All documents, current files and archives, were moved in September 1991 from Brussels (Belgium) to the office of the new Secretary General (SG) in Toulouse (France) in September 1991, following a visit of the SG to the Honorary Secretary General (Baron Prof. P. Melchior). Specific documents necessary to run the production and distribution of the Chronicle remained in Brussels and will be left there until the end of 1995, at the time when the responsibility of this publication is to fall under the present SG. An assistant Secretary General was nominated. Besides helping the SG, his role will be to take the responsibility of the Chronicle on January 1, 1996.

The Secretariat work has been growing rapidly over these years due to an increase of the number of documents to be circulated, of faxes, electronic-mail messages ... This is performed thanks to two part time secretaries (who also work for the Bureau Gravimétrique International—one of the FAGS offices, and for a department of the French Space Center). A large part of the logistics is covered by the French Space Agency.

The SG has managed the daily administration of the Union, the circulation of all information and documents of interest, the announcement of meetings, reports of administrative or scientific nature, of which many were published in the Chronicle. He has prepared the agendas and the minutes of the meetings of the Bureau and Executive Committee and participated in all these meetings at which he presented a summary report of the Secretariat works. He also prepared and circulated the program

and agendas of the meetings that the Council, the Executive Committee and the Bureau will held at Boulder and visited (with other members of the Executive Committee and Bureau) the place of this coming General Assembly in 1994.

He visited the Union President, the Vice-President and the Honorary Secretary General, for administrative discussions and on the occasion of personal travel for scientific business. He also met the IAVCEI President and Secretary General to specifically discuss their statute changes proposal. He met with the Scientific Programme chairman of the 21st Assembly in France. He was appointed secretary of the IDNDR Committee (after the transfer of its prerogative to the Executive Committee) and prepared its meetings, agendas and minutes in 1993 and 1994; in this position he also attended the UN Conference on IDNDR (Yokohama, Japan) in May 1994 at which he presented a poster on the Union activities in this domain (with the help and worthy contribution of some Associations). He is to travel to the FAGS Council Meeting (April 1995) as new representative of IUGG (after P. Melchior).

Whenever known, changes in the composition of the National Committees were immediately put in the computerized data base and the information circulated widely. This data base initially came from the office of the Honorary Secretary General and is permanently updated. The address, telephone and fax numbers of over 2500 persons related to IUGG are in computerized form and will be the basis of the future yearbook (1996).

The SG has prepared the annual report to ICSU for 1991, 1992, 1993 and 1994 as well as the requests for ICSU-UNESCO grants every year (presentation of three projects at a time) following inputs from the Associations. He also managed the allocation of grants to the organizers of twenty symposia, workshops, schools in different areas, and of grants to individuals to attend the 21st General Assembly (after consulting the Associations and Commissions).

The SG organized the provisional admission of new Member Countries: circulation of applications, discussion and voting of the Executive Committee, vote by correspondence of all current Members.

The SG prepared the proposals for changes in the Union Statutes and By-Laws which are to be discussed by the Council at Boulder.

Finance Committee

The Finance Committee met in September 1993 in Tortosa (Spain). It examined the financial situation and the budget of the Union. The Chairman of this Committee attended one session of the Executive Committee meeting in Paris (Nov. 1993) at which he was invited.

The Finance Committee will report to the Council.

3. Scientific Activities of the Union

They have been reported at each meeting of the Executive Committee and are the core of the annual activity report to ICSU. In particular, the scientific assemblies which most Associations have held in 1993 and 1994 have been reported in the 1993 report to ICSU, of which copy was sent to all Adhering Bodies or National Committees) and in the 1994 report. Reports on attendance, various symposia, highlights ...also appeared in several issues of the Chronicle.

To summarize, these are the Association Scientific Assemblies which took place during this period:

- IAG, Beijing (China): Aug. 8-13, 1993 (350 participants from 33 countries)
- IASPEI, Wellington (New Zealand): Jan. 10-21, 1994 (483 participants from 42 countries)
- IAVCEI, Canberra (Australia): Sept. 25-Oct. 1, 1993 (600 participants from 40 countries)
- IAGA, Buenos-Aires (Argentina): Aug. 8-20, 1993 (505 participants)
- IAMAP and IAHS held a joint scientific assembly, with 450 participants, in Yokohama (Japan): June 12-23, 1993.

IAPSO had put all efforts in preparing the 21st General Assembly. Unfortunately, in the fall of 1994, the Executive Committee of this Association deemed the University of Colorado at Boulder non appropriate to their sessions and consequently decided to hold a separate scientific assembly in Hawaii in August 1995, despite all efforts made by

the Bureau, the U.S. organizers and the Program Committee to bring them back to Boulder.

IAPSO has planned a joint scientific meeting with IAMAP in 1997, in Melbourne (Australia).

The number of Symposia organized by the Associations, the various commissions and committees (of the Union, of ICSU, or inter-Association ones), of direct interest to geodesy and geophysics, has been very large. Every time it was possible, announcements appeared in the Chronicle and/or reports were published afterwards.

Besides, IUGG has been deeply involved in natural disaster reduction activities via its Associations. Many of them have projects in the framework of the UN program for the decade (IDNDR). Moreover the Union, with its Past President, has been fostering a project to study instabilities of megacities. At the Executive Committee meeting in Beijing (1992) it was decided to transform the IDNDR Committee created in 1990 and to pass the action to the Associations. The newly formed committee consists of the Associations Presidents, Bureau members and Past President (the secretariat is done by the Union SG). At the Yokohama UN conference in 1994, the committee presented several posters. A brochure illustrating the works of the Associations in this domain is in preparation.

4. Inter-Association Commissions

Mathematical Geophysics

This committee held two meetings of high scientific level:

- in Taxco (Mexico): 21-26 June 1992, organized in four sessions (Inverse problems; lithospheric dynamics; low frequency observation of the Earth's structure; non linear dynamics and the solid Earth)

- in Villefranche-Sur-Mer (France): 19-24 June 1994, it was entitled "Complex space-time geophysical structures", and dealt with the physics of earthquakes, geophysical turbulence, self-organization, mantle dynamics and seismic tomography, coupled Earth processes.

SEDI (Study of the Earth's Deep Interior)

It is also a very active group which has yielded the formation of SEDI national groups (e.g. in the US, in Japan, in Canada, in China, in France).

Two international symposia were held: in Mizusawa (Japan) in 1992, and in Whistler (B.C., Canada) in 1994.

Tsunami Commission

This commission, created long ago by IAPSO and IASPEI, works closely with senior inter-governmental bodies, notably IOC and UNESCO. It was very active during the elapsed period (16th Int. Tsunami Symposium, contribution to IDNDR, establishment of an electronic Bulletin Board on Internet, publication of scientific articles).

5. Inter-Union Commissions and ICSU Bodies

International Commission of the Lithosphere

It is a joint commission of the International Union of the Geological Sciences and of IUGG, created in 1980, and it is unanimously recognized as serving an important role in improving collaboration between these two families since many of the most important questions in Earth Sciences require interaction between these.

ICL terminates its third five-year term with the completion of many activities (continued from the second term, and new ones) with the following themes: the geoscience of global change, contemporary dynamics and deep processes, continental lithosphere, oceanic lithosphere. A review by ICSU took place in the fall of 1994, which was very positive.

IUGG strongly supports the continuation of this commission after 1995. The Associations have been asked to appoint a liaison scientist to interact with the Union representative on ICL in his relationship with this commission.

ICSU

The IUGG President represents the Union in the General Committee and attended the General As-

semblies of ICSU. He was also elected member of the ICSU Executive Board.

Projects like IGBP continue to receive great attention and ties established by the Associations resulted in many projects reflecting the input of IUGG.

Since 1991, fifteen projects have been financially supported by ICSU-UNESCO grants in the various areas of activity of IUGG.

ICSU Committees

FAGS: It is a federation of nine services, initiated by and having strong links with IUGG, IAU and URSI. These services hold world data bases, dedicated to certain domains and are very efficient at re-distributing information, after thorough validation or in very elaborated form. This efficiency results from the direct links which exist with the community of contributors and users, from the high degree of expertise and technicality of the scientists and staff which operate these services, and thanks to the generous support of the national organizations which house them.

WDCs (World Data Centres): The spirit by which these centres operate (mass archival, strictly speaking) is quite different from FAGS.

Ideas for a tentative merging of the WDCs, FAGS and CODATA were put up by ICSU during this period but aborted when this fact (of the basic difference between these bodies) was recognized.

On the occasion of the reviewing of the ICSU Panel on WDCs membership, and after realizing that our official representation had been non-effective, the IUGG Executive Committee decided that the Associations will in the future directly link with this panel.

CODATA: Following recommendations by our representative, considering that the major domain of activity and interests of CODATA (mostly biology oriented) were drifting away from those of the Union, the Bureau and Associations Presidents decided, in July 1994, to withdraw from this Committee at the Union level, but to keep links via some Associations wherever necessary, for higher efficiency.

Other Committees

The Union continues to cooperate with several other committees of ICSU and plays some role in their activities thanks to the participation of representatives, who support the Union views in these Committees and at some of their meetings and report to the Union. They are: COSPAR, SCAR, SCOPE, SCOR, SCOSTEP. COWAR was closed in 1993 (it became another committee with individual members only). In 1991, the IUGG Council decided to stop the support of CTS; however the former representative was sent to a meeting of this committee in July 1993 (Paris, France).

6. Other Bodies

- The Union has representatives on WMO, IHO. It is to be noted that WMO holds a great number of meetings; many of them have been attended by our representative (the Secretary General of IAMAP) plus sometimes the Secretary General of IAHS. Our representative on IHO has apparently been inactive.

- Our liaison officer with UNESCO has been very active. An inventory of the relationships between the Associations and some UNESCO Divisions was made, which is part of a report annexed to this document.

- The Union has also liaison officers with the Pan American Institute of Geography and History (which has direct links with IAG).

7. The Chronicle

The Chronicle was established in 1957 by G. Laclavère (who died on September 26, 1994, after a long illness). The continuation of the publication of the Chronicle since 1991 has been the responsibility of P. Melchior; 19 issues (207 to 225) have been published, at a rate of five issues per year (instead of six during the previous period). Printing costs have been kept very low thanks to the effort of P. Melchior, and thanks to the sponsoring of the mailing by the Museum of Natural History of the Grand Duchy of Luxembourg. Besides the free distribution in the member countries (three copies per unit of subscription), there are over 200 subscriptions per year on average (217 in 1994), a non negligible percentage being not paid!

Unfortunately the Chronicle experiences a very severe crisis. Although it constitutes the memory of the Union, where one should in principle find all traces of activity, meetings, symposia, ..., the adhoc

information which normally should regularly flow from the Associations does not, or with difficulty. Whereas a couple of Associations, plus a few individuals, chairmen of commissions, etc., provide regular input to the Chronicle, the majority seems not to find enough time (interest?) for doing so, and it has been more and more difficult to get publishable material in the last years. On the occasion of the 75th anniversary of the Union (IUGG was one of the first three international unions founded in 1919), the Associations were asked in mid-1994 to write a summary of their history and main achievements for publication in the Chronicle but most of them have been very slow at doing it (or even did not yet provide their text). Also, the National Committees have been invited to write in the Chronicle, but with no effect so far.

These difficulties have been discussed among Bureau members and Association Presidents, and it was decided to create an Editorial Board composed of the Secretary General and his assistant, and with the Association Secretaries General (or another representative). The role of this board is: (i) to collect material to be sent to the present editor of the Chronicle until the end of 1995, at which date the responsibility of the publication will be transferred to the SG office (and more precisely to the Assistant Secretary General); (ii) to maintain the Chronicle in the most interesting form, especially by bringing in better status reports, outlooks for the future, reviews of inter-Association activities.

8. Conclusion

Taking over the position of my brilliant predecessor P. Melchior has been quite a task, although it was made easier by his constant help as I was setting out in office. His help from time to time, when I discovered new facets of my responsibilities, is also gratefully acknowledged.

I heartily thank all those who also helped me, regularly or on occasion, and especially the Union President, Bureau Members, and many Association Presidents and Secretaries General.

As I am going to remain in office (I now fully understand the contents of by-law 10, paragraph 2: the minimum time required to master the diversity of affairs is quite long!) some of those faces will change. I welcome the new ones and wish that, like their elders, they quickly cooperate and help me in my duties.

G. Balmino
IUGG Secretary General
March 31, 1995

Rapport du Secrétaire Général Pour la Période Écoulée Entre la XX ième Assemblée Générale et le 31 Mars 1995

1. Pays membres de l'Union

A la clôture de la XX ième Assemblée Générale à Vienne, il y avait 79 pays membres ainsi répartis:

Europe	27
Amérique du Nord et Centrale	5
Asie	20
Afrique	19
Amérique du Sud	6
Océanie	2

Depuis, la Russie a remplacé lex-URSS; la République Tchèque et la Slovaquie ont hérité leur appartenance à l'Union de celle de la Tchécoslovaquie dont elles furent issues en 1993; l'Estonie, la Croatie et la Slovénie sont entrées dans l'Union respectivement en 1992, 1993, 1994 après vote par correspondance des organismes adhérents. Toutes ces adhésions doivent être ratifiées par le Conseil à sa réunion de juillet 1995.

Durant cette période, beaucoup d'autres pays ont exprimé le désir de faire partie de l'Union, par exemple Costa-Rica, la Lettonie, la Moldavie, la Mongolie, l'Ukraine, le Yémen. Des liens épistolaires se sont établis avec le Secrétaire Général ou via les Associations.

Il faut remarquer que la Guinée et le Burundi, dont la demande d'adhésion avait été acceptée en 1987, ont été suspendus du fait de non paiement de leur cotisation depuis leur entrée.

Bien d'autres pays, ayant malheureusement de nombreuses années de retard de paiement de leur cotisation, sont en position d'observateur, par application du Statut 14.

2. Administration

Bureau

Le Bureau élu à la XXième Assemblée Générale s'est réuni brièvement à Vienne (23 Août 1991) avant la clôture de cette Assemblée. Il s'est ensuite réuni:

- à Pékin, Chine (1-3 juin 1992)
- à Paris, France (16 nov. 1993)
- à Boulder, Colorado, USA (18 juillet 1994).

Chacune de ces réunions fut suivie d'une réunion du Comité Exécutif (à Pékin et Paris) ou d'une réunion avec les Présidents d'Associations (à Boulder).

En ces occasions, et aussi par correspondence, le Bureau a traité toutes les affaires administratives et a pris, lorsque lavis du Comité Exécutif n'était pas requis, les décisions qui s'imposaient conformément aux Statuts. Dans les autres cas, le Comité Exécutif fut consulté.

Le Comité Exécutif

Il s'est réuni formellement deux fois:

- à Pékin, Chine (3-5 juin 1992)
- à Paris, France (17-18 nov. 1993) en conformité avec l'article 12 du règlement intérieur.

De plus, une réunion des Présidents d'Associations avec le Bureau se tint à Boulder, USA (19-20 juillet 1994).

A Pékin, des discussions importantes eurent lieu sur les conséquences des récents changements géopolitiques et en particulier sur la conduite à adopter par rapport aux Républiques de l'ex-URSS; la décision fut prise de suivre la voie du CIUS suivant laquelle ces pays pourraient devenir membre, sans formalité, s'ils le désiraient. Un changement du statut no. 4 fut aussi analysé et discuté, dont le résultat est la proposition faite au Conseil cette année (outre les autres propositions de modification d'articles des statuts et du règlement intérieur). Les Associations exposèrent longuement leurs activités scientifiques majeures en des échanges fructueux. L'ordre du jour de la réunion du Comité des Sciences Fluides (Reading, G.B., déc. 1992) fut également préparé, en insistant sur les questions de géochimie et d'environnement.

La réunion de Paris fut cruciale en ce quelle fut essentiellement consacrée à la préparation de la

21.ième Assemblée Générale. Le Président du Comité des Programmes de Boulder fut invité et les caractéristiques principales de ce programme concernant les symposia de l'Union et ceux inter-Associations, furent établies. Des propositions pour les Conférences de l'Union furent aussi discutées. Outre d'autres questions administratives et générales, il fut décidé que le Comité des Sciences Fluides (qui eut également une courte réunion à Paris) pourrait rester inactif jusqu'à nouvel ordre, tous les problèmes passés ayant été éclaircis. Le financement des Associations fut discuté, suite aux travaux (la plupart par correspondance) du Président du Comité des Finances (qui avait été invité à Paris pour cette occasion), du Président de l'AIGA et du Trésorier. Un Comité ad'hoc fut formé pour préparer une proposition bien étayée pour l'année suivante. Une importante proposition de changements des statuts et règlement intérieur de l'AIVCIT fut discutée; certaines parties furent déclarées en net conflit avec les Statuts de l'Union et l'AIVCIT fut requise d'y apporter les modifications adéquates. Pour la première fois, les sept Secrétaires Généraux d'Associations tinrent une réunion indépendante durant ce séjour à Paris, qu'ils jugèrent très enrichissante par l'échange de points de vue variés sur la gestion des affaires quotidiennes et la conduite générale des Associations.

Boulder fut sélectionné pour la dernière réunion précédant la 21.ième Assemblée Générale car offrant la possibilité à tout un chacun de visiter l'emplacement de l'Assemblée et d'avoir sa propre vision des possibilités offertes. Les questions de logistique et d'organisation locale furent présentées par le Comité Local d'accueil (présidé par le Vice-Président sortant de l'UGGI). Durant cette réunion, à laquelle le Président du Comité des Programmes fut convié, de nombreux aspects du programme scientifique lui-même mais aussi de l'organisation générale, furent examinés. Sur un autre plan, d'importantes questions furent discutées: des propositions de changements de structure faites par les Secrétaires Généraux d'Associations (comparées à d'autres propositions, ainsi qu'au rapport présenté par le Conseil d'avis sur la politique scientifique—voir ci-après), la proposition révisée de changements de statuts de l'AIVCIT, la proposition sur le financement de l'UGGI et de ses Associations (élaborée par le comité ad'hoc formé à Paris). De plus, les Présidents du Comité de Géophysique Mathématique et de la Commission Inter-Unions sur la Lithosphère furent invités et présentèrent l'essentiel des activités de ces groupes.

Le Conseil d'avis sur la politique scientifique

Ce comité spécial, établi par le Bureau en 1989, après la publication des "Recommandations concernant les missions et objectifs de l'UGGI" (Chronique 204, pages 4-9, 1991), a poursuivi ses travaux sous la présidence du Vice-Président de l'Union, avec comme membres les Présidents d'Associations plus deux membres extérieurs. Ce comité a essentiellement travaillé par correspondance. Le document de 1991 a été révisé, des actions recommandées mais leur mise en application trouvée difficile. Un des produits de ces travaux est l'ensemble des modifications aux Statuts et Règlement Intérieur de l'UGGI, qui sont proposées au Conseil à Boulder (elles furent préparées par un plus petit comité).

Le Secrétariat

Tous les documents, fichiers et archives furent transférés en septembre 1991 de Bruxelles (Belgique) au bureau du nouveau Secrétaire Général (SG), à Toulouse (France), après une visite de ce dernier auprès du Secrétaire Général Honoraire (Baron Prof. P. Melchior). Les documents particuliers nécessaires à la production et à la distribution de la Chronique restèrent à Bruxelles où ils continuent à être utilisés jusqu'à la fin 1995, date à laquelle le bureau de l'actuel SG doit prendre en charge cette publication. Un assistant au Secrétaire Général fut nommé. Outre l'aide ponctuelle qu'il apporte au SG, son rôle sera de prendre effectivement la responsabilité de la Chronique au 1er janvier 1996.

La charge de travail du secrétariat s'est accru rapidement ces dernières années du fait de l'augmentation du nombre de documents à mettre en circulation, du développement du facsimilé et des messageries électroniques ... Ce travail est mené à bien grâce à deux secrétaires affectées à temps partiel (elles travaillent aussi pour les secrétariats du Bureau Gravimétrique International—l'un des services de FAGS, et d'un département de l'Agence Française de l'Espace—CNES). Une grande partie des besoins logistiques est couverte par le CNES.

Le SG a assuré la gestion journalière de l'Union, la circulation de toute information et tous documents

intéressants, les annonces des réunions, les rapports sur des questions administratives ou scientifiques, dont beaucoup furent publiés dans la Chronique. Il a préparé l'ordre du jour et les procès-verbaux des réunions du Bureau et du Comité Exécutif et a participé à toutes ces réunions—auxquelles il présenta à chaque fois les activités du Secrétariat. Il a également préparé le programme et l'ordre du jour des réunions que le Conseil, le Comité Exécutif et le Bureau tiendront à Boulder et a visité en 1994 (avec d'autres membres du Comité Exécutif et du Bureau) le site de l'Assemblée Générale à venir. Il a rendu visite au Président, au Vice-Président, et au Secrétaire Général Honoraire, pour des questions administratives, et ce à l'occasion de déplacements personnels dans le cadre de ses activités scientifiques. Il a aussi rencontré le Président et le Secrétaire Général de l'AIVCIT pour débattre spécifiquement de leur proposition de changements de Statuts. Il a rencontré en France le Président du Comité des Programmes de la 21.ième Assemblée. Il a été nommé secrétaire du Comité IDNDR (après sa transformation en une commission du Comité Exécutif) et a préparé ses réunions, ordres du jour et procès-verbaux en 1993 et 1994; à ce titre, il a assisté à la conférence sur les risques naturels organisée par l'ONU en mai 1994 (Yokohama, Japon) et y a présenté un "poster" sur les activités de l'Union dans ce domaine (avec l'aide et la contribution notable de certaines Associations). Il assistera à la réunion du Conseil de FAGS (avril 1995), auprès duquel il représente l'Union à la suite de P. Melchior depuis le début de l'année.

Tout changement connu dans la composition des Comités Nationaux fut immédiatement incorporé dans la base de données informatisée et la circulation de telles informations fut assurée. La base de données initiales fut fournie par le Secrétaire Général Honoraire, et elle est régulièrement mise à jour. Les adresses, numéros de téléphone et de facsimilé de plus de 2500 personnes en relation avec l'UGGI sont ainsi informatisés et constituent la base de l'Annuaire futur (1996).

Le SG a préparé les rapports annuels au CIUS pour 1991, 1992, 1993 et 1994, ainsi que les requêtes de soutien financier par le CIUS et l'UNESCO d'après les demandes des Associations (trois projets ont été soumis chaque année). Il a aussi procédé à des allocations financières de soutien pour vingt symposia, ateliers de travail, écoles, dans des domaines divers, et a alloué des soutiens individuels pour la participation à la 21.ième Assemblée Générale (après avis pris auprès des Associations et Commissions).

Le SG a contrôlé les étapes du processus d'admission provisoire des nouveaux membres: mise en circulation des demandes d'adhésion, discussion et vote par le Comité Exécutif, vote par correspondance des membres courants.

Le SG a préparé les propositions de changements de Statuts et de Règlement Intérieur qui seront discutés par le Conseil à Boulder.

Le Comité des Finances

Le Comité des Finances s'est réuni en septembre 1993 à Tortosa (Espagne). Il a examiné la situation financière et le budget de l'Union. Le Président de ce Comité a été invité et a participé à une session de la réunion du Comité Exécutif à Paris (Nov. 1993). Le Comité des Finances fera son rapport au Conseil.

3. Les Activités Scientifiques de l'Union

Elles ont été exposées et discutées à chaque réunion du Comité Exécutif et leur description a constitué la partie essentielle du rapport annuel au CIUS. En particulier, les Assemblées Scientifiques que les Associations ont organisées en 1993 et 1994 ont été décrites dans le rapport de 1993 au CIUS (copie fut envoyée à tous les organismes adhérents et Comités Nationaux), et dans le rapport similaire pour 1994. (Copie de ce dernier rapport vous est adressée avec ce document.)

Des rapports sur la participation à ces assemblées, les symposia organisés, les événements marquants ... ont été publiés dans divers numéros de la Chronique.

Pour résumer, voici la liste des Assemblées Scientifiques des Associations qui se sont tenues durant la période écoulée:

- AIG, Pékin (Chine): 8-13 août 1993 (350 participants de 33 pays)

- AISPIT, Wellington (Nouvelle-Zélande): 10-21 janvier 1994 (483 participants de 42 pays)

- AIVCIT, Canberra (Australie): 25 sept.-1 oct. 1993 (600 participants de 40 pays)

- AIGA, Buenos-Aires (Argentine): 8-20 août 1993 (505 participants)

- AIMPA et AISH tinrent une Assemblée Scientifique commune, avec 450 participants, à Yokohama (Japon): 12-23 juin 1993.

AISPO mit beaucoup d'efforts à la préparation de la 21.ième Assemblée Générale. Malheureusement, à l'automne 1994, le Comité Exécutif de cette Association jugea que l'Université de Colorado à Boulder n'offrait par les qualités suffisantes à la tenue de leurs sessions et en conséquence décida d'organiser une Assemblée Scientifique séparée à Hawaï en août 1995 malgré les efforts répétés du Bureau de l'Union, des organisateurs américains et du Comité des Programmes. Par ailleurs, AISPO a planifié une Assemblée Scientifique commune avec AIMPA pour 1997 à Melbourne (Australie).

Le nombre de symposia organisés par les Associations, les diverses commissions et les comités (de l'Union, du CIUS, ceux inter-Associations) et d'intérêt direct pour la géodésie et la géophysique a été très grand. Chaque fois que possible, l'annonce de ces manifestations et/ou les rapports sur leur déroulement ont été publiés dans la Chronique.

Par ailleurs, l'Union est impliquée dans des activités de recherche liées à la réduction des risques naturels, à travers ses Associations. Plusieurs d'entre elles ont mis sur pied des projets dans le cadre du programme décennal des Nations Unies pour la réduction des risques majeurs (IDNDR). De plus l'Union, par son Président sortant, a établi un projet d'étude des instabilités des mégapoles.

Lors de la réunion du Comité Exécutif qui se tint à Pékin (1992), il fut décidé de transformer le comité IDNDR que l'Union avait créé en 1990 et de transférer ses prérogatives aux Associations. Ainsi le nouveau comité est formé par les Présidents d'Associations, les membres du Bureau et le Président sortant (le secrétariat est assuré par le SG de l'Union). A la conférence de Yokohama organisée par lONU en 1994, le comité présenta plusieurs "posters". Une brochure illustrant les travaux des Associations dans ce domaine est en préparation.

4. Les Commissions Inter-Associations

Comité de Géophysique Mathématique (CMG)

Ce comité a organisé deux réunions de haut niveau scientifique:

- à Taxco (Mexique), du 21 au 26 juin 1992, avec quatre sessions sur différents thèmes (problèmes inverses, dynamique de la lithosphère, observations à basse fréquence de la structure de la Terre, dynamique non linéaire et Terre solide).

- à Villefranche-Sur-Mer (France), du 19 au 24 juin 1994, sous le titre "Complexité spatio-temporelle en géophysique" avec des sessions sur la physique des séismes, la turbulence en géophysique, l'auto-organisation, la dynamique mantellique et la tomographie sismique, les processus couplés dans la Terre.

SEDI (Étude de l'Intérieur de la Terre)

C'est aussi un groupe très actif, qui a engendré la formation de groupes nationaux (par exemple aux USA, au Japon, au Canada, en Chine, en France). Deux symposia internationaux furent organisés: à Mizusawa (Japon) en 1992, et à Whistler (Col. Brit., Canada) en 1994. SEDI a également soutenu et contribué à plusieurs autres symposia dans des réunions scientifiques internationales.

Commission sur les Tsunamis

Cette commission, créée à l'origine par l'AISPO et l'AISPIT, travaille en collaboration avec la COI et l'UNESCO. Elle a été très active durant la période écoulée (organisation du 16.ième symposium international sur les tsunamis; contribution à IDNDR; mise sur pied d'un bulletin d'information électronique sur Internet; publications).

5. Commissions Inter-Unions et du CIUS

Commission de la Lithosphère

Elle est commune à l'Union Internationale des Sciences Géologiques et à l'UGGI, a été créée en 1980 et est unanimement reconnue pour son rôle dans l'amélioration des coopérations entre ces deux Unions, car bien des plus importantes questions en

sciences de la Terre nécessitent une réelle interaction entre elles.

La commission termine son troisième quinquennat avec l'achèvement d'activités majeures (entreprises dès le second terme, ou nouvelles) sur les thèmes suivants: les géosciences et le changement global, dynamique contemporaine et processus profonds, lithosphère continentale, lithosphère océanique. Le CIUS a examiné, en automne 1994, les travaux accomplis par la commission et un jugement très positif a été émis. L'UGGI encourage fortement la poursuite de ces activités après 1995. Les Associations ont été chargées de nommer un scientifique en leur sein, qui sera chargé d'interagir directement avec le représentant de l'Union à cette commission.

Le C.I.U.S.

Le Président représente l'UGGI au Comité Général du CIUS, et a assisté aux Assemblées Générales. Il a été en outre élu membre du Bureau Exécutif du CIUS.

Des programmes tels que IGBP continuent à retenir toute notre attention et les liens établis par les Associations reflètent la présence de l'UGGI dans maints projets.

Depuis 1991, quinze projets ont été financièrement aidés par des allocations mixtes CIUS-UNESCO dans divers domaines dintérêt de l'Union.

Les Comités du CIUS

- FAGS:

Cest une fédération de neuf services fondés par et ayant des liens très forts avec l'UGGI, l'UAI, et l'URSI.

Ces services maintiennent des bases de données mondiales, spécialisées à certains domaines, et sont très performants dans la redistribution de l'information après validation et sous des formes plus ou moins élaborées. Cette efficacité est due aux relations directes qui ont été établies avec la communauté des fournisseurs et utilisateurs de ces données, à l'expertise très pointue et à la technicité des scientifiques et des personnels chargés de ces travaux, sans oublier le soutien généreux des organismes nationaux qui hébergent ces services.

- Les Centres Mondiaux de Données (WDC):

L'esprit dans lequel ces centres opèrent (archivage de masse, stricto senso) est fort différent de celui de FAGS. Des idées furent avancées pour tenter de réunir ces centres avec CODATA et les services de FAGS, qui avortèrent lorsque furent reconnues les différences fondamentales.

A l'occasion d'un examen de la composition des représentants au Comité de l'ICSU sur les Centres Mondiaux de données, et ayant reconnu que notre représentation avait été de fait non existante, le Comité Exécutif de l'UGGI a décidé quil était préférable que les Associations gèrent directement dans le futur leur relation avec ce Comité du CIUS.

- CODATA

Suite aux recommendations de notre représentant officiel, considérant que le domaine d'activités et les intérêts de CODATA (pour la plupart dans le secteur de la biologie) s'éloignaient de plus en plus de ceux de l'Union, les Présidents d'Associations et le Bureau décidèrent en Juin 1994 de retirer notre participation au niveau de l'Union, mais d'encourager les Associations à forger des liens directs là où ils pouvaient s'avérer utiles.

Autres Comités

L'Union continue à collaborer avec plusieurs des comités du CIUS et joue un certain rôle dans leurs activités par la participation de nos représentants qui y défendent (ainsi que dans certaines de leurs réunions) le point de vue de l'UGGI.

Ces comités sont: COSPAR, SCAR, SCOPE, SCOR, SCOSTEP. Le Comité pour la Recherche sur l'Eau (COWAR) fut dissout en 1993 (et transformé en un autre comité à adhésions individuelles). En 1991, le Conseil de l'UGGI décida d'arrêter le soutien à CTS (Comité pour l'enseignement de la Science); cependant le représentant antérieur assista à l'une des réunions de ce comité en Juillet 1993 (Paris, France).

6. Autres Organismes

- L'Union a des représentants à l'Office Mondial de Météorologie (OMM/WMO), à l'Organisation Hydrologique Internationale (IHO). Il faut remarquer que l'OMM organise un nombre extraordinaire de réunions. Notre représentant officiel (le Secrétaire Général de l'AIMPA) a assisté aux plus importantes, parfois accompagné du Secrétaire Général de

l'AISH. Notre représentant à l'IHO a été apparemment inactif.

- Notre représentant auprès de l'UNESCO a été très actif. Un inventaire des relations et actions entre les Associations et l'UNESCO a été établi (cf. un des rapports annexés à ce document).

- L'Union a aussi des représentants auprès de l'Institut Panaméricain de Géographie et d'Histoire (lequel a des liens directs avec l'AIG).

7. La Chronique

La Chronique a été fondée en 1957 par G. Laclavère (décédé le 26 Septembre 1994 à la suite d'une longue maladie). La poursuite de sa publication depuis 1991 a été sous la responsabilité totale de P. Melchior. 19 numéros (207 à 225) ont été publiés au cours de cette période, au rythme de cinq numéros par an (au lieu de six durant la période précédente). La fabrication et la publication ont pû être maintenues à un coût très bas grâce aux efforts de P. Melchior et grâce à la prise en charge de sa distribution par le Musée d'Histoire Naturelle du Grand-Duché du Luxembourg. Outre les envois gracieux dans les pays membres (à raison de trois exemplaires par unité de cotisation), il y eut un peu plus de 200 abonnements annuels en moyenne (217 en 1994), une fraction non négligeable étant restée impayée!

Malheureusement, la Chronique traverse une crise sévère. Bien qu'elle soit de facto la mémoire de l'Union, où l'on doit en principe trouver toute trace d'activité, de réunions administratives et scientifiques,... l'information qui normalement devrait régulièrement parvenir des Associations n'arrive que difficilement. Alors que quelques Associations, plus quelques personnes, présidents de commissions, etc..., font de leur mieux pour nourrir cette publication, la majorité semble n'avoir pas le temps (l'intérêt ?) pour le faire et il a été ainsi de plus en plus difficile d'obtenir des informations publiables au cours de ces dernières années. A l'occasion du 75ième anniversaire de l'Union (l'UGGI fut l'une des trois premières unions internationales fondées en 1919) il fut demandé aux Associations, à la mi-1994, d'écrire un chapitre de leur histoire et principales réalisations pour publication dans la Chronique, ce qui fut très difficile à obtenir (à la date de ce document, certaines Associations n'ont pas encore fourni leur texte). Par ailleurs, les Comités Nationaux ont tous été invités à écrire et publier dans la chronique, mais sans effet jusqu'à ce jour.

Ces difficultés ont été discutées par les membres du Bureau et Présidents d'Associations et un Bureau de Rédaction a été créé. Il est formé du Secrétaire Général et de son Assistant, et des Secrétaires Généraux d'Associations (ou un représentant). Son mandat est: (i) de collecter des textes et informations pour le présent rédacteur en chef (P. Melchior) jusqu'à fin 1995, date à laquelle la responsabilité de la publication sera transférée au bureau du Secrétaire Général (plus précisément à son Assistant); (ii) de maintenir une chronique sous une forme la plus attractive possible, particulièrement en contribuant à l'apport de textes, comptes-rendus, rapports prospectifs, informations et revues sur les activités inter-Associations...

8. Conclusion

Il va sans dire que prendre la suite dun précédesseur brillant comme P. Melchior ne fut pas une mince affaire, bien que ma tâche ait été facilitée par l'aide constante qu'il ma apporté au début de ma prise de fonctions. Je le remercie très vivement aussi pour ses conseils chaque fois que je découvrais d'autres facettes de mes responsabilités. Je remercie aussi de tout coeur toutes les autres personnes qui m'ont aidé régulièrement ou occasionnellement, et en particulier le Président de l'Union, les Membres du Bureau et la plupart des Présidents et Secrétaires Généraux d'Associations.

Je reste en poste (et j'apprécie ô combien l'article 10, paragraphe 2, du règlement intérieur: le temps minimum requis pour maîtriser la diversité des affaires de l'Union est très long!) et des visages prendront la place d'autres: je leur souhaite la bienvenue et espère que, tout comme leurs prédécesseurs, ils collaboreront rapidement avec moi pour m'aider dans ma tâche.

FINANCIAL REPORTS

Report of the Treasurer

For the Period January 1, 1991 to December 31, 1994

The financial transactions of IUGG have been governed by the budget adopted by the council at the General Assembly in Vienna in 1991. The Finance Committee has been consulted concerning the outlook, that the changing economic situation for some countries resulted in difficulties with the dues payments. The budget in Vienna anticipated 1260.000 US dollars membership dues for the 4 year period. This was adjusted downwards by 50.000 US dollars by the Finance Committee, and this amount can be said to have been almost reached, since the paid 1.164.000 US dollars were supplemented by a few countries paying over 60.000 US dollars for 1994, shortly after New Year.

Grants from ICSU and income from publications have been very close to the budget.

Several expense items have been kept lower than expected in the budget (in round numbers):

administration	20.000 US dollars
travel	40.000 US dollars
publications	60.000 US dollars
dues and grants	20.000 US dollars

The expense items symposia and allocations, have been according to the budget, while the Vienna General Assembly in 1991 was 25.000 US dollars more expensive than foreseen in the budget.

Altogether this means that IUGG came out of 1994 with approximately 200.000 US dollars in the bank, which is about 70% of the yearly money flow. This is convenient and suitable for generally being able to pay bills, when payments are needed by the recipients. It is advisable that IUGG will make a budget for the coming period, which keeps this balance between reserves and yearly money flow.

The result of the 4-year period has been brought forward by a restrictive policy. The IUGG Executive Committee has proposed to tighten this restrictive policy within the common union activities and direct more money to the separate Associations.

Both IUGG and the separate Associations have felt the restrictions. To keep pace with the scientific needs IUGG has had the tradition to discuss stepwise increases of the basic unit of subscription. This has always given difficulties for some IUGG an alternate proposal is here presented for consideration by the IUGG Council, namely, to let the unit of subscription increase with the OECD inflation rate (see separate proposal).

The classification of the member countries in categories at the end of 1994 is presented in Table 1. Altogether 324 units were payable to IUGG for 1994, i.e. an amount of 370.980 US dollars.

The number of member countries is now 81, compared to 78 four years ago. DDR, and Yugoslavia have disappeared and Czechoslovakia has split into 2 states. Croatia, Slovenija, Estonia and Zaire have joined IUGG.

A large number of member countries are in arrears of payment medio MAR 1995 (Tables 2 and 3).

Table 1. Classification of Member Countries According to Categories at the End of 1994.

Category	Number of units	Number of member countries
1	1	39
2	2	13
3	3	11
4	5	6
5	7	3
6	10	3
7	15	0
8	20	4
9	25	0
10	30	1
11	35	1
12	40	0

Table 2. Arrears of Payment of Membership Subscriptions Medio March 1995.

Number of years of missing payment	Number of Countries	Number of member countries
17 (1978–1994)	1	17
11 (1984–1994)	2	22
10 (1985–1994)	1	10
8 (1987–1994)	2	16
7 (1988–1994)	1	7
6 (1989–1994)	2	18
5 (1990–1994)	2	10
4 (1991–1994)	2	8
3 (1992–1994)	9	33
2 (1993–1994)	3	14
1 (1994)	4	7

Table 3. Countries in serious arrears of payment medio March 1995

Number of years	Countries
17	Senegal
11	Madagascar, Syria
10	Lebanon
8	Iraq, Ivory Coast
7	Libya
6	Cuba, Nigeria
5	Kenya, Tanzania
4	Morocco, Sudan
3	Bolivia, Dem-Korea, Iran, Mozambique, Tunisia, Uruguay, Vietnam, Zaire, Zimbabwe

These are according to the IUGG statutes in observer status. And this has been specified in letters to these countries from the treasurers office. The arrears amount to 162 units, i.e. of the order of 185.000 US dollars. This is slightly worse than in 1991.

These serious arrears for so many member countries constitute a limitation on IUGG activities and present unreasonable inconvenience to the treasurers office. Consequently I urge the responsible authorities of those countries to seek agreements with IUGG concerning payment of debts to the IUGG, and to establish regular payments of their dues.

Finally I want to thank all those with whom I have had good cooperation as treasurer of IUGG: the IUGG Bureau, the IUGG Finance Committee, the Presidents and General Secretaries of the Associations and the Head of the publications office in Bruxelles, P. Melchior. I would also like to thank the Assistant Treasurer Frede Madsen (through 1993) and Per Knudsen (since 1994), and the Secretaries at various times in the IUGG Treasurers office in Copenhagen Jette and Birte Rogen and Allis Gregersen.

March 24, 1995
Soren Gregersen

Report of the IUGG Finance Committee - 1995

The Finance Committee held two series of meetings during the period. The first was at the Observatori de l'Ebre, Roquetes in September 1993 and the second at the General Assembly in Boulder. The Treasurer, Soren Gregersen attended all meetings of the Committee and met our needs for information capably and promptly throughout the period.

The Union is currently in a sound financial condition.

At the 1993 meeting there were substantial concerns about the budget. There had been shortfalls in both 1991 and 1992. These depleted the Union's reserves by almost $90K to approximately $127K at the beginning of 1993. The 1991 problem was largely due to over expenditure in the support of participation in the Vienna General Assembly, this kind of problem was not expected to recur. In 1992 membership subscriptions, the primary source of revenue for the Union, were 15% below budget. While these amounts might be recovered from the delinquent members, we felt that it was important to adjust the Union's spending plan to reflect the current situation. We increased our estimate of uncollectible subscriptions by $25K for 1993, and $30K and $35K for 1994 and 1995 respectively, making the total $150K instead of $60K for the period. We also instructed the Treasurer to maintain the reserve balance above $100K. The Treas-

urer was asked to cut the amount allocated to symposia as necessary to meet this goal.

Also concerned with the long term outlook the Committee requested the Secretary General to write a clear and explicit letter to every member that is in arrears informing each that they are now in observer status and the implications of that status. The Finance Committee also suggested to the Treasurer, Secretary General and the Associations that travel grants to scientists from countries in observer status should be very limited in size and number.

Financial statements for the Union and the Associations follow this report. For the Union the first report is for 1991. The Union previously budgeted for the 4 years preceding an assembly. This practice meant that there was no approved budget for assembly years until the close of the assembly at which point almost all of the expenses had been incurred. The second report covers 1992-1995, a period including the Boulder Assembly. Shown are actual income and expenditures in each of the 4 years and the actual totals as well as the budget for the period. The final report shows each of the Association's financial activity in a report covering 1991-1994.

The turnaround in Union finances was in 1993 and the reserves have now grown to above $200K again; well ahead of estimates made early in 1995. The very large amount of subscriptions paid in 1995 made a big difference, but as importantly there was careful control of costs by the Treasurer throughout the period. Most controllable accounts are under budget.

The Committee was concerned at both its meetings with General Assemblies. These Assemblies are the largest single activity of the Union, but fall almost wholly outside the Union's financial purview. The Committee recommended that the Council require as a part of any invitation a preliminary budget showing estimated costs, registration fees and other anticipated sources of income. Such a budget was presented for the proposed 1999 Assembly and we expect that this will set a precedent for the future. We also recommended that the organizing committee be required to submit a final operating budget to the Bureau not later than one year prior to the Assembly and there should be a financial report to the Union one year after the close of the Assembly. A later closing addendum should be made if all activities are not completed at that time. Such reports will give the Union an opportunity to review how the participant's fees will be spent and to assess the fiscal responsibility of the organizing committee. They will also permit the Union to determine the potential for increased financial support from the Assemblies.

When the unit of subscription was adjusted at the Vienna Assembly, the intent of the Finance Committee was that future changes would be limited to inflationary adjustments. The Committee recommended this year that the unit be adjusted annually to reflect the change in the OECD inflator for the USA in US dollars. This proposal was adopted by an overwhelming vote setting a clear course for the future. However, we must be vigilant as the number of countries in arrears or continued decreases in member support can put this plan in jeopardy. There is significant concern that there are some countries that are not in their proper categories. The Committee has recommended to its successor that a study be made of how to make improved comparisons among countries that could serve as guidelines.

The revised formula for the allocation of funds between "Union" and the "Associations" is another matter from which the Finance Committee believes the Union should take some satisfaction. The independent efforts of the Association officers and those of the Finance Committee came together in a consensus on a division of funds that appears to be considered equitable by all concerned. The formula, based on allocating a fraction of most categories of Union income, will provide about a 12% increase in total funds allocated.

Throughout the period the Finance Committee considered possibilities for the future funding of IUGG and its activities. Among these were grants from national agencies or from industry, selling the outputs of the Union such as the IGRF, grants from individual patrons of science, individual membership in the Union or the Associations, and of course higher membership subscriptions. The only area with immediate promise was the surcharge on assembly registration fees mentioned earlier. The Finance Committee has suggested that the Union require that a fraction of the registration fee be paid to the Union in support of its administration and programs. The organizers of the Boulder Assembly

offered to make such a contribution and a total of about $80,000 is expected. These funds will be allocated directly to the Associations in proportion to their attendance.

Finally the continuing members of the Finance Committee express their deep appreciation to the retiring members, Prof. Joszsef Somogyi and Father J. O. Cardus, both of whom served for 16 years, for their constant commitment to the objectives of the Union and to the work of the Committee. Father Cardus as our President, 1983-1995, twice the tenure of any previous President, led the committee with firmness and diplomacy through many difficult times and issues.

The Finance Committee - J.O. Cardus *Chairman*, A.F. Spilhaus, Jr. *Secretary*, J. Somogyi, A. Ashour, M.J. Hamlin

Accounts of the Union and of the Associations for the Period 1991-1995

IUGG Income and Expense statement for 1991 (US dollars)

RECEIPTS	1991 Actual	1991 Budget
1. Member Subscriptions	268,654	279,000
2. ICSU Grants	79,200	79,200
3. Assembly surcharge		
4. Contracts with UNESCO etc.	14,000	14,000
5. Sales of Publications	16,575	1,000
6. Miscellaneous		10,000
a. Interest	8,922	
b. Gain by Exchange		
TOTAL Receipts	387,351	383,200
EXPENDITURES		
11. Administration	34,362	42,000
11.1 Personnel		
11.2 Quarters		
11.3 Supplies		
11.4 Communications		
11.5 Travel, Adm. Only		
11.6 Miscellaneous		
12. Publications	12,615	11,000
13. Assemblies	115,127	86,700
14. Symposia	10,500	15,500
15. Allocations	142,000	142,000
Assembly surcharge allocation		
16. Dues & Grants		44,150
16.1 ICSU	7,322	
16.2 ILP	15,000	

EXPENDITURES (cont.)	1991 Actual	1991 Budget
16.3 FAGS	10,000	
16.4 Developing Countries	2,500	
16.5 SCOSTEP	1,000	
16.6 Mathematical Geophysics		
16.7 Science Teaching	400	
16.8 SEDI	4,000	
16.9 GEOS+BIOS		
16.10 IDNDR		
Special Contribution to IAGA		
17. Contracts with UNESCO etc.		81,000
.a ICSU grant to IAGA	7,000	
.b ICSU grant to IAG	5,000	
.c ICSU grant to IASPEI	55,000	
.d ICSU grant to EQ prediction	14,000	
.e ICSU grant to IAVCEI		
.f ICSU grant to IAHS		
18. Miscellaneous	6,701	7,000
TOTAL Expenditures	442,527	429,350
NET income	(55,176)	(46,150)
Cash and reserves 1/1/91	214,513	
Cash and reserves 31/12/91	159,337	
	159,337	

IUGG Income and Expense statement for 1992 through 1995 (US dollars)

RECEIPTS	1992	1993	1994	1995	Totals for 1992-1995 Actual	Budget
1. Member Subscriptions	256,485	375,973	263,229	420,699	1,316,386	1,321,575
2. ICSU Grants	67,700	32,700	32,700	30,400	163,500	163,500
3. Assembly surcharge				80,000	80,000	80,000
4. Contracts with UNESCO etc.						
5. Sales of Publications	15,566	15,798	17,225	10,588	59,177	74,000
6. Miscellaneous					13,195	40,000
a. Interest	2,413	675	2,147	6,511		
b. Gain by Exchange			1,023	426		
TOTAL Receipts	342,164	425,146	316,324	548,624	1,632,258	1,679,075
EXPENDITURES						
11. Administration					112,121	116,000
11.1 Personnel	22,423	21,509	18,707	26,089		
11.2 Quarters						
11.3 Supplies	2,241	777	666	6,644		
11.4 Communications	3,938	1,565	2,258	4,189		
11.5 Travel, Adm. Only	48,659	46,796	58,844	62,528	216,827	250,000
11.6 Miscellaneous			1,115		1,115	
12. Publications	16,156	13,325	12,470	31,000	72,951	104,000
13. Assemblies	1,705			63,859	65,564	50,000
14. Symposia	18,950	17,100	20,601	0	56,651	65,000
15. Allocations	142,000	142,000	142,000	142,000	568,000	568,000
Assembly surcharge allocation				80,000	80,000	80,000
16. Dues & Grants						
16.1 ICSU	6,604	8,977	10,220	10,731	36,532	45,000
16.2 ILP	20,000	20,000	20,000	20,000	80,000	80,000
16.3 FAGS	10,000	10,000	10,000	10,000	40,000	40,000
16.4 Developing Countries						
16.5 SCOSTEP	1,000	1,000	1,000	1,000	4,000	4,000
16.6 Mathematical Geophysics	8,000		8,000	8,000	24,000	16,000
16.7 Science Teaching	400				400	
16.8 SEDI	4,000				4,000	16,000
16.9 GEOS+BIOS						
16.10 IDNDR		3,117			3,117	16,000
Special Contribution to IAGA		8,000			8,000	
17. Contracts with UNESCO etc.						163,500
.a ICSU grant to IAGA	10,400	12,800	12,000	8,700	43,900	
.b ICSU grant to IAG			10,700	8,700	19,400	
.c ICSU grant to IASPEI	35,000	9,900	10,000		54,900	
.d ICSU grant to EQ prediction						
.e ICSU grant to IAVCEI	11,800	10,000			21,800	
.f ICSU grant to IAHS	10,500			13,000	23,500	
18. Miscellaneous	1,101	2,553	4,769	3,197	11,620	28,000
TOTAL Expenditures	374,877	329,419	343,350	499,637	1,547,283	1,641,500
Net income	(32,713)	95,727	(27,026)	48,987	84,975	37,575
Cash and reserves 1/1/92	159,337	126,624	222,351	195,325	159,337	159,337
Cash and reserves 31/12/95	126,624	222,351	195,325	244,312	244,312	196,912

Income and Expense statements for each of the constituent Associations of IUGG 1991 through 1994 totals*

RECEIPTS	IAG	IAPSO	IAHS	IAGA	IAMAS	IASPEI	IAVCEI
15. IUGG Allocation	102,800.00	84,331.00	77,500.00	104,300.00	81,628.05	76,800.00	57,500.00
2. UNESCO Grants		16,000.00	69,377.00			1,000.00	
3. Other Grants	13,134.99	146,830.00	215,913.00	67,990.17	1,891.89	183,900.00	21,800.00
4. Contracts with UNESCO	464.83		27,087.00		2,831.41	26,500.00	
5. Sales of Publications	5,735.96		843,117.00	6,504.61	298.32	93,959.61	2,983.00
6. Miscellaneous			152,473.00	19,484.13	1,089.29	52,715.70	65,271.00
a. Gains on exchange	782.96						
b. Interest	2,383.20	16,349.55					
c. Others	5,970.82						
TOTAL Receipts	131,272.76	263,510.55	1,385,467.00	198,278.91	87,738.96	434,875.31	147,554.00
EXPENDITURES							
11. Administration		106,912.31	136,380.00		17,950.04		
11.1 Personnel	8,194.73					6,133.09	2,700.00
11.2 Quarters							
11.3 Supplies	7,209.50			3,636.50		1,787.69	950.00
11.4 Communication	596.11			7,055.09		2,307.46	2,780.00
11.5 Travel	25,669.88			272.51		23,709.63	27,787.00
11.6 Miscellaneous	13,890.74			746.06		1,906.72	2,660.00
12. Publications		51,227.96	754,659.00		6,996.83		
12.1 Proceedings, Assemblies	8,890.24					502.85	
12.2 Proceedings, Symposia							
12.3 Periodicals	10,260.02			25,898.35		7,000.00	336.00
12.4 Others				6,427.66		2,808.82	9,260.00
13. Assemblies		27,503.06	56,471.00		35,468.97		
13.1 Organization	6,207.92						12,572.00
13.2 Travel	21,140.57			61,768.30		177,820.65	
14. Symposia		138,010.04	148,990.00		23,759.21		
14.1 Organization	7,514.74						13,300.00
14.2 Travel	1,591.49			37,952.22		115,219.95	900.00
16. Grants	9,339.50		84,028.00				18,120.00
17. Contracts with UNESCO	1,233.18		44,200.00		2,831.41	15,482.00	
18. Miscellaneous	3,649.17	4,694.84	23,502.00	12,476.86	579.95	21,279.54	21,534.00
TOTAL Expenditures	125,387.79	328,348.21	1,248,230.00	156,233.55	87,586.41	375,958.40	112,899.00
Net cash flow	5,884.97	(64,837.66)	137,237.00	42,045.36	152.55	58,916.91	34,655.00
Accounts receivable change			26,829.00			0.00	
Accounts payable change			111,694.00			(1,181.46)	
Net income	5,884.97	(64,837.66)	52,372.00	42,045.36	152.55	60,098.37	34,655.00
Cash and reserves 1/1/91	17,708.16	103,162.40	297,028.00	1,260.42	15,468.76	22,845.33	57,738.00
Cash and reserves 31/12/94	23,593.13	38,324.74	434,266.00	43,305.78	15,621.31	81,762.24	92,393.00

* not audited by Finance Committee

REPORTS OF UNION COMMISSIONS

Committee on Mathematical Geophysics

W. R. Peltier, Chairman, CMG

University of Toronto, Department of Physics, Canada

The Committee on Mathematical Geophysics is an Inter-Association Committee whose purpose is to promote the development and application of mathematical methods and appropriate theoretical techniques for the solution of geophysical problems across the complete spectrum of sub-disciplines. The earliest incarnation of the present CMG Committee was as the Working Group on Geophysical Theory and Computers which was initially led by V.I. Keilis-Borok and functioned as one component of the International Upper Mantle Project. Although from its earliest inception the work of this group was inclusive of many of the geophysical sub-disciplines, it is probably correct to say that its activities were driven for the most part by the field of seismology. The first meeting of the WGGTC was held in Moscow and Leningrad in 1964 and the last in Moscow in 1971 with intervening meetings held once yearly.

Subsequent to 1971 the group was re-structured as the present Committee on Mathematical Geophysics which has met on a semi-annual basis since that time, beginning with a meeting in Banff (Canada) in 1972. The schedule since 1986 has included the following sequence of major CMG sponsored conferences:

1986 Oosterbeek (The Netherlands)
1988 Blanes (Spain)
1990 Jerusalem (Israel)
1992 Taxco (Mexico)
1994 Villefranche (France)

At the time of the Oosterbeek meeting the CMG was chaired by Freeman Gilbert of the IGPP in La Jolla, California (USA) who was then completing a four year term. From 1988 until the time of the Taxco meeting in 1992, the committee was led by Albert Tarantola of the IPG in Paris (France). Although this most recent sequence of meetings has continued to include a strong component of seismology and solid Earth geophysics, beginning with the Villefranche meeting in 1994, the scope of the Committee's activities has been considerably broadened. The scientific topics addressed at this meeting were organized around the general theme of "Complex space-time geophysical structures" and included:

(1) The physics of Earthquakes
(2) Aspects of geophysical turbulence
(3) Mantle dynamics and seismic tomography
(4) Coupled Earth processes.

The goal of the present CMG Committee is to play a strongly integrative role across the full spectrum of the Union Associations in a way that is consistent with current trends in the development of the geophysical sciences. Certainly at the level of theory the present impetus is strongly towards the development of an understanding of the Earth which is less compartmentalised by subdiscipline than has been viewed as sensible in the past. The current CMG group has therefore elected to organise its ongoing activities around the theme of "Dynamic Complexity", a theme which is intended to capture the wide range of work that is presently ongoing across all of the geophysical sciences and centered generally on non-linear processes.

By way of continuing to develop its activities along the lines first established at the meeting in Villefranche, the CMG is sponsoring two major events at the 1995 General Assembly in Boulder, Colorado, namely:

A - Dynamic Complexity - A Union Symposium - U4
B - Inverse Problems in Geodesy and Geophysics—A Union Symposium—U7 (joint with IAG)

The first of these Symposia is focused upon a representative range of issues which it is the intention of CMG to continue to explore in the context of its future meetings. The second is focused upon a central aspect of theoretical geophysics that served

as one of the principal foci for CMG activities in the past.

The next CMG Conference has now been scheduled to be held in the week of June 17, 1996 in Santa Fe, New Mexico (USA) where the event will be hosted by the Santa Fe Institute. The local organising committee for this Conference, the first to be held in the USA since the Lake Arrowhead meeting in 1980, will be led by Don Turcotte of Cornell University and John Rundle of the University of Colorado. Contributing to the development of the programme and to the financial arrangements will also be Dan Rothman (MIT), the CMG Secretary for North America, Roel Snieder (Utrecht), the Vice-Chairman of the Committee and Didier Sornette (Nice), the CMG Secretary for Europe. The Conference will once again feature both fluid Earth science and solid Earth science topics as well as problems connected with the theoretical integration of composite (coupled) systems.

Committee on the Study of the Earth's Deep Interior (SEDI)

J.L. Le Mouël

SEDI is an IUGG Union Committee to study the Earth's deep interior. SEDI began as an idea at the IAGA Scientific Assembly in Prague, Czechoslovakia, in August 1985, when IAGA Working Group I (on Theory of Planetary Magnetic Fields and Geomagnetic Secular Variation) called for the creation of a project entitled International Study of the Earth's Core and Lower Mantle, with acronym ISECALM.

It became an official program of IAGA and IUGG in 1987, and Dr. Benton served as its first Chairman from 1987 to 1991. He was succeeded by Durk Doornbos in 1991 who was Chairman until his untimely death in 1993. The then Vice-Chairman J.L. Le Mouël took over as Chairman at the next IUGG meeting at Boulder, Colorado, he will be replaced by the Chairman elect Kurt Lambeck.

SEDI is rather informally run by a Bureau (in 1994 J.L. Le Mouël, Chairman; K. Lambeck, Vice-Chairman, and D. Loper, Secretary, who has served from the begining of SEDI), and an Executive Committee (24 members for the period 1991-1994). At the last SEDI meeting in Whistler, Canada (August 1994) H.C. Nataf was approved as the European Secretary of SEDI, charged with coordinating SEDI activities within Europe. A new set of officers and Committee members for the period 1995-1996 will be chosen at an open business meeting of SEDI to be held in Boulder 1995. To assist in this process a Nominating Committee has been formed to prepare a slate of candidates for consideration at that time. SEDI issues an annual newsletter "Deep Earth dialog" put together by the SEDI Secretary.

1) The main activity of SEDI consists in holding an International symposium every other year. These symposia are very well attended and are generally held as the major meeting where questions concerning the interior of the deep Earth are debated. In 1992 the meeting was held in Mizusawa (Japan), and in 1994 in Whistler (British Columbia, Canada).

2) SEDI also sponsors symposia related to the deep Earth in most international meetings:

20th General Assembly of IUCG in Vienna, August 1991

- Union symposium: Dynamics of the Earth's deep interior and Earth rotation,
- IASPEI symposium S10: Physical properties of the Earth's Interior, mantle to core,
- IASPEI workshop SW 12: International seismic observational period,
- IAGA symposium GAM 1.2: Geodynamo processes and boundary conditions,
- IAGA symposium GAM 1.3: Numerical modeling of planetary dynamos,
- IAGA symposium GAM 1.4: Core-waves instabilities and surface flow,

Meeting of European Union of Geosciences, Strasbourg 1993

- Symposium Structure and Dynamics of the Earth's inner and outer core,

AIRAPT Conference, Colorado Springs

- Session on the physics of the iron at high pressure,

IASPEI 27th General Assembly, Wellington, New Zealand, 1994

- Symposium S4: Deep Earth discontinuities: configuration and dynamics,
- Symposium S5: Structure and composition of the Earth's Interior and their relation to planetary evolution,
- Symposium S7: Seismic topography and mantle dynamics.

3) SEDI International has encouraged the formation of SEDI national groups, some of which are quite active.

- US CSEDI Initiative

A US SEDI activity was initiated in the summer of 1991 with an informal group discussion at the IUGG General Assembly in Vienna. Subsequently the plans for the activity were debated in a series of three workshops. The activity is now called CSEDI, for Cooperative Studies of the Earth's Deep Interior. CSEDI is a community initiative aimed at making major advances in understanding how the Earth works. The CSEDI initiative was approved at a general meeting held in 1992. CSEDI held its second annual meeting in Santa Fe (N.M) in October 1993. Several workshops were organised by CSEDI in 1994 ("Time for new Earth's model", "Geomagnetic polarity reversal and field behaviour from sea sediments", "Structure of the CMB and D region", "Planetary volatiles").

- The Japanese SEDI activities mostly take the form on a 3-year program initiated in 1990: "the central core of the Earth"; it issues an annual progress report. Since mid-1991 a number of scientific meetings have been held in Japan. Japan hosted the third International SEDI symposium in Mizusawa, 1992.
- Canadian SEDI (CANSEDI) sponsors the global geodynamic project, a proposal to monitor changes in the Earth's gravity field at periods of second and longer. CANSEDI hosted the 4th international SEDI symposium at Whistler Mountain, B.C. Canada, in August 1994.
- A Chinese SEDI Committee was established in 1992 and organised the 1st China SEDI Workshop in the summer of the same year.
- The French SEDI Committee initiated a four year CNRS program of cooperative research "Terre profonde". The program started with a summer school in 1993.

There are also SEDI activities in other countries, as in Great Britain (dynamo project)... A memorial fund was established after the tragic death of the second Chairman of SEDI, Durk Doornbos. It now stands at $22,000 and the interest on the fund has been sufficient to fund three prizes during the first year of operation.

It can truly be said that SEDI is in good health: nothing important in the development of deep Earth studies is done outside of SEDI.

It must be acknowledged that this happy state of affairs is due to the untiring labors of the first two Chairmen Ned Benton and Durk Doornbos and the devoted Secretary David Loper.

IUGG Tsunami Commission Activities Report 1991-1995

E. N. Bernard

Chairman, Tsunami Commission

The Tsunami Commission was very active during the past four years with major accomplishments in four areas:

1. Publication of scientific articles
2. Sponsored the 16th IUGG International Tsunami Symposium

3. Contribution to the U.N. International Decade of Natural Disaster Reduction
4. Internet electronic Bulletin Board

I. Publications

A. A selection of scientific presentations made during the 15th International Tsunami Symposium at the XX General Assembly of the IUGG in 1991, in Vienna, Austria, was published by Kluwer Academic Press in 1993 in a 228-page book entitled, "Tsunamis in the World," edited by Tsunami Commission Member Stefano Tinti of Italy.

B. The proceedings of the 16th International Tsunami symposium held in Wakayama, Japan, from August 23-27, 1993, was published as an 880-page book entitled, "Tsunami '93," edited by Yoshito Tsuchiya and Nobuo Shuto (Tsunami Commission Vice Chairman) in 1993.

C. A selection of papers from the Wakayama, Japan, International Tsunami Symposium will be published as another Kluwer book in 1995. Yoshito Tsuchiya is the editor.

In summary, 91 scientific articles on tsunami research were published from two scientific symposia. Two books and one proceedings publication contain the scientific information presented. Dr. Gerald Hebenstreit (USA member of Tsunami Commission) will edit the book from the 17th International Tsunami Symposium planned for the XXI General Assembly in 1995. Sixty-six abstracts have been submitted for the Boulder, Colorado, Symposium.

II. Sixteenth International Tsunami Symposium

From August 23 to 25, 1993, the 16th IUGG International Tsunami Symposium was held in Wakayama, Japan, in conjunction with the International Coordination Group of the Intergovernmental Oceanographic Commission. This joint Symposium was organised by the Japan Society of Civil Engineers under the talented leadership of Yoshito Tsuchiya of Kyoto University and Nobuo Shuto of Tohoku University. By any measure, the Symposium was a tremendous success. The scientific program was outstanding because the Organising Committee had (1) screened over 100 proposed presentations to 76 quality presentations, (2) required that each presentation be written as a contribution to the Proceedings before the Symposium, and (3) distributed the Proceedings at the meeting so all attendees could read along with them.

One presentation on the July 12,1993, Hokkaido Tsunami by N. Shuto had no written report because of the lack of time to include it in the Proceedings. The scientific quality of the presentations was high, and the reports on the three most recent tsunamis in Nicaragua, Indonesia, and Japan maintained audience attention. An icebreaker, a reception by the Governor of Wakayama Prefecture, and a closing banquet satisfied the participants' social needs. Tsunami '93 was a perfect blend of quality science and Japanese hospitality making for an unforgettable experience for all participants.

III. International Decade of Natural Disaster Reduction

In 1989, at the 14th International Tsunami Symposium, the Commission took a bold step to go beyond the reporting of tsunami research. The commission embraced the International Decade of Natural Disaster Reduction (IDNDR) as an opportunity to contribute to the mitigation of the effects of tsunamis throughout the globe by identifying a single need. That single focus was "an internationally accepted method for preparing tsunami flooding maps." We realised that such an effort would require international cooperation to collect appropriate data and to construct models that could realistically simulate tsunami dynamics.

Since 1991, there have been eight tsunamis six of which were major disasters killing over 1600 people. The tsunami in Nicaragua killed over 140 people; and on Flores, Java, and Halmahera Islands in Indonesia, the tsunamis killed about 1,230 people. In 1993, the HokkaidoNansei-Oki tsunami took about 200 lives and in 1994, earthquake-generated tsunamis killed over 70 people in the Philippines and Kuril Islands of Russia.

These disastrous tsunamis were surveyed by scientists from Japan, the United States, Canada, Nicaragua, Italy, and Indonesia to collect precious measurements on the extent of tsunami flooding. All scientists generously made their data available to each other and to modelers, who conducted experiments with new information. The unselfish gener-

osity of each scientist who shared these data should be recognised. This process of sharing data was made possible by the electronic mail system of Internet.

In addition to new data, a focused modelling effort was needed to convert research into useful information. In this regard, the Tsunami Commission joined with the Intergovernmental Oceanographic Commission (IOC) of the United Nations to financially support a tsunami project during the IDNDR. The project—Tsunami Inundation Modelling Exchange (TIME)—is a modelling center at Tohoku University under the direction of Nobuo Shuto that trains scientists from foreign countries in the use of numerical models to estimate the extent of tsunami flooding. In 1995, funding was made available to support the center. While awaiting word on funding, Professor Shuto has proceeded to make TIME happen. He exported his model to the United States, Turkey, Korea, and Mexico. This generous scientist who, in spite of uncertainty, proceeded to share his technology with those in need should be applauded.

IV. Tsunami Bulletin Board

The Internet system offers a technology to keep a geographically dispersed set of scientists in communication with each other. Since 1993, the Tsunami Commission has used the Internet technology to create a bulletin board in which a message can be posted and sent automatically to all subscribers of the bulletin board. As of February 1995, there are 130 tsunami scientists throughout the world who use this form of communication to share data and information on tsunamis. It has served as a vital link to coordinate international surveys of the recent swarm of tsunamis. It has served as an easy way to keep the community informed of new research, exchanging data, and keeping posted on meeting/symposia activities. The United States has contributed the resources to maintain the tsunami bulletin board.

REPORTS OF IUGG LIAISON OFFICERS WITH INTERGOVERNMENTAL ORGANIZATIONS

Report to IUGG from the representative to the Cartographic Office of the United Nations 1992–1995

Juhani Kakkuri

Finnish Geodetic Institute, Helsinki

Introduction

During the period 1992 - 1995 the following United Nations Regional Cartographic Conferences were held:

1. The Fifth Conference for the Americas in New-York in 11-15 January 1993;
2. The Thirteenth Conference for Asia and the Pacific in Beijing in 9-18 May 1994.

The author of this report took part in the conferences mentioned as a member of the national delegation of Finland. During the conferences he met officials of the UN Cartographic Office.

Geodetic Topics Considered

Most items treated in the above mentioned cartographic conferences dealt with pure cartographic subjects (map specifications, remote sensing for cartography, digital databases, geographical and land information systems, map updating, geographical names, etc.) and as such were outside the interests of the IUGG/IAG.

Also a few important geodetic subjects such as the use of the Global Positioning System (GPS) for establishing geodetic infrastructures and geodetic reference systems were treated.

In the Fifth Conference for the Americas conventional and satellite geodesy topics, including GPS, were considered. The papers under this sub-item dealt mostly with important reference systems and geodetic data. For example, the North American Datum 1983 (NAD '83), the North American Vertical Datum 1988 (NAVD '88), WGS 84, and the European Reference System 1989 (EUREF 89) were introduced to the conference. The concept of using GPS and a geoid model to provide orthometric heights was mentioned. Various possible applications of the GPS, with emphasis on marine navigation, mapping and charting, geodetic and geophysical applications, were also described.

In the Thirteenth Conference for Asia and the Pacific in Beijing in total of eight papers were presented under the sub-item, geodesy. In the papers various applications of the GPS-technology to geodesy were described, such as 1) the use of GPS for monitoring crustal deformations in seismically active areas, 2) the use of GPS to determine the positions of the camera at a time of exposure in aerial triangulation, and 3) the establishment of an accurate geodetic network with GPS through the Hawaiian Islands, American Samoa, the Marshall Islands, the Federated States of Micronesia, the Northern Mariana Islands, and the Pacific Islands for improved GPS-aided air and ship navigation systems. Also the WGS-84, which provides an accurate global reference frame, Earth gravitational model, normal gravity formula, geoid, and transformation constants with local and regional data was described.

Resolutions Adopted

The following important resolution (no. 8) was adopted in Beijing:

The Conference,

Recalling resolution 4, on regional geodetic reference systems, of the Twelfth United Nations Regional Cartographic Conference for Asia and the Pacific,

Recognizing the emergence of the Global Positioning System as a key geodetic technique which can

be employed to strengthen or complete national geodetic infrastructures,

Noting the current use of the World Geodetic System 84 (WGS-84) for mapping, charting and navigation by many nations world wide, and its adoption by the International Civil Aviation Organization (ICAO) and the International Hydrographic Organization (IHO), for aeronautical charting and nautical charting respectively,

Bearing in mind that the International Terrestrial Reference Frame (ITRF) is recommended by the International Association of Geodesy (IAG),

Cognisant of the convergence of these two systems over time and the ongoing evolution of global geodetic reference systems,

Recommends that all countries in the region adopt a geocentric reference system, as soon as practicable.

IUGG - UNESCO Relations, 1991-1994

R.D. Adams

International Seismological Centre
Newbury, UK

UNESCO, as one of the main UN agencies responsible for science, has always relied heavily on advice in relevant fields from non-governmental bodies such as IUGG, and is keen to continue and expand such contacts where possible within the limitations imposed by budgetary considerations. It must be borne in mind that UNESCO is not itself a funding agency to provide equipment or to undertake major operational programmes. Its role is to coordinate, to help in planning, and in some cases to help other organisations and governments to prepare their proposals to major funding agencies (such as UNDP) or suitable donor countries.

Much of UNESCO's contribution to IUGG is routed through a general subvention to ICSU, for direct support of IUGG for help in administration and for the allocations to Associations. In addition, it is keen to assist in training programmes, through workshops, seminars and publications, and there has thus grown up the practice of direct contracts between appropriate Divisions of the Science Sector of UNESCO and relevant Associations of IUGG to undertake specific tasks or support specific activities, often through joint working groups between UNESCO and the appropriate IUGG Association or Commission.

Three UNESCO Divisions have close relations with IUGG bodies. The Division of Earth Sciences in particular has had strong links with IASPEI and IAVCEI, while the Division of Water Sciences works very closely with IAHS and also the Hydrology and Water Resources Department of the World Meteorological Organisation (WMO). UNESCO's Intergovernmental Oceanographic Commission (IOC) has particularly strong links with the IUGG Tsunami Commission and also with IAPSO. Within some Divisions there are also international programmes relating to specific topics. The International Geological Correlation Programme (IGCP) has been very active in the Division of Earth Sciences, mainly in collaboration with the International Union of Geological Sciences (IUGS) and the International Lithosphere Programme (ILP), but is now more aware of possible involvement with geophysical activities. The International Hydrological Programme (IHP) provides a further active link between IAHS and UNESCO's Division of Water Sciences. On appropriate occasions, UNESCO's Regional Offices have supported geophysical activities in their areas.

Relations between UNESCO and IUGG and its constituent bodies may be summarised as follows:

Union

There appears to be no direct contact between UNESCO and the Union, but general support is channelled through ICSU.

IAG

Up to now there has effectively been no collaboration. The Division of Earth Sciences is now prepared to look favourably on providing some support for activities related to geodetic monitoring of seismological and volcanic hazards, particularly in developing countries.

IASPEI

Good collaboration with the Division of Earth Sciences has existed for many years, although the level of financial support in recent years has not been as great as previously. UNESCO supported IASPEI activities at the 1991 Assembly ($10,000) and has also supported meetings of the IASPEI Committee for Developing Countries in 1992 ($5,000) and the publication in 1993 of a Monograph on Hazard Assessment ($5,000). Some support for the Regional Seismological Assembly in South America in 1994 was given directly to South American organisations.

IAVCEI

The Division of Earth Sciences is helping IAVCEI with the production of a volume on Volcano Monitoring and Hazards, and also of a video on volcanic hazards. There may also be some support for the IAVCEI Decade Volcanoes Project.

IAGA

IAGA's activities have been difficult to relate to specific UNESCO interests, but especially in developing countries there has often been a link between geomagnetic and seismological recording. Geomagnetism now plays an increasing role in the history of tectonic development, and also in the monitoring of physical changes that may be associated with volcanic and seismological activity. The Division of Earth Sciences is hopeful of being able to provide some support for relevant IAGA activities at the Boulder Assembly.

IAMAS

The main contact between IAMAS and UN agencies is with WMO, and there appears to have been no direct collaboration with UNESCO. There are, however, joint interests with the Division of Water Sciences and IOC, particularly in relation to joint programmes on global fluid dynamics.

IAHS

This Association has strong active links with the Division of Water Sciences, and with its International Hydrological Programme. These bodies share many officers in common, and among other activities organise a bi-annual colloquium in honour of Professor George Kovacs, a former IAHS President. There are many joint UNESCO/IAHS publications. The Hydrology and Water Resources Department of WMO is also closely involved in these activities.

IAPSO

IOC has sponsored some IAPSO activities, particularly those involving developing countries.

Tsunami Commission

There appears to be a good relationship between IOC and the Tsunami Commission, with much collaboration, particularly in the Tsunami Inundation Modelling Exchange Programme, based in Japan.

SEDI

The Division of Earth Sciences has strongly supported the International Seismological Observing Period (ISOP) component of SEDI, particularly in sponsoring a workshop in Hong Kong in 1993.

It is thus evident that there already exist some strong links between UNESCO and IUGG. In some disciplines this collaboration is very full, but in others it could be strengthened. The constituent groups of IUGG are urged to continue to liaise with their counterpart Divisions of UNESCO.

REPORTS OF IUGG REPRESENTATIVES ON ICSU COMMITTEES

Report to IUGG from the representative to CODATA 1991-1995

C.C. Tscherning

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1. Introduction

CODATA - the Committee on Data for Science and Technology is one of the ICSU committees. It aims at improving the quality, reliability, processing, management and accessibility of data.

Scientific results are published in Monographs and Symposium Proceedings. Very little material finds its way to international journals with reviewed papers.

Members are: Unions belonging to ICSU and Nations. Representatives of 16 Unions and of 19 Nations participated in the last General Assembly in 1994. The accounts of 1994 showed a balance of a little less than a quarter of a million $ US. It does not cost IUGG anything to be a member of CODATA. The only expenses are related to the participation in the bi-annual general assemblies.

2. Activities 1991-1995

CODATA has organised two Scientific Conferences. One in Beijing in 1992 and one in 1994 in Chambery (France). The General Assemblies are held in the week-end following the conference. At the Assemblies the work of Task Groups and Commissions are reviewed and decisions are made concerning their continuation or discontinuation. New Groups are after careful discussion established.

There has only been one Commission of interest for IUGG, namely a Commission on Global Change. The commission did unfortunately never function, and was discontinued in Chambery.

In the period a reorganisation of the advisory structures related to ICSU were discussed. The merging of CODATA, FAGS and the Panel on World Data Centers were being considered, but the idea was dropped due to the strong insistence of IUGG and others.

It seems that the background for the ideas of a reorganisation were caused (partly) by a wish to put new life into CODATA. Here it is so that the Unions which are members of CODATA either already have solutions to their data problems (like IAU and to a large extent IUGG) or are just starting up computerisation.

Consequently one may ask which benefits IUGG has of being a member of IUGG, except in a role of aiding less developed (in the sense of data management) unions.

Simultaneously with these questions being raised within IUGG, CODATA did itself start a discussion of a CODATA Strategic Plan. This plan describes the following goals of CODATA:

a. Enhance the use of Internet and other networks, and assist in the change to distribution of data by electronic means

b. Investigations of abstract data structures

c. Assist Unions in creating new databases (biology)

d. Study barriers to access to scientific data

e. Extended educational and tutorial activities.

One may question whether CODATA may achieve these goals, which either requires a large effort or are not central for IUGG activities. In my opinion the main role of CODATA must be to strengthen the awareness that data and datamanagement are a foundation of many scientific disciplines such as these covered by IUGG.

The recent CODATA conference in Chambery were in this respect important as can be seen from its title

"Data and Knowledge in a Changing World - The Quest for a Healthier Environment". A number of papers (see Appendix) were presented of strong interest for IUGG, and CODATA were therefore also asked to be a co-sponsor of a Union Symposium "21st Century Data Challenges" to be organised in Boulder, 1995.

The disappointment with CODATA, mainly related to lack of results of interest for IUGG, seems to be the reason for an action taken by the IUGG Executive in the Spring of 1995 to dissociate itself from CODATA at the Union level. As a representative to CODATA I was somewhat surprised by this action, which leaves it to the IUGG Associations to cooperate with CODATA. I doubt that this will work. I think the best would be to reconsider this, also because CODATA only wants to cooperate with UNIONS (cf. letter from the president of CODATA dated March 3, 1995).

CODATA have a few activities of interest for IUGG. Its main importance are related to the scientific unions which are beginners in the digital data area. However, IUGG should as earlier support activities which keeps up the awarness of the importance of data and data management issues. This support is best given by staying as a member of CODATA at the union level.

Appendix: Examples of presentations at the 14th Int. CODATA Conference, 18-22 Sept, 1994.

Baker, C.B.: The use of the information highway to explore climate variability.
Scott, N.A. & A. Chedin: Satellite climatology and large data flow.
Royer, J. & A. Shtuka: Stochastic imaging of environmental data.
Duchossois, G. & S. Bruzzi: Environmental Monitoring and European Space programs.
Thieman, J.R.: Large Data Base access and usage in the Earth and Space Sciences through compter networks.
Menaut, J.-C.: Towards the establishment of the global terrestrial observing system.
Olden, R.J. et al.: Integrated ground based and remotely sensed data to support global studies of environmental change.
Frechet, J. & F. Thouvenot: SISMALP: a seismic network for the Western Alps.
Chery, J.: Cinematic of Alpine Arc: Setting up a GPS Reference Network.

COMMITTEE ON SPACE RESEARCH (COSPAR)

D.J. Williams and J.G. Roederer

Introduction

In 1958, ICSU was encouraged by Sir Harrie Massey and others to become involved in the scientific aspects of space research in order to ensure that, in the tense international situation existing at the time, all negotiations concerning space should not become completely politicized. The sudden leap into the cosmos marked by the launch of Sputnik 1 on 4 October 1957, created a situation in which it was deemed necessary to make a deliberate move to encourage cooperation and the free exchange of views on all scientific aspects of space research along the lines established so successfully during the International Geophysical Year in 1957-58. ICSU accordingly created the Committee on Space Research (COSPAR) on 15 November 1958, with its primary purpose being to "provide the world scientific community with the means whereby it may exploit the possibilities of satellites and space probes of all kinds for scientific purposes, and exchange the resulting data on a cooperative basis".

The COSPAR Council meeting of 1992 (D.J. Williams)

Dr. D.J. Williams, IUGG representative, attended the two COSPAR Plenary Sessions (28 Aug. and 5 Sept. 1992) as IUGG representative.

Items to note:

1. The meeting was attended by over 4 100 registrants representing 65 countries. It seemed a huge success but was very large. The IAF presence gave an industrial/commercial flavor to the meeting and provided a large and excellent exhibition of space activities.
2. The new COSPAR charter and By-Laws were passed by a vote of 34 yes and 1 abstention. All of the IUGG/IAGA suggestions were incorporated into the final version. The main purpose of the changes was to provide for an open election of all COSPAR Bureau members, including the President and the Vice-Presidents.
3. The 1996 COSPAR Meeting will be held in Birmingham England, not in the former Soviet Union as originally proposed.
4. A nominating committee was approved for determining the slate of COSPAR officers to be placed before the Plenary at the 1994 meeting in Hamburg.

   Tentative nominating committee members were Drs. Ness (USA), Oda (Japan), Southwood (UK), Oro (USA), and Galeev (Russia).
5. Last but not least, Mr. Z. Niemirowicz retired as Executive Director of COSPAR in May 1993. He was presented with a special COSPAR Distinguished Service Medal in honor of his impending retirement.

The COSPAR Council meeting of 1994 (J.G. Roederer)

Prof. J.G. Roederer attended the COSPAR Council meetings on July 11 and 21, as the IUGG Representative on behalf of Dr. D. J. Williams, who was unable to travel to Hamburg.

The following summary is limited to items that are of interest to IUGG.

1. New Officers of COSPAR

This was the first election held under the new Charter of COSPAR. Results of the election: President: G. Haerendel (Germany); Vice Presidents: L. Lanzerotti (USA) and A. Nishida (Japan); Bureau Members: G. Atkinson (Canada), A. Boyarchuk (Russia), W. Hermesen (Netherlands), K. Kasturirangan (India), K. Szegö (Hungary) and A. Willmore (UK); Finance Committee Chair: F. Mariani (Italy).

2. Meetings

Prof. Mariani presented a detailed report with statistics on the budget, meeting atttendance, papers submitted, events held, etc.. Of particular interest, and a subject of considerable discussion, was the following information on the number of COSPAR meeting participants:

Year:	No.
1984	1169
1986	1666
1988	1346
1990	1711
1992	2260
1994	1700

There were expressions of concern about the attendance drop at the Hamburg meeting. Prof. Roederer remarked that most likely it was not a drop, but that, rather, the numbers for 1986 and 1990 were peaks because of the additional participants from SCOSTEP (which until 1990 held its quadriennal Solar Terrestrial Physics Symposia in conjunction with COSPAR) and that for 1992 there were many more participants because of the associated IAF Congress and STEP Symposium.

The 1996 COSPAR Meeting will be held at the University of Birmingham, England. Registration fee will be 270 pounds. It was described as a "high density" meeting that will last only six days, with many more parallel sessions than usual. The starting date will be Sunday, July 16. There was considerable discussion about the fact that this will overlap exactly with the AGU Pacific Conference in Australia. A proposal to shift the COSPAR meeting one week ahead was not accepted. A somewhat unwieldy list of 89 sessions (symposia, panels, etc.) was proposed by the COSPAR Scientific Commissions for the 6-day Birmingham meeting (37 of the suggested titles seemed perfectly appropriate for IAGA, IAMAS, IAG, and IAPSO assemblies). This list will be discussed and whittled down by the COSPAR program committee, which will then request cosponsorship of sessions that are of interest to other ICSU bodies.

There was a discussion about the support of scientists from eastern countries. The substantial financial assistance received from the International Science Foundation and the government of Germany for their attendance at the Hamburg meeting may not be available in 1996. Concerning the amount available to COSPAR from registration fees collected by the local organizing committee, the representative from the University of Birmingham estimated it at about 94 pounds per participant for the first 1000 participants.

The 1998 COSPAR Meeting will be held at the Nagoya Conference Center in Japan.

3. Budget

The financial report was presented and budget trends were discussed. COSPAR's expected income for 1995 from national contributions was quoted as 1,705 KFF (kilo French Francs); the current reserve is about 3,000 KFF (approx. $600K).

4. ICSU Review of COSPAR

There was a considerable discussion of the 1993 review of COSPAR by ICSU. While generally favorable, the review states that "Whilst it was noted that cooperation with IAU had improved, it was felt that cooperation with the relevant Unions had at times lacked coordination." In response to this statement, the COSPAR Scientific Commission structure would be examined by a preparatory review group set up by the COSPAR Bureau (recommendations were expected to be reported at the Bureau's last meeting at the end of the Hamburg assembly). It was also pointed out that COSPAR Colloquia should be a key element to improve cooperation with the Unions. On the other hand, it is interesting to read under Item 11/A/4 of the draft minutes of the March 1994 COSPAR Bureau meeting, distributed to the Council in Hamburg, that "Professor Axford [then the COSPAR President] observed that IAGA is moving into COSPAR's field and this should be brought to ICSU's attention".

There was a discussion of the goals of COSPAR. President-elect Haerendel strongly promoted the idea of including engineering (this, however, may provoke some reaction from the IAF) as well as education and public promotion of space science.

5. Resolutions

A number of resolutions were submitted by the Commissions, but only two were forwarded to and approved by the Council. One deals with Mars planetary protection policy, decreasing the biological burden requirements on the basis of current knowledge of the Martian environment. The other resolution came from the panel on developing countries (in which Prof. Roederer participated as an invited speaker and discussant), recommending "that [COSPAR] national members, ICSU Unions and associated members encourage and support programs and activities involving ground based and space techniques, particularly related to global and regional change studies, and facilitate increased participation of scientists from developing countries".

Some Personal Remarks from Prof. Roederer

During his ten years as the IUGG Representative in the COSPAR Council (1976-1986) Prof. Roederer has been concerned about the gradually increasing overlap of interests of some of the COSPAR Commissions and the IUGG Associations, particularly IAGA and IAMAS. On the other hand, COSPAR itself frequently expressed concern that some IUGG Associations were increasingly intruding into what it perceived its specific domain (e.g., see Prof. Axford's remark mentioned in 4. above).

To understand these inevitable trends, a bit of history is in order. COSPAR was created at the beginning of the "Space Era" with the purpose "to further on an international scale, the progress of all kinds of scientific investigations which are carried out with space vehicles, rockets and balloons." As time went on, space techniques and space observations became routine elements of geophysical and astronomical research, being naturally incorporated into the realms of IUGG and IAU. IAGA, for instance, underwent drastic restructuring in 1973 to accommodate to the modern modes of aeronomic and geomagnetic research. It became necessary to distinguish clearly between the concepts of "science from space" (logically pertaining to the scientific discipline specifically involved, e.g., geodesy, geology, meteorology, aeronomy, astrophysics), "science of space" (e.g., space physics, planetary environments), and "science in space" (e.g., zero-g biology and condensed matter physics, relativity tests). The

overlap of "intra-ICSU-family" interests is highest in the first category, and will continue to increase.

In view of all this, it may be time for ICSU itself to undertake a drastic change of its Union and Scientific Committee structure to appropriately and cost-effectively adjust to the new developments in the areas of space, environment and interdisciplinarification of science.

Reports on CTS and COSTED

Attia Ashour

Cairo University, Faculty of Science, Department of Mathematics, Giza, Egypt

CTS:

I have attended the last meeting of this Committee, July, 1993, just before the decision of the ICSU Executive Board to stop it. I stressed in the meeting that IUGG is an interdisciplinary Union and that there is a need to consider how best interdisciplinary science disciplines be best taught, both on school and university levels. The Committee has been replaced, I believe, by another on Capacity Building. I have no information whether Unions were invited to have representatives on the new Committee.

The meeting was followed by a large one in UNESCO with the title "2000+" in which CTS participated.

I shall be pleased to give a verbal report to the Council in Boulder if needed.

COSTED:

I had no correspondence from COSTED during the last four years except an invitation to participate in a meeting in Ghana, which was mainly concerned with Biology. The name of the Committee has been changed to COSTED IBN (International Biological Network). This indicates clearly that the Committee which is supposed to help scientists in all disciplines, is now more oriented towards the Biological Sciences. I think that this point needs to be discussed by IUGG representative to ICSU with the ICSU Executive Board.

I shall be pleased to give a verbal report to the Council in Boulder if needed.

Report to IUGG from the Scientific Committee on Antarctic Research (SCAR)

Takeo Hirasawa

IUGG Representative to SCAR - National Institute of Polar Research in Tokyo

1. Introduction

SCAR, the Scientific Committee on Antarctic Research, has four permanent Scientific Working Groups which are close related to IUGG. They are the Working Groups on Geodesy and Geographic Information (related to IAG of IUGG), Solid-Earth Geophysics (IAGA, IASPEI, IAHS, IAPSO), Physics and Chemistry of the Atmosphere (IAMAP) and Solar Terrestrial and Astrophysical Research (IAGA). During the XXII and XXIII SCAR general meetings which were held in San Carlos de Bariloche, Argentina 8-19 June 1992 and in Rome, Italy 29 August- 2 September 1994, the nationally appointed repre-

sentatives to above four groups met and formed the international fora for the discussion of national research in Antarctica.

2. Geodesy and Geographic Information

a. The WG meeting was focused on the geodetic and geographic information needed for Antarctic science, environmental management and logistic support. The scientific program adopted at the WG meeting was largely successful in the period of 1991-1995. Major achievements during the past four years included,

(1) Geographic Information Directory: Finalising the directory design and establishing Internet access and user interface.

(2) Geodetic Infrastructure: Developing a coordinated permanent network of geodetic stations using GPS, VLBI, absolute gravity, relative gravity and tide gauge techniques.

(3) Digital Database and identifying funding sources for production.

(4) Remote Sensing: Investigating and reporting on the application of satellite radar data to dynamic processes in Antarctica.

(5) GIS Projects: Designing, compiling and distributing a register of current and future Antarctic GIS projects.

b. Two SCAR recommendations were approved on geodesy at the XXII and XXIII SCAR meetings.

3. Solid Earth Geophysics

a. Magnetic Map of Antarctica: At the WG meeting in 1992, the representative from South Africa had undertaken to compile a data base of magnetic survey data from Antarctica. Considering the IAGA decision adopted in Buenos Aires in 1993, the WG in 1994 agreed that it would be extremely useful to produce a magnetic and data base, as an aid to understanding large-scale structures across the Antarctic continent.

b. The Antarctic Offshore Acoustic Stratigraphy Project (ANTOSTRAT): The representative from US drew WG attention to the ANTOSTRAT SC Interim Report that had been submitted to SCAR, recommending continued development of the Seismic Data Library System (SDLS). The WG warmly welcomed the Report and congratulated ANTOSTRAT on the success of the SDLS.

c. Ten SCAR recommendations were approved on solid earth geophysics at XXII and XXIII SCAR meetings.

4. Physics and Chemistry of the Atmosphere

a. Antarctic Atmosphere Monitoring: There was extensive discussion on the need for improved understanding of the physical and chemical processes in the Antarctic atmosphere which is a reference for detection and monitoring of global changes and trends. In view of the importance of direct observations to environmental monitoring and detection of global change in Antarctica, the WG strongly endorsed the long-term monitoring studies of the Antarctic atmosphere conducted by national operators and international organisation.

b. Synoptic Network in Antarctica: The desirability of a synoptic network (500 Km spacing) of automatic weather stations over Antarctica and buoys over the seasonal sea ice zone was noted and is an area where all participating nations should closely collaborate to achieve this important goal.

c. Ten SCAR recommendations were approved on Antarctic atmosphere at XXII and XXIII SCAR meetings.

5. Solar Terrestrial and Astrophysical Research

a. Antarctic Geophysical Observatory Network (AGONET): The UK proposal to establish an AGONET was endorsed at XXII SCAR to further the exploitation of Antarctica as a platform for Geospace research by

(1) coordinating observations at the current and unmanned observatories to provide a "global" picture of the footprint of geospace processes on the polar ionosphere

and

(2) fostering the establishment of an AGONET data analysis facility to bring together selected AGONET data sets, generate data summaries and provide facilities for coordinated research using these data sets.

The representative from Italy offered to resource and host an AGONET Data Analysis Facility in Frascati. This offer was endorsed and considerable progress has since been made in establishing the facility and realising the goals of AGONET.

b. Antarctic Astronomy: The Antarctic Plateau offers unique advantages for astronomical observation because of the extremely dry, cold and tenuous air over the Antarctic. As a result, the use of Antarctica as an observation site for certain classes of astronomy is developing rapidly. The WG is in the process of defining what role it should play in facilitating this activity.

c. Seven SCAR recommendations were approved on Solar Terrestrial and Astrophysical Research at the XXII and XXIII SCAR meetings.

6. The next SCAR general meeting and the meetings of the SCAR scientific Working Groups will be held in Cambridge, UK in 1996.

SCOPE (Scientific Committee on Problems of the Environment)

R.E. Munn

SCOPE was established by ICSU in 1969 in response to environmental issues emerging at that time, recognising the interdisciplinary nature of many of the research questions being posed. The mandate of SCOPE is to assemble and assess the information available on man-made environmental changes and the effects of these changes on society; to assess and evaluate the methodologies of measurement of environmental parameters; to provide an intelligence service on current research; and to establish itself as a corpus of informed advice for the benefit of research centres and of organisations and agencies operationally engaged in studies of the environment. Some of SCOPE's syntheses are published as monographs by John Wiley and Sons Ltd, Chichester, England (more than 50 titles have appeared so far) but many others are in the form of special reports, survey papers in the scientific literature, and/or semi-popular paperbacks.

In the last 4 years, the following have been published:

(1) In the SCOPE John Wiley Series:

- SCOPE 42 (1991): Biogeochemistry of Major World Rivers
- SCOPE 43 (1991): Stable Isotopes: Natural and Anthropogenic Sulphur in the Environment
- SCOPE 44 (1990): Introduction of Genetically Modified Organisms into the Environment
- SCOPE 45 (1991): Ecosystem Experiments
- SCOPE 46 (1991): Methods for Assessing Exposure of Human and Non-Human Biota
- SCOPE 47 (1991): Long-Term Ecological Research. An International Perspective
- SCOPE 48 (1992): Sulphur Cycling on the Continents: Wetlands, Terrestrial Ecosystems and Associated Water Bodies
- SCOPE 49 (1992): Methods to Assess Adverse Effects of Pesticides on Non-Target Organisms
- SCOPE 50 (1993): Radioecology after Chernobyl
- SCOPE 51 (1993): Biogeochemistry of Small Catchments: A Tool for Environmental Research.
- SCOPE 52 (1994): Methods to Assess DNA Damage and Repair: Interspecies Comparisons
- SCOPE 53 (1995, in press). Phosphorus in the Global Environment
- SCOPE 54 (1995, in press): Ecosystem Functioning of Biodiversity

(2) Examples of other publications:

- Greenhouse Earth (1992): a semipopular paperback
- Effects of Increased Ultraviolet Radiation on Biological Systems (1992)
- Effects of Increased Ultraviolet Radiation on Global Ecosystems (1993)
- Inventoring and Monitoring Biodiversity (1992)
- Monsoon Biogeochemistry (1993)
- An Assessment of the Toxicity and Hazards of Pollutants in China (1994)

SCOPE has offices in the ICSU building in Paris, with a full-time Executive Director, Ms. Veronique Plocq-Fichelet. A General Assembly is held every 3 to 4 years (Seville, Spain, Jan 1992; Tokyo, June 1995) when a new Executive Committee is elected, and the work program for the following three years is debated and approved. The current President is Professor John Stewart of Canada, and the Editor-in-Chief, who comes from IUGG/IAMAS, is Dr. R.E. Munn, also from Canada. SCOPE receives financial support for its operating budget from its National Committees, ICSU, UNESCO, the French government and Exxon. In 1995, SCOPE is expected to receive financial support for its scientific projects from UNEP, EC, NATO, several governments (France, the USA, Spain, Mexico and Belgium) and various private sources (the Mellon Foundation, EPRI, the Wallenberg Foundation, the MacArthur Foundation and the Leverhulme Trust).

Over the last four years, the work program has been carried out through working groups seeking to synthesise knowledge and identify knowledge gaps in the following fields:

Sustainability of the biosphere; Biogeochemical cycling of sulphur, nitrogen and phosphorus; Ecotoxicology; Effects of global change on coniferous forests and grasslands; Ecosystem functioning and biodiversity; Radiation from nuclear test explosions; Particle fluxes in the world oceans; Ecological economics; Indicators of sustainable development; Ecological engineering; UV-B effects on biological systems; Mercury cycling; and Sustainable Land Management.

Further information can be obtained by writing or faxing to SCOPE, 51 boulevard de Montmorency, 75016 Paris, France, FAX 33-1/42 88 14 66, Tel. 33-1/45 25 04 98.

SCIENTIFIC COMMITTEE ON OCEANIC RESEARCH (SCOR)

Report by Devendra Lal (former IUGG representative)

The principal scientific activities of SCOR continued to be brainstorming on important international scientific programs via small short-lived working groups, and organisations of symposia on critical scientific issues. Administratively it organises general meetings of the SCOR body where besides deciding on the various administrative matters, logistics, budget, etc., it decides on starting new working groups, or disbanding existing ones when they have served their purpose.

Amongst the continuing and very effective programs of SCOR are two programs:

1) Joint Global Ocean Flux Study (JGOFS)

2) SCOR/IOC Scientific Steering Committee for Global Ocean Dynamics (GLOBEC)

with considerable emphasis on the work of several working groups, e.g.:

- WG83, Wave Modelling
- WG96, Acoustic Monitoring of the World Ocean (with IOC)
- WG98, World-wide Large Scale Fluctuations in Sardine and Anchovy Populations
- WG100, Sediment Coring for Global Change Research

SCOR has a special emphasis on training programs for students.

SCOR, as an interdisciplinary non-governmental organisation charged by ICSU with the task of promotion of international activities in oceanography, has eminently carried out its goals in the past, and is currently taking a lead in international pro-

grams addressing important issues in global climate change. SCOR also serves as an official advisory body to the Intergovernmental Oceanographic Commission of UNESCO. Finally, SCOR also encourages training of scientists from the developing countries by providing them with grants for travel to scientific meetings.

A copy of SCOR's annual report prepared by Dr. E. Gross, Executive Director of SCOR for 1994 is enclosed for completeness.

SCOR Working Groups as of January 1, 1995

Working Group	Start Date	Topic
WG 86	1988	Ecology of Sea Ice
WG 89	1989	Sea Level Rise and Erosion of the World's Coastlines
WG 93	1990	Pelagic Biogeography
WG 95	1991	Sediment Suspension and Sea Bed Properties
WG 96	1991	Acoustic Monitoring of the World Ocean
WG 97	1992	Physiological Ecology of Harmful Algal Blooms
WG 98	1992	Worldwide Large-scale Fluctuations of Sardine and Anchovy Populations
WG 99	1993	Linked Mass and Energy Fluxes at Ridge Crests
WG 100	1993	Sediment Coring for International Global Change Research
WG 101	1993	Influence of Sea State on the Atmospheric Drag Coefficient
WG 102	1993	Comparative Salinity and Density of the Atlantic and Pacific Ocean Basins
WG 103	1993	The Role of Wave Breaking on Upper Ocean Dynamics
WG 104	1994	Coral Reefs Responses to Global Change: The Role of Adaptation
WG 105	1994	The Impact of World Fisheries Harvests on the Stability and Diversity of Marine Ecosystems
WG 106	1994	Relative Sea Level and Muddy Coasts of the World
JGOFS	1988	Scientific Steering Committee for the Joint Global Ocean Flux Study
GLOBEC	1992	SCOR/IOC Scientific Steering Committee for the Global Ocean Ecosystem Dynamics Program
GOEZS	1992	IGBP/SCOR/WCRP *ad hoc* Working Group on the Global Ocean Euphotic Zone Study

Report by Elizabeth Gross (Executive Director)

Introduction

The Scientific Committee on Oceanic Research is an interdisciplinary, non-governmental organisation charged by ICSU with the promotion of international activities in oceanography. SCOR's scientific activities fall into two categories. The small, short-lived Working Group, created to address narrowly focused scientific topics is the traditional mechanism by which SCOR has operated since its inception in 1957. On the other hand, SCOR has also taken the lead in the planning of longer-term, large-scale international research programs in oceanography which are designed to address issues of the role of the ocean in global climate change. Examples of each of these types of SCOR activities will be discussed below. SCOR also serves as an official scientific advisory body to the Intergovernmental Oceanographic Commission of UNESCO, and IOC and SCOR cosponsor a number of activities of mutual interest. Lastly, SCOR administers a program of travel awards to marine scientists from developing countries which is made possible through a grant from the U.S. National Science Foundation.

Membership

The members of SCOR are the "Committees for SCOR" which, in 1993, existed in 39 countries. There was one addition to the SCOR membership in 1993 as the Philippines rejoined SCOR after a period of inactivity. A continuing effort is under way to attract new members from those countries where a significant expertise in oceanography exists. Contacts have been made with the oceanographic communities in Oman, Ireland, Venezuela, Vietnam and other countries. Each SCOR Committee nominates three scientists to represent it in SCOR; a number of these individuals are replaced each year. Other individual members of SCOR include the Chairs of all SCOR scientific subsidiary bodies and the representatives of other ICSU organisations.

Vital statistics

Reference to scientific meetings and publications will be found in the discussion of SCOR's scientific activities. In summary, nearly 50 journal articles, books, reports and other publications resulted from SCOR activities during 1993.

Organisational matters

Meetings: The 31st Executive Committee meeting of SCOR took place at the Institute of Oceanology of the Academia Sinica in Qingdao, China in September 1993. Several senior Chinese scientists who had been instrumental in the discussions which brought China into SCOR in 1984 were present at the meeting. All of SCOR's scientific activities were reviewed and plans for activities in 1994 were considered. The Executive Committee disbanded two working groups and created two new ones on the topics of *The Comparative Salinity and Density of the Atlantic and Pacific Ocean Basins* and *The Role of Wave Breaking in Upper Ocean Dynamics*. The Executive Committee reviewed the final report of the ICSU Panel which had conducted a review of SCOR in 1992 and agreed that action should be taken on some of its recommendations. In particular, consideration is being given to a mechanism to increase turn over on the SCOR Executive Committee. This may involve a constitutional amendment which will be discussed at the General Meeting in October 1994.

Finances: There has been a gradual improvement in the finances of SCOR since 1991 when there had been concern about the dwindling cash reserve. Nevertheless, funds are still very limited. In addition, nearly two-thirds of SCOR's income is earmarked for specific scientific activities which means that there is almost no capability to undertake new activities without new income. The Strategic Planning Committee established in 1992 continues to investigate new sources of funding for SCOR.

Activities undertaken during 1993

Scientific Meetings:

The traditional SCOR Working Group is a small (8-10 members), international group established to address a specific scientific problem which will benefit from international attention. Working Groups are expected to accomplish their objectives in a relatively short time frame, ideally in less than four years. At the end of 1993, SCOR had 12 active working groups, a number of which met during the year. A few selected achievements of these groups in 1993 include:

WG 75 Methodology for Oceanic CO_2 Measurements

The final report of SCOR WG 75 which was published as No. 65 in the series UNESCO Technical Papers in Marine Science. Many of the recommendations of the Working Group have been taken up in the design and implementation of the JGOFS/WOCE global oceanic CO_2 survey. WG 75 has been disbanded.

WG 83 Wave Modelling

In April 1993 a first complete draft of the 500 page manuscript for the final report was completed. The title has been changed to "Dynamics and Modelling of Ocean Waves", and a publication agreement has been concluded with Cambridge University Press. Publication is expected in early 1994.

WG 96 Acoustic Monitoring of the World Ocean (with IOC)

The second meeting of WG 96 was held in Brest in June 1993, once again in conjunction with an inter-

national symposium on Acoustic Thermometry of Ocean Climate. Acoustic thermometry is a new technology for using the properties of sound propagation in seawater over very long distances to monitor slight changes in ocean temperature. It is a potentially powerful tool for observations of global climatic change. The SCOR WG has provided a much needed mechanism to foster international collaboration in this research where sound transmitters and receivers must be deployed in many different countries around the globe.

WG 97 Physiological Ecology of Harmful Algal Blooms (with IOC)

The first meeting of WG 97 took in October 1993 in conjunction with an international conference on Toxic Marine Phytoplankton. While outbreaks (blooms) of harmful microscopic marine algae are becoming more common, causing great economic losses and health hazards, their environmental causes are poorly understood. The WG began to develop a detailed scientific proposal for funding for a major international symposium on this topic which will take place in 1995.

WG 100 Sediment Coring for Global Change Research

The first meeting of this working group took place in December 1993. Its mandate is to develop international protocols for the collection, curation, sharing and sampling of marine sediment cores which contain a record of Earth's climatological history. There has been growing international recognition that the current suite of global change research programs did not take account of the record contained in marine sediments. Several international workshops involving the paleoceanographic community in the past few years have led to the definition of major global change questions which can only be answered through the study of the marine geological record of climate. Members of WG 100 have been leaders in these discussions. Accordingly, they presented a proposal to SCOR that the WG become the preliminary planning group for a new program to be cosponsored with the PAGES Core Project of IGBP. IMAGES (International Marine Global Change) has as its major objective: to quantify climate and chemical variability of the ocean on time scales of oceanic and cryospheric processes; to determine its sensitivity to identified internal and external forcing, and to determine its role in controlling atmospheric CO2. Under this major scientific objective, IMAGES proposes to co-ordinate a global program to collect and study marine sediment records to address two fundamental questions:

- How have changes in ocean circulation, ocean chemistry, and biological activity interacted to generate the observed record of atmospheric pC02, over the past 300 ky?
- How have changes in surface ocean properties controlled the evolution of global heat transfer through the deep and surface ocean and so modified climate?

These major issues can only be achieved through the examination of the records preserved in ocean sediments, by a well designed coordinated effort of sampling analysis, and data assimilation.

WG 101 Influence of Sea State on the Atmospheric Drag Coefficient

The WG held its first meeting in June 1993 at Avignon. It developed a schedule for its remaining activities which includes a second meeting in 1994 and a workshop in 1995 which would be the final activity of the group. Users of information about sea surface drag were identified; they include climate modellers, wave modellers, coastal engineers, remote sensers, etc. WG 101 is preparing a list of experiments needed to resolve problems associated with sea state and atmospheric drag. It agreed that a final expression for drag over the ocean will need to be expressed in a number of forms of increasing sophistication or accuracy. Some users who need information on large space and time scales will need a simpler expression that, say, researchers working on gas fluxes across the sea surface.

Training Activities

With the cooperation and support of the Intergovernmental Oceanographic Commission, SCOR's Joint Global Ocean Flux Study organised what is hoped to be the first in a series of training workshops. This took place in Mombasa, Kenya in November and 25 scientists were instructed in the methods for making some of the JGOFS Core Measurements. This workshop was specifically tailored

to the interests and needs of scientists from countries participating in the JGOFS Arabian Sea Process Study. The members of the planning group for the study served as instructors for the 2 week workshop. More information on JGOFS is given below.

Activities involving developing countries

SCOR continues to offer travel awards to oceanographers from developing countries. This program is supported through a grant from the US National Science Foundation. During 1993, 36 scientists from 19 countries were able to attend international conferences, workshops and symposia as a result of this program. This does not include the 25 participants in the JGOFS training course discussed above.

Brief Report of Use of 1993 ICSU Grant

ICSU awarded funds to SCOR in 1993 in support of international planning for two of the major ongoing international research programs in oceanography. These are the Joint Global Ocean Flux Study, a Core Project of the IGBP, and the emerging international program on Global Ocean Ecosystem Dynamics. See also the Grant Reporting Forms attached to this report.

Joint Global Ocean Flux Study

A detailed written report with scientific highlights from 1993 from the JGOFS SSC is appended to this report. The SSC met in Carqueiranne, France in September 1993. A new JGOFS Core Project Scientist, Professor Hugh Ducklow (USA) has been appointed to fill the vacancy left by Dr. G.T. Evans who returned to his position in Canada following a three year secondment. Professor John Field (South Africa) replaced Trevor Platt (Canada) as Chair of the JGOFS SSC following the Carqueiranne meeting.

The last year was very active for JGOFS with field programs under way in the Equatorial Pacific, Southern Ocean and Arabian Sea process studies. These are the current "intensive" JGOFS studies. Spatially "extensive" studies include the ongoing global oceanic CO2, pigment and optical surveys being conducted in collaboration with the WOCE Hydrographic Program and preparation for the use of the ocean colour data which will become available following the launch of the SeaWIFS ocean colour sensor in 1994. Temporally "extensive" studies are being conducted at four JGOFS time series stations; near Bermuda, Hawaii, the Canary Islands and off Kerguelen.

A scientific plan for a JGOFS Continental Margins program has been developed by a joint Task Team with the IGBP Core Project on Land-Ocean Interactions in the Coastal Zone and will be published early in 1994. The JGOFS Data Management Task Team has made progress towards practical methods for data exchange using spreadsheets. The Task Team on Global Synthesis and Modelling met following the JGOFS SSC meeting in France and is developing themes for a major international JGOFS Modelling Workshop to be held in 1994 or 1995. The international protocols for the JGOFS Core Measurements have been submitted to a major review and the revised protocols were ready for use at a JGOFS training workshop in Mombasa in November (see above) and for publication by the IOC in early 1994. The Indian Ocean Planning Group members provided instruction at the training workshop in which twenty-five scientists from the region were familiarised with some of the core measurement methods. The IOPG met in Mombasa as well and furthered plans for the Arabian Sea study which will be fully implemented during 1994. The North Atlantic Planning Group held a workshop in Warnemünde in April 1993 at which plans for the final field effort of the JGOFS program were laid. This return to the North Atlantic will build upon the scientific insight gained during the 1989-90 North Atlantic Bloom Experiment with which JGOFS began. The JGOFS SSC has agreed that the international Implementation Plan should be updated biennially and the first revision of the Plan is now under way.

The SCOR General Meeting in 1992 recommended that a review of JGOFS be undertaken by SCOR in 1995 and plans for this were advanced at the SCOR Executive Committee meeting. Such a review will also be required by IGBP and it was suggested that this be done jointly by the two sponsors of JGOFS. The Chairman of IGBP, Peter Liss, agreed. This review should be an open process and it may be achieved through the organisation of a major conference open to the entire scientific community.

Lastly, the Executive Committee received nominations from the JGOFS SSC to fill vacancies in its membership which would be created by the com-

pletion of the terms of several members at the end of 1993. The membership of the JGOFS SSC as of January 1, 1994, is given in the annex to this report.

SCOR/IOC Scientific Steering Committee for Global Ocean Ecosystem Dynamics

The last year has seen a focus on the development of an initial science plan for GLOBEC. There have been a number of meetings (see below) and their reports contain many scientific recommendations which must be condensed into a manageable program. Information on these activities were presented to the SCOR Executive Committee by the Chairman of GLOBEC, Brian Rothschild. The GLOBEC reports published during 1993 are annexed to this report. GLOBEC-International has established a strategy centered on the GLOBEC Core Program. It provides a framework in which international, national and regional programs can be linked toward a common goal of understanding zooplankton dynamics in a physical and ecosystem setting. The GCP is evolving into separate but coordinated activities. Several working groups met during the first half of 1993 to develop different aspects of the GCP and to prepare for the full implementation of GLOBEC-International. To date, six scientific planning meetings have taken place:

1. First international GLOBEC planning meeting (Chair, B. Rothschild, March 31-April 2, 1992)
2. GLOBEC.INT working group meeting on Population Dynamics and Physical Variability (Chair, D. Cushing, February 1-5, 1993).
3. GLOBEC.INT working group meeting on Sampling and Observational Systems (Chair, T. Dickey, March 30-April 2, 1993)
4. GLOBEC.INT working group meeting on Cod and Climate Change (Chair, K. Brander, June 7-11, 1993)
5. GLOBEC.INT working group meeting on Southern Ocean Planning (Chair, J. Stromberg, June 15-17,1993)
6. GLOBEC.INT working group meeting on Numerical Modelling Sampling and Observation Systems (Chair, A. Robinson, July 12-14, 1993)

The reports for these meetings have been published by SCOR in the GLOBEC Report Series.

The GLOBEC Core Program is being developed along two lines. The general scientific approach is being generated by four working groups: Population Dynamics and Physical Variability, Numerical Modelling, Sampling and Observational Systems and GLOBEC Prudence. The resulting scientific focus will be applied to specific ecosystems, the other line of GLOBEC investigation.

The Population Dynamics and Physical Variability Working Group is charged with problem definition and the development of population dynamic, behavioural, and trophodynamic mathematical and conceptual models. Recommendations for both biological and physical process studies were developed at the first working group meeting in February, 1993. The Numerical Modelling Working Group met in July, 1993 and has been charged with incorporating zooplankton population dynamics models into physical fields. The Sampling and Observation Systems Working Group will be expanding the use of modern technologies in estimation of parameters related to zooplankton population dynamics and physical processes. These estimates are critical to the success of both the Population Dynamics and Physical Variability and Numerical Modelling Working Groups. GLOBEC Prudence will be reviewing historical data for its applicability to GLOBEC problems and will be making previously unavailable data accessible through modern data management techniques. This is an essential part of determining the variability of ecosystems and assessing the impacts of global climate change on both biological and physical mechanisms.

The development of the scientific approach so far suggests that the direction of the GLOBEC.INT mission will be achieved along two avenues. The first involves the population dynamics of zooplankton (sensu latu) and is fairly straight forward. The second involves the development of coupled numerical models and observation systems which will involve a significant planning effort and international cooperation.

The idea of coupled numerical physical/biological models and observation systems is associated with the ideas that originally motivated GLOBEC. These involve developing a capability to nowcast and forecast population dynamics of zooplankton in a physical setting in order to better understand the major ecosystem types (as defined by Karl Banse).

These nowcasts and forecasts have important applications in global-change issues and fisheries. Such a system would be designed in the context of modern data assimilation and interpolation schemes. It would involve sampling theory considerations and evaluation of cost effectiveness in its design. It would rely heavily on advances which have been made in acoustic and optical sampling and image identification.

The modelling/observation system would be flexible and modular and therefore be deployable in the major ecosystem types (e.g. spring bloom, regions with high nutrient levels and low chlorophyll concentration, upwelling, etc.). It would be aimed at estimating realistic physical and biological fields with mesoscale resolution because these are thought to be the most energetic (and hence, variable) physically and most demanding of density dependent compensatory processes biologically.

The regional working groups of GLOBEC: ICES/GLOBEC Cod & Climate Change, Southern Ocean, PICES/GLOBEC Subarctic Pacific, and the currently forming Upwelling Systems are developing scientific plans for their regions to which this modelling/observation system would be applied. It is expected that the system will also be used to address key areas of interest within the national programs.

The modelling/observation system description is, at this point, fairly general. This is because the configuration of this system and its components will require careful analysis; evaluation of feasible configurations; and cost effectiveness. It seems that there is broad scientific support for the development of such a coupled modelling/observational system.

The reports of the scientific meetings will form the basis of the GLOBEC Science Plan. A preliminary outline for this document will be the basis for further

GOFS Committee Membership to December, 1995

Name	Nat.	1991	1992	1993	1994	1995	1996	1997	1998	1999
Burkill	UK									
Emerson	USA									
Field	S. Afr	V	V	V	C	C	C	P		
Hall	N.Z.									
Handa	Japan									
Krishnaswami	India									
Liu	Taiwan									
Lochte	FRG									
McCarthy	USA									
Merlivat	France				V	V	V			
Moore	Canada									
Morel	France									
Parslow	Austral.									
Sakshaug	Norway									
Shimmield	UK									
Takahashi	USA									
Willebrand	FRG									

C = Chairman V = Vice-Chairman P = Past-Chairman E = Executive*

* Until May 1995, Trevor Platt and Arthur Chen have stayed as members of the JGOFS Executive in order to assist with the organisation of the Scientific Symposium. The JGOFS Executive will be reconsitituted at JGOFS-10 in Villefranche. It normally consists of the Chair, Vice-Chair, and two other members of the SSC.

development at the GLOBEC Scientific Steering Committee meeting in January, 1994. The completed Science Plan will be presented to the wider community at the GLOBEC Strategic Planning Conference which will be held in Paris in April, 1994. These activities will be followed in six months time by an implementation meeting.

The potential links between GLOBEC and the IGBP will be considered once the GLOBEC Science Plan has been completed. Jarl Stromberg (who is a member of the GLOBEC SSC) noted that some aspects such as modelling and data management are particularly important for interactions with other programs. At the same time, the Executive Committee felt that the GLOBEC SSC should take great care to avoid overlaps with existing IGBP Core Projects.

Conclusion and Future Plans

SCOR has provided input to both ICSU and the Intergovernmental Oceanographic Commission during discussions which led to the signature of a Memorandum of Understanding between ICSU, IOC and WMO on the establishment of a Joint Scientific and Technical Planning Committee for the Global Ocean Observing System (GOOS). The scientifically-based development of GOOS which will be a major preoccupation of the oceanographic community for several years to come and SCOR expect to play a significant role in this activity in its capacity as the focus for marine science within ICSU and scientific advisory body to IOC.

The 22nd General Meeting of SCOR will take place at the Institute of Ocean Sciences near Victoria, British Columbia during the week of October 17, 1994. It will include a day-long JGOFS Symposium and scientific lectures from 2 or 3 SCOR working groups Chairs. The SCOR meeting will be preceded by a meeting of the JGOFS SSC.

For further information about SCOR or any of the activities discussed in this report, please contact: Elizabeth Gross, Executive Director of SCOR, Department of Earth and Planetary Sciences, The Johns Hopkins University, Baltimore, MD 21218, USA. Tel: 410-516-4070, Fax: 410-516-4019, OMNET: E.Gross.SCOR, Internet: e.gross.scor@omnet.com.

REPORTS OF REPRESENTATIVES ON INTER-UNION COMMISSIONS

Report for the period 1991–1995 on the Inter-Union Commission on the Lithosphere (ICL)

Soren Gregersen, IUGG representative in ICL

The ICL is an activity with IUGG and IUGS, our sister Union in geology, as equal partners. It runs the International Lithosphere Program (ILP), which since the reconstruction in 1990, has consisted of time-limited projects. I enclose an overview of these, made by the Secretary General of ICL, Dr. Michael Berry. Some projects have come to an end in the report period, either because they were successfully concluded or because the activity was not needed or not functioning satisfactorily. This set-up of the ILP has just been reviewed positively by ICSU. And IUGS has likewise recommended its continuation. In the Association Presidents meeting with the IUGG Bureau last year in Boulder, this project organisation was discussed with the ICL President, Professor Kevin Burke, and its continuation was recommended. So the ICL is ready for another 5-year term beginning in 1995, with the structure given by the overview schedule, and with considerations of terminating some of the projects and starting others as need arises.

The ICL is managed by a Bureau of 7 scientists:

President and Secretary General plus 1 member appointed by the two unions IUGG and IUGS in agreement, 2 members appointed by IUGG, and 2 members appointed by IUGS. In the period 1990-1995 the President has been a geologist, Professor

A.W. Bally until 1992, and from then Professor Kevin Burke. The Secretary General has been a geophysicist, Dr. Michael Berry, who has done an excellent job for IUGG in this capacity. The common appointee has been Professor F. Barberi, who was in 1994 replaced by Professor Ross Taylor. IUGG has appointed B. Romanovicz, who was in 1992 replaced by T. Sasao. The other IUGG appointee has been Alexei Gvishiani, replaced in 1992 by Stephan Sobolev.

The proposals for these positions for the new 5-year term, beginning with the Boulder General Assembly of IUGG are:

President: Professor Alan Green, Zurich,

Secretary General: Professor Jörg Erzinger (geologist), Potsdam,

and new member to replace T. Sasao, Dr. Teruyuki Kato, Tokyo.

Dr. Stephan Sobolev and Professor Ross Taylor may continue at least until next year.

Three scientists have been appointed by their Associations to be liaison scientists to ICL and to me as the IUGG representative to ICL

IAGA: Professor Sven-Erik Hjelt, Oulu,

IASPEI: Professor Stephan Müller, Zurich,

IAG: Dr. Peter Wilson, Potsdam.

During the IUGG General Assembly in Boulder this summer the ICL Bureau and Commission will hold their annual meetings, in which I will participate. And I will meet with as many representatives of our Associations as possible. ICL cosponsors many of the symposia in Boulder, so they do have an impact on our General Assembly.

International Lithosphere Program

Project Development During 3rd 5-Year Term

ILP PROJECT	Initiated	1990	1991	1992	1993	1994	1995
Theme I: The Geoscience of global change							
1. Paleo-Map	Con't from 2nd Term	■	■	■			
2. Space Geodesy and global sea levels	New		■	■	■	■	■
Theme II. Contemporary dynamics and deep processes							
O. GSHAP	New			■	■	■	■
1. World Stress Map	Con't from 2nd Term	■	■	■			
2. World map of major active faults	Con't from 2nd Term	■	■	■	■	■	■
-Western Hemisphere - Active Faults	New			■	■	■	■
3. Paleoseismicity of the late Holocene	New		■	■	■	■	■
4. Three-dimensional modelling of the Earth's Tectosphere	New		■	■	■	■	■
Theme III: continental Lithosphere							
1. Global Geoscience Transects (GGT)	Con't from 2nd Term	■	■	■	■	■	
2. Origin of sedimentary basins	New		■	■	■	■	■
3. Age and growth rate of the continental crust	Con't from 2nd Term	■	■				
4. Lithospheric processes	New			■	■	■	■
5. Dynamics of the subcontinental mantle	New			■	■	■	■
6. Ultrahigh-Pressure Metamorphism & Geodynamics in Collision-Type Orogenic Belts	New				■	■	■
7. Global sedimentary basin stress project	New				■	■	■
Theme IV: Oceanic Lithosphere							
1. Global mid-ocean ridge studies	Con't from 2nd Term	■	■				
2. The ocean-continent lithosphere boundary	New		■	■	■	■	■
Coordinating Committees							
1. Regional Committees							
Himalayas	Con't from 2nd Term	■	■	■	■	■	■
Arctic	Con't from 2nd Term	■	■	■	■	■	■
Andean	Con't from 2nd Term	■	■	■	■	■	■
EUROPROBE	New		■	■	■	■	■
2. Terrestrial Observations	New		■	■	■	■	■
3. Seismology and Related sciences in Africa	Con't from 2nd Term	■	■	■	■	■	■
4. Continental Drilling	Con't from 2nd Term	■	■	■	■	■	■
5. Data exchange and centres	Con't from 2nd Term	■	■	■	■	■	■
6. Geosciences within Developing Countries	Con't from 2nd Term	■	■	■	■	■	■
7. International Commission for the Earth Sciences in Africa (ICESA)	New		■	■	■	■	■

Shaded area indicates the period over which a project is active or planned to be active

REPORTS OF IUGG REPRESENTATIVES ON OTHER BODIES

FEDERATION OF ASTRONOMICAL AND GEOPHYSICAL DATA ANALYSIS SERVICES (FAGS)

1. Report of the President (O. Bedsted Andersen)

The group of FAGS-services is at the moment composed of 10 Services each of which operates under a Directing Board appointed by one or more of the following Unions: IUGG, IAU, and URSI. The administration of FAGS, in particular the setting of the budget, is the responsibility of the FAGS Council to which each of the above-mentioned Unions appoints two representatives. The Council appoints a Secretary who also becomes member of the FAGS Council. The IUGG representatives appointed for the period 1991-95 were P. Melchior and O.B. Andersen, however, P. Melchior was replaced by G. Balmino in 1994.

The President of FAGS 1990-94 E. Tandberg-Hanssen was succeeded by O.B.Andersen and the Secretary of FAGS 1986-92 R. Wielebinski (URSI) was succeeded by D. Pugh (IUGG).

The present Services are the following:

- International Earth Rotation Service (IUGG-IAU-URSI)
- Sunspot Index Data Center (IAU)
- Quarterly Bulletin on Solar Activity (IAU)
- International Service of Geomagnetic Indices (IUGG)
- Permanent Service of Mean Sea Level (IUGG)
- Bureau Gravimétrique International (IUGG)
- International Centre for Earth Tides (IUGG)
- International Ursigram and World Days Service (URSI-IAU-IUGG)
- World Glacier Monitoring Service (IUGG)
- Centre de Données Stellaires (IAU)

The FAGS Council has met once a year in Paris 1991 and 1992, Brussels 1993, Paris 1994, and Copenhagen 1995. The activities of the Federation and its Services are reported to ICSU. The Services are doing excellent work and are well managed. Thanks are due to the institutions to which the Services belong for their valuable support of the activities of the Services.

FAGS money is received from ICSU and the three Unions involved. The yearly funding has been close on $72,000. ICSU gives about $55,000 whereas IUGG, URSI, and IAU gives $10,000, $2,000, and $5,500, respectively.

All funds are allocated to the Services. The distribution of the grants is based on the reports and requests received from the Services with due consideration to an order of priority set up by the FAGS Council. In 1993 the grants ranged from $1,500 to $17,500. The allocations to the Services are mainly used for the evaluation of data and for support of publication series.

2. Report of the FAGS Secretary (D. Pugh)

The Federation of Astronomical and Geophysical Data Analysis Services is sponsored by three of the ICSU Unions, the IUGG, URSI and the IAU. The two IUGG representatives during this period have been Dr O.B. Andersen and Baron P.J. Melchior. It is a pleasure to acknowledge the honour conferred by the King of Belgium on Baron Melchior in 1993, and the long period of distinguished and devoted service which he has given to FAGS, as well as to the IUGG and other bodies within ICSU. The current President of FAGS is now Dr. O.B. Andersen, who replaced Dr. E.A. Tandberg-Hanssen in 1994. Dr. Tandberg-Hanssen (IAU) continues to serve on the FAGS Council.

A summary of the present Council membership, Permanent Services and their Directors is attached to this report. During the period we have welcomed

new Directors to the International Centre for Earth Tides and the Sunspot Index Data Centre.

FAGS provides the framework within ICSU within which a wide range of geophysical and astronomical services are supported and ratified. Although in every case, the money made available through FAGS to the individual Services is much less than the cost of operating the Services, we are continually reminded that the imprimatur provided by FAGS and ICSU frequently enables the generation of additional support from other sources. This is essential, as the funding provided by FAGS itself has remained relatively constant over many years, and is gradually declining in real terms. For example, the money available from ICSU to FAGS in 1995 ($50,600) is substantially lower than the 1994 figure (£54,400). The support of the sponsoring Unions continues to be important. The IUGG contribution ($10,000 per annum) is greater than that of the other two Unions, which have a smaller interest in the Services. Nevertheless, it is pleasing to report that the IAU has more than doubled its contribution since 1993, and the contribution of URSI has remained constant. A summary of the financial allocations is included for information.

In addition to its annual review of reports from the ten Services, and allocating of funds to support them, the FAGS Council has also been involved in several other activities.

1. Discussions within ICSU, with CODATA and the WDC system on possibilities of enhanced collaboration. FAGS Council takes the view that there are many aspects of the technicalities of data management, such as hardware, software and charging policies, where sharing of experience would be beneficial. To this end FAGS has nominated Dr. Martine Feissel (IERS) to represent it on a data panel which CODATA is leading ICSU. However, FAGS Council stated very firmly that the nature of its Services requires that they do far more than collect data: Services are also charged with analysis and interpretation, and in many cases with the development of major observational programmes. These go far beyond the simple concept of data collection.

2. Council has sought to encourage certain extra work by the Services, by inviting them to bid for small additional sums at the beginning of each year. This flexibility margin has allowed the Permanent Service for Mean Sea Level to invite representatives from the IERS and the World Glacier Monitoring Service to its Sixtieth Anniversary Meeting in London in December 1993. Nevertheless, there is still scope for further collaboration among the Services, although the ability of FAGS Council to stimulate these will be limited as allocations from ICSU are reduced.

3. During the period, Service Directors were asked to advise on the merits of requiring formal Government commitments to the measuring programmes from which they derive their data. There was general agreement that the flexibility afforded by working directly with individual scientists and specialists, rather than through Government mechanisms, should be retained. The Permanent Service for Mean Sea Level pointed out that although it operates within the non-Governmental framework of ICSU and FAGS, it has nevertheless encouraged the development of an intergovernmental sea level network within the framework of the In-tergovernmental Oceanographic Commission of UNESCO, and that it continues to work very closely with intergovernmental bodies.

4. FAGS Council decided that some effort should be spent on making the wider scientific community aware of the role of FAGS as an integrating organisation for the several Services. To this end FAGS Council was pleased to be invited to participate in the ICSU General Assembly in Santiago, Chile, in October 1993. Also, the FAGS Secretary prepared a special article on the nature and mission of FAGS which has been widely published by several organisations within the ICSU family. A copy of this article is attached for the information of the IUGG Council.

During 1995, there will be a review of FAGS as part of the on-going ICSU review of interdisciplinary bodies. At present Council is working on the papers for submitting to that review, and will be finalising the input when it meets on 24 April 1995.

Annex: The ICSU Federation of Astronomical and Geophysical Data Analysis Services

The earliest scientific measurements were probably of the movements of the sun through the heavens. When wise men among the ancients developed scientific theories to fit the observed facts, they did so to satisfy the practical human demands of adjusting to the seasons. Like today's scientists, they must have understood the basic experimental requirement: good science needs good data. Studies of the Earth, the solar system and the universe demand data of the highest quality, measured systematically over as long a period as possible.

Although such observations have been made since time immemorial, few records were kept in a systematic way to allow detailed analyses and the identification of trends and changes. The Federation of Astronomical and Geophysical Analysis Services (FAGS), formed in 1956, is an Interdisciplinary ICSU Body. FAGS includes ten individual Services each operating under the authority of one or more of the sponsoring ICSU Unions: IAU, IUGG and URSI. Each Service Director is an acknowledged international authority on the phenomena for which the Service is responsible; each Director is charged not only with receiving data from a world wide network of co-operating agencies, but also for quality control, dissemination of data and advice to interested scientists, and above all for applying his expertise to the scientific analysis and interpretation of the integrated sets of observations.

Scientific interest in these analyses continues to grow. For example, recent studies of the variations in the rate of rotation of the Earth are important in relation to meteorological changes, glacier distribution in polar regions, geomagnetic activity and space navigation. The long-term changes are of special interest, for example in anticipating the effects of climate trends on the global economy, the possibility that slow tectonic movements and tides may play a role in triggering Earthquakes, and the coastal impacts of secular changes in sea levels.

FAGS Services give special attention to questions of instrument calibration, resolution and stability. Reliable scientific analyses of small but important long-term geophysical trends is only possible if the methods of making the measurements over decades and centuries have been carefully controlled. No new measuring procedure can be introduced without careful comparison and checks for compatibility with the older methods. Here the advice and experience of the Service Directors is invaluable as guidance for the network of individual measuring systems which operate at a national level.

Each Service works independently, under the general auspices of FAGS, towards the common goal of long-term scientific excellence in data analysis and interpretation of astronomical and geophysical variability. The sponsoring Unions appoint Advisory Boards with strong international membership to guide and assist each Director to achieve these goals.

Although the central co-ordination of FAGS began under ICSU as recently as 1956, many of the Services have a longer history. Most maintain data which has been collected over decades, and in some cases, centuries. It is appropriate to consider the special activities of each Service in turn.

International Earth Rotation Service (established in 1895) Paris

maintains the terrestrial reference system for both positions and velocities; it also maintains an extragalactic celestial reference system and determines the Earth orientation parameters which connect these systems; it organises the observational activities necessary to collect the appropriate data. The advent of satellite geodetic measurements such as Very Long Baseline radio Interferometry, Lunar Laser Ranging, the Global Positioning System, and Satellite Laser Ranging, has revolutionised the accuracy of the studies: crustal movements as small as 2 to 5 mm per year are detectable, and changes in the length of the day are monitored to within 0.0002 seconds. The various IERS results contribute in many ways to space research, astronomy and geophysics. For example, data on Earth's rotation are interpreted in terms of mantle elasticity, structure and properties of the core-mantle boundary, rheol-

ogy of the core, underground waters, ocean circulation, atmospheric winds and mass distribution.

Quarterly Bulletin on Solar Activity (1928) Japan

publishes a Bulletin, a record of solar activity which is as final and complete as possible, for studying short and long-term activities of the sun. These activities include sunspots, synoptic charts of solar magnetic fields, chromospheric eruptions, intensity of the solar wind, and solar radio emissions. More than 70 observatories and institutes contribute observations to these syntheses.

International Service for Geomagnetic Indices (1932) St Maur, France

collects and publishes data disturbance variations of the geomagnetic field. Disturbances include sudden commencement of magnetic storms, solar flare effects, and pulsation disturbances. Variations in the intensity of the Earth's magnetic field are related to the level of solar activity, and the amount of energy coming from the sun into the Earth's environment.

Permanent Service for Mean Sea Level (1933) Merseyside, UK

collects and analyses monthly mean sea level data from a global network of tide gauges. These gauges are operated by a wide range of national authorities: hydrographers, surveyors, oceanographic institutes, and individual university departments. PSMSL works to improve the quality of the measurements, and the range of global coverage. There is a shortage of reliable long-term sea level observations in the Antarctic, and from ocean islands. The latter are important to get an even coverage of the measurements; to increase the data flow, PSMSL has worked with the Intergovernmental Commission of UNESCO to develop GLOSS, an Intergovernmental system for measuring sea levels to common high standards. Altimetry has given a new momentum to these analyses, and in future the emphasis will be on developing integrated products for sea level based on both coastal and satellite measurements. In recent years the prospects of global warming, and possible enhanced rates of sea level rise have made the demands for PSMSL analyses more urgent. Present rates of sea level rise of 0.15 m per century may increase, but there is no evidence for this yet.

Bureau Gravimétrique International (1951) Toulouse, France

collects on a world wide basis, all gravity measurements and pertinent information about the gravity field of the Earth; it compiles and stores the information on a computerised data base in order to redistribute them to a large variety of scientific users. Other data such as mean values of gravity anomalies, geoid heights, topographic heights, and satellite altimetry derived geoid heights are also collected and distribute to scientists world-wide. The BGI also records absolute measurements of gravitational acceleration. One of the applications in which BGI assists is the preparation of geoids for cartographic and hydrographic applications.

International Centre for Earth Tides (1960) Brussels

Ocean tides are easily observed by the casual coastal visitor, but the gravitational attractions of the moon and sun are also felt by the solid Earth. The forces and the Earth's responses to these can be calculated and measured to great accuracy. These Earth responses relate to the elasticity of the mantle and to the properties of the liquid core. Movement of water due to ocean tides also affects the crustal deformations observed by sensitive gravity metres, tilt metres and strain gauges. When known, global effects are removed from the records, and the residuals are analysed in terms of local phenomena and tectonic features.

International Ursigram and World Day Service (1962) Chatswood, Australia

describes itself as "The World Space Weather Warning Service". It operates through a network of ten Regional Warning Centres, which have responsibility for collecting data in their geographic area and distributing it to users through the other centres. The wide distribution of these centres is typical of many of the FAGS Services: Paris, Prague, Warsaw, Moscow, New Delhi, China, Tokyo, Sydney Australia, Boulder USA and Ottawa. Warnings of disturbances in the solar terrestrial environment are used by radio

communicators, surveyors using geophysical techniques, power line and pipe line authorities, operators of satellites, and a host of scientific users. IUWDS also encourages co-ordinated observations by preparing the International Geophysical Calendar each year; this lists a series of 'world days' which scientists may use to carry out synchronised experiments.

World Glacier Monitoring Service (1967) Zurich

Increased interest in possible global warming has focused on trends in the extent of glaciers; maps of fluctuations are published at 5-year intervals. A century of systematic observations clearly reveal a general shrinkage of mountain glaciers on a global scale, which provides one of the most reliable pieces of evidence for a secular warming trend. Glacier inventory information provides the basis for identifying global trends, and for isolating locally anomalous behaviour; but interpretation is not straight forward, and standard procedures for monitoring glacier length and volume must be applied.

Sunspot Index Data Centre (1985) Brussels

Since 1981 the SIDC has collected data from some 40 co-operating centres to calculate a provisional sunspot number, but the records go back as far as 1700. Recently the Service has begun separate analyses of activity in the two solar hemispheres. On top of the well known 11 year periodicity, there are many shorter and longer-term fluctuations. Apart from strong scientific interest, users include space-centres and telecommunication systems. SIDC issues 12-month forecasts, with necessary cautions. Until 1997 the level of sun spot activity will generally decrease through the 11-year cycle.

Centre de Données Stellaires (1985) Strasbourg

is the world reference data base for the identification of astronomical objects. It collects all of the useful data concerning these objects from observatories around the world, upgrades these information by critical evaluation and comparisons, and distributes the results for further research. CDS has also had a major part to play in most of the major astronomical space missions, by identifying observed sources, and by helping to solve problems of data archiving and access.

There is no typical FAGS Service, but as the above summary shows, there is a general theme: of attention to co-ordinated global observing systems of the highest quality; data assimilation; analysis and interpretation of these data using the best scientific expertise; and a commitment to make these results available for other scientists and for a wide range of other practical applications.

ICSU and the Scientific Unions provide a small sum of money to assist the services in their central activities, but the main support comes in each case from the national authorities which undertake these responsibilities for the benefits of international science. The Council of FAGS ensures that standards are maintained, and that where possible, links among the Services are developed. Joint meetings of the Services Directors and the FAGS Council are held every four years, to exchange ideas and experience, and occasional cross-Service scientific meetings are organised. In December 1993 the Permanent Service for Mean Sea Level is celebrating 60 years of operation at a meeting to which it has invited Directors of several of the other FAGS Services.

The driving force and vision which established a coordinated system of astronomical and geophysical observations and analysis within ICSU came from the scientists, who demanded data of the highest quality to enhance our understanding of the Earth on which we live, and of the solar and stellar systems which surround us. But the final acknowledgement must go to the generations of anonymous observers without whose patient and exact application of their measuring skills, none of this would have been possible.

F.A.G.S. BUDGETS

	1988	1989	1990	1991	1992	1993	1994	1995
ICSU	45000	50000	50500	50400	54400	54400	54400	50600 (letter of 4/6/94)
IUGG	10000	10000	10000	10000	10000	10000	10000	10000
IAU	2500	2500	2500	2500	0	8503**	5208*	50000
URSI	2000	2000	2000	2000	2000	2000	2000	2000
	59500	64500	65000	64900	66400	74903	71608	67600
Balance of previous year	2475	5375	875	475	2548	2414	1317	1374
Supplement ICSU	5000							
TOTAL INCOME	66975	69875	65875	65375	68948	77317	72925	68974
Allocated to Services	61600	69000	65400	62800	66500	76000	71551	68000
Bank Charges				27	34			
TOTAL EXPENDITURE	61600	69000	65400	62827	66534	76000	71551	68000
BALANCE at year end	5375	875	475	2548	2414	1317	1374	974

** includes delayed 1992 payment
* URSI provisional based on 1.46 SwF per US Dollar

PRESIDENTIAL ADDRESSES OF THE ASSOCIATIONS

International Association of Geodesy

Distinguished Guests, dear Colleagues, ladies and gentlemen. I have the honour to welcome you at the opening of the IAG General Assembly, which our Association traditionally holds within the frame of the IUGG General Assembly. I should like to especially welcome the President of the International Union of Geodesy and Geophysics, our colleague Professor Helmut Moritz, and the President of the International Union of Surveys and Mapping, Mr. Earl James, who is also the President of the International Federation of Surveyors. My greetings also go to the representatives of our sister organizations, united in the IUSM.

I should like to also inform you that our Honorary President Professor Bomford will reach the age of 96 years this week and I propose to send a message of congratulation to him. I now come to the Presidential Address, which will report on some major accomplishments of IAG, achieved during the last four years. In addition, I shall try to indicate some future tendencies and actions.

But at first it is my duty to remember our friends who left us since the last General Assembly. We lost

James G. Marsh, USA
Richard Anderle, USA
Árpád Czobor, Hungary
Czeslaw Kamela, Poland
Georges Laclavère, France, (Secretary General of IUGG from 1951 -1963)
Mikhail Sergevich Molodensky, Russia
Gabriel Obenson, Cameroon
Leonard Pavlovich Pellinen, Russia
Avraam Perelmuter, Israel
Donald A. Richardson, USA
Karl Rinner, Austria
Ove Simonsen, Denmark
Charles Whitten, USA, (IAG-President from 1963 to 1967)
Helmut Wolf, Germany, and
Tadeusz Wyrzykowski, Poland

May I ask you to stand up for a minute of silence to honour the memory of our colleagues. Thank you.

Let me now make a few notes on the historical relation between the IAG and our host country. As you know, IAG has its roots in the "Mitteleuropäische Gradmessung", established in 1862 in Central Europe. The extension to the International Association of Geodesy occurred in 1886, and a significant break-through towards a global international organization happened, when the United States of America joined IAG in 1889. An Act of Congress (21.2.1889) authorized the President of the United States to appoint a delegate to the Association, and at the General Conference in Paris, in October 1889, the U.S. Delegate George Davidson, Assistant U.S. Coast and Geodetic Survey, brought kind greetings and expressed the "conviction that (the Association's) views will grow with the breadth of the new world before it." A detailed report about the geodetic activities in the United States followed, including the manifold work along the 39° parallel. Since that time, the United States have been a very active member of IAG, as demonstrated by the Presidents

William Bowie (1920 - 1933),
Walter D. Lambert (1946 - 1951),
Charles Whitten (1960 - 1963), and
Ivan Mueller (1987 - 1991),

and IUGG/IAG General Assemblies held in Washington (1939) and in Berkeley (1963). Taking the outstanding contributions of the United States to Geophysics and Geodesy into account, it was certainly high time to meet again in this country.

I now come to the scientific achievements over the last period. These achievements are of course due to the work of the individual scientists, who engage themselves in IAG bodies as Sections, Commissions, Special Study Groups, Services and projects, and the next two weeks will demonstrate in detail their activities and results. Having with the five sections a very strict scientific structure, it is only justified if the Section Presidents later at this opening session shortly inform about highlights of their work. Nevertheless I should like to make a few more general

statements about the present state of geodesy, and in this connection also refer to some new or successfully continued IAG activities.

If we classify the fundamental geodetic tasks into reference systems, positioning, and gravity field modelling, we first have to recognize that the observation techniques now approach or have reached the 10-9 accuracy on global and regional scale, and that modern data acquisition systems allow a very high time sequence of the observations. In addition, kinematic survey methods system more and more govern geodesy employing artificial satellites as well as airborne and land vehicle systems. This progress in technology has raised many problems and posed partly unexpected challenges. IAG by coordinated efforts tried to promote the study of those problems, especially through international cooperation. Important research areas can be read off from the present IAG structure, and include

- a much more refined functional modelling of geodetic observations into geodetic parameters, taking the increased accuracy and time variations into account, and extending those models to kinematic methods,
- a deeper understanding and modelling of the observational errors at high data-rates, taking non-random effects and frequency dependence into account,
- new studies of the geodetic boundary value problem, under the aspect of available space data, as well as improved models of the upper layers of the Earth,
- design problems of geodetic fundamental and geodynamic networks, combining different observation techniques,
- interpretation of global regional and local geodetic data within the frame of geophysical models and jointly with geophysical data sets, from the static and the dynamic point of view.

Let me mention—without any completeness—some of the overall IAG activities, generally with interdisciplinary character, and including collaboration with other scientific bodies:

- The International Earth Rotation Service (IERS) continued to work with great success as a joint enterprise of IUGG and IAU since 1988. Providing the basic reference frames by employing advanced space methods, the evaluation and interpretation of the results has brought an enormous progress at our understanding of the kinematic and dynamic behaviour of the Earth, and linked together practically all fields of IUGG, with astronomy and space research,
- at continental dimensions, reference frames are under construction, fitting into the IERS frame and employing GPS-techniques. These activities more strongly connect geodesy to cartography and surveying, and - in general - to all kind of geoinformation systems. Examples of this type of work are the European Reference Frame now extended to Eastern Europe, and the SIRGAS project in South America, both running in close cooperation with the National Geodetic Surveys,
- the International GPS Service for Geodynamics started routine work on January 1, 1994, and proved to be extremely successful. In close cooperation with the IERS, well - accepted products are provided to users in high-precision and in practical geodesy. Especially, the IGS represents an efficient tool, to monitor the local and regional strain-field of the Earth, as an important boundary-condition in geodynamics research. I should like to thank here all the individuals and agencies involved in IGS, and as representatives I mention Gerhard Beutler, the Chairman of the IGS Governing Board, and Ivan Mueller, who initiated the Service,
- the ad'hoc planning group on Global Change, established after Vienna and chaired by Jean Dickey, identified IAG related problem areas, and succeeded to link geodesy to the International Geosphere-Biosphere-Program, within the Core-Project "Land-Ocean Interactions in the Coastal Zone",
- the International Geoid Service, located at Milano, is operational since 1992, and provides effective support to individuals and agencies, involved in geoid determination, while Regional Sub-commissions as for Europe and South America push forward calculations on a continental scale,

- the links to our sister organizations have been strengthened through our involvement in the International Union of Surveys and Mapping (IUSM). IAG could contribute to the IUSM Working Groups on GPS, on Engineering, on Education, and on Geographical Information Systems, and joint meetings on the first three topics will be held here in Boulder,
- finally, I mention one outcome of our active GALOS group, chaired by Petr Vanicek, which is the establishment of an IHO (International Hydrographic Organization) / IAG Advisory Board on Hydrographic and Geodetic Aspects of the UN Convention on the Law of the Sea.

Research work done and results obtained, again have been discussed and documented in scientific meetings sponsored by IAG, and in the IAG related publications. Following our tradition, IAG sponsored more than 30 symposia, workshops, summer schools and seminars, during the past four years. We were happy to again have a General Meeting between the General Assemblies, in 1993 in Beijing, with six dedicated topics, and a strong emphasis on the contribution of geodesy to global change problems. Let me thank again our second Vice-President Dr. Chen, who was responsible for the organization of the successful meeting. We tried to also offer an interesting palette of topics at this General Assembly, with strong emphasis on interdisciplinary aspects. As you have recognized from the program, IAG is involved in 6 Union Symposia and 13 Inter-Association Symposia, convening 2 respectively 3 of them. In addition, we shall have 3 IAG-Symposia, 4 Intersection-Symposia, and the 5 section meetings. We already have proposals for a number of symposia to be held in the next period, and we especially have received invitations from Brasil and from Australia, to hold the next "General Meeting", which we shall call now "Scientific Assembly" in those countries in the year 1997.

For internal communication and discussion, but also for showing up geodetic research results and geodetic products to the outside world, IAG has different possibilities and we also had some progress in this field. First of all, I can announce here, that the two journals "Bulletin Géodésique" and "Manuscripta Geodaetica" will unite on January, 1. 1996, and a "Journal of Geodesy" as the official journal of IAG will be published then at Springer publisher, with one issue per month. Let me thank here the two chief-editors of BG and MG, Christian Tscherning and Petr Vanicek, as well as the Editorial Board of BG/MG for their engagement. A report will be given here by Christian Tscherning. Another effort to document the IAG work are the IAG Symposia Proceedings started in 1989. Up to now 13 volumes have been published, one is in press and two more are planned as an outcome of this General Assembly. We continue of course with the "travaux" or "proceedings" of the General Assemblies, and with the IAG-Newsletters, in our new Journal. The Central Bureau has established an IAG Information Service on Internet, with a large variety of interesting details about IAG. I should like to thank the IAG Assistant Secretary Pascal Willis, for his hard work in order to establish and improve the Newsletters, the Information Service and the Travaux, as well as for his other manifold activities. I should also mention, that a number of IAG bodies regularly publish their information bulletins, thus very efficiently contributing to the exchange of ideas and the progress in the corresponding research field. Thanks to all the responsible editors for their strong engagement!

I now come to an item, where IAG, and this is the total of scientists affiliated to IAG, can be especially proud of. As you know, we have introduced in Vienna 1991 the categories of IAG Fellows and Associates, in order to create a more personal relation of individuals to our Association. About 200 Fellows and more than 1000 Associates have by now declared their affiliation to IAG. In 1993, the IAG President started an initiative to establish an IAG Fund, by voluntary contributions from the Fellows, and later also from the Associates. This action was extremely successful, and I very warmly thank all the contributors for their immediate positive reaction. The Fund is managed completely independent from the IAG budget and the Fund's reserves are only used for three dedicated purposes, which are

- an annual best paper award for young scientists, and the award winner for 1993 and 1994 will be announced later,
- a travel award for young scientists and among the about 15 scientists supported for

attending this General Assembly, four have received support from the Fund,

- the support of IAG workshops in developing countries, and planning is underway, to organize and support such a workshop within the next years.

My thanks go to the first Vice-President Klaus-Peter Schwarz and to Ivan Mueller, who took over the efforts of the Fund raising.

IAG feels a special responsibility to promote geodetic activities in developing countries as explicitely stated in the IAG Statutes. Although progress is slow, some positive records can be given here. A number of symposia either took place in third world countries, or concentrated on geodetic problems in that areas. As examples I mention the Symposium on Geodesy in Latin America in Vienna 1991, and the forthcoming Symposium on South East Asia, to be held here in Boulder, as well as Symposia or Workshops in Maracaibo, Bali, Lagos and Nairobi held between 1992 and 1994. A successful enterprise was the establishment of a Committee for Developing Countries in 1992, chaired by our Honorary Secretary General Michel Louis. With the Courier for Development, this group has remarkably improved the information lines and triggered new activities. Coming to projects, I should like to mention the extremely well running SIRGAS project, jointly sponsored by IAG, PAIGH, and DMA, with the intention to establish a zero order reference system in South America, and to tie the national control nets to that system. I should like to thank here especially the SIRGAS President Ing. Fortes from Brazil. Another example is the Geoid Subcommission for South America, which started in 1994, and gives another example how regional activities within the framework of our commissions can promote geodetic activities from the scientific as well as from the application point of view.

Looking forward, I try to identify a few areas of future activities, at developing internal IAG-structures, as well as relations to geosciences, engineering and the field of geoinformation systems:

- The IAG structures will be again revised and adapted to the new requirements, by the Cassinis-Committee set up here in Boulder. The Committee certainly has to evaluate if the present structure has to be modified, but also how IAG could react more flexible to challenges from the outside, and trigger initiatives in geosciences. I remind you that a "Cassinis Forum" will take place on Monday, 9. July, in the evening 19.00, and I invite you to discuss then the problems existing and to collect ideas about the future of IAG,
- IAG certainly should try to even more involve young people. There is again one chance here at the Assembly: The "old boys" should identify qualified young people, and include them into the IAG work, especially into the Special Study Groups. The youngsters on the other hand, should actively bring in their ideas and enter into the IAG bodies, they can and must stimulate our Association,
- IAG should continue and strengthen its activities with respect to developing countries. I think, that the establishment of regional subcommissions for dedicated tasks as geoid determination is one adequate tool in that direction. Another one is the joint realization of projects, and of course symposia and workshops related to problems in those regions should be supported even more.

Obviously, the promotion of young scientists and the support of activities in developing countries strongly depends on the financial basis. Under that point of view, IAG should

- improve and extend its services, and in that way directly or indirectly involve young scientists, and scientists from developing countries in IAG work, and
- continue the building-up of an individual feeling of an "IAG-membership", through the Fellows and Associates. The IAG Fund has opened a chance to remarkably strengthen our support, and more than 1000 affiliates even by a small annual contribution could significantly contribute.

I now come to the announcement and lending of some IAG awards. As I mentioned earlier, one outcome of the IAG Fund is the IAG Best Paper Award for Young Scientists with the purpose to draw attention to important contributions in the Bulletin Géodésique or Manuscripta Geodaetica, and to foster excellence in scientific writing. For the year 1993, the award is given to Dr. Hussein Abd-

Elmotaal. Born in Cairo in 1960, he studied at Ain Shans University and at Graz University of Technology, and he is now Assistant Professor at Minia University, Egypt. He receives the award for his paper "Vening Meinesz Moho depths: traditional, exact and approximated", published in Manuscripta Geodaetica vol. 18, no. 4, 1993. For 1994, the award winner is Dr. Jean-Pierre Barriot. Born in 1959, he studied at Montpellier University, and held postdoctoral research positions at the French Space Agency and at Jet Propulsion Laboratory. He is now research engineer at CNES in France. The award is given for his paper "Line of sight operators in planetary geodesy", published in Manuscripta Geodaetica, vol. 19, no. 5, 1994.

I am now going to announce the award of the Levallois medal. This medal was established by IAG in 1979, to honour our former Secretary General and his outstanding contributions to IAG. The award is made in recognition of distinguished service to the Association, and/or to the science of geodesy in general. I have the great honour to inform you that the Nomination Committee proposed, and the Executive Committee confirmed, that the Levallois medal shall be awarded to Professor Willem Baarda. Prof. Baarda worked for several decades at the Technical University at Delft, Netherlands, and the results of his research strongly influenced geodesy. He was the first to develop a systematic framework of statistical quality control, including the famous "data snooping". He also firstly introduced criterion matrices for testing a network precision, and invented the reliability concept, now at widespread use. Finally, I mention the invention of the S-transformations, nowadays employed at "free network" adjustments. Some of Prof. Baarda's publications from the 1960's and 1970's belong to the fundamental literature in geodesy. Just a few days ago, I even received a new basic publication from Prof. Baarda, related to the coupling and interaction between geometric and physical geodesy. Prof. Baarda received many honours, and he is a member of several scientific academies. For IAG he served as a member of the Cassinis Committee, as the Chairman of Special Study Groups on Networks and Statistics, and as a member of the Commission on Education.

Through the Levallois medal, IAG recognizes the outstanding scientific contributions of Prof. Baarda to geodesy, and especially expresses its gratitude for his service to IAG. Unfortunately Prof. Baarda could not attend the General Assembly, but the Netherlands Geodetic Commission and Delft University will organize an appropriate event within the next few months, and I then shall hand over the medal to him.

And now, last not least, I come to the Bomford Prize. This prize was inaugurated by IAG in 1975, and it is given at four years intervals, to a young scientist for outstanding theoretical or applied contributions to geodetic studies. Five very qualified young scientists have been nominated by the National Committees, and after a careful review process, the Prize Committee decided to award the Guy Bomford Prize 1995 to Professor Thomas A. Herring. Dr. Herring was born in 1955 in Cooroy/Queensland, Australia. He was educated at the University of Queensland, with a Bachelor and Master Degree in Surveying, and at the MIT, with the Ph. D. Degree. His scientific carreer includes positions at the University of Queensland and at Harvard University, and he is now Associate Professor of Geophysics at the Department of Earth, Atmospheric, and Planetary Sciences, Massachussetts Institute of Technology. From his many professional activities I mention his engagement in IAG research groups on atmospheric refraction, and on the application of space-based interferometry, in the IAU Working Group on Astronomical Standards, and in Committees or panels of the National Academy of Sciences, NASA, and AGU.

Tom Herring's career has been marked by leadership in the use of space-geodetic measurements to study the properties of the Earth. His first paper established the ability of VLBI to measure continental baselines with cm precision. Five years later, he and his colleagues published the first conclusive evidence from VLBI of plate motions. The improved analysis of VLBI data also led to an empirical nutation model which is currently used at the IERS. In the past four years, Tom Herring continued his VLBI studies, but now also made important contributions to GPS measurements of global and regional geodynamics, and demonstrated that earth rotation variations can be derived from GPS. An outstanding example for combination techniques developed for time series of heterogeneous data sets is the determination of the velocity field for Southern California from VLBI and GPS observations spanning eight years. By combining a critical understanding of the

inherent deficiencies in space-geodetic measurements with a vision of their potential accuracy, Tom Herring has consistently pushed the analyses to higher levels, based on his fundamental knowledge of geodetic observations, Earth models, and Astronomy.

IAG is proud to award the famous Bomford Prize to you, Dr. Herring.

Let me conclude the Opening Ceremony by reminding you that our old and still young Association depends on all of you, on your engagement, on your positive criticism, and on your proposals for the future direction. Looking back on four years of office, I am optimistic that IAG is able to renew itself continuously, and this optimism is based upon the support and the input I had during the last four years from so many colleagues. I have mentioned some of them already, but I especially want to thank the Bureau members and the members of the Executive Committee, as well as all the IAG officers: I enjoyed the work with you. Sincere thanks have to be expressed to the Institut Géographique National of France, which hosted the IAG Central Bureau over more than 70 years, and to all the Secretary Generals and Assistant Secretaries, who served IAG over this time span. Let me especially thank Jean Dickey, our representative at the Organizing Committee: you did an excellent job at the organization of this very complex event. I wish you all an interesting meeting, with fruitful discussions, getting new ideas for the future work, finding new friends, and strengthening the relations within our Association, the IAG, and to our sister organizations.

I now declare the IAG General Assembly to be opened.

W. Torge

International Association of Seismology and Physics of the Earth's Interior

To think about tomorrow is in the human nature. On the eve of 21st century, let us look forward. What will geophysics be like?

Historical examples show that the progress of science is not a sequence of random events. Every discovery, every new geophysical conception, was prepared by some other less visible discoveries and results. A new concept is often rejected by scientific society, especially if it appears "too early". Then after some time a new idea is forgotten, but after all it appears sometimes again in a new form. So, my thesis is that THE NEW IS THE FORGOTTEN OLD.

The ideas and achievements which will play a significant, dominant role in geophysics of the 21st century are already with us today. Some of them are being elaborated and are little known. Some are odd-looking and are rejected by the scientific community. Sometimes it is difficult to recognize these ideas and new results, and to foresee their further development.

A forecast is very much a personal matter. What will be shown here is, too, very much personal. This is only a fraction of the whole potential.

Physical properties intrinsic to in-situ rocks is the basis of geophysics. The primary rock model, which is widely accepted both in geophysical prospecting and Earth's geophysics, suggests the following:

- local homogeneity and continuity of physical characteristics within small domains of the media;
- linearity which can be formulated as a principle of superposition: the result of several simultaneous actions is equal to the sum of the results of individual actions;
- passivity: media absorb the energy (seismic, electric, electromagnetic), but do not radiate it;
- stability: media structure does not change during short time intervals of minutes-years;
- independence of geophysical fields: they don't interact.

Of course, there is some doubt about every one of these items, but common opinion is that a digression from every principle is negligibly small and they are investigated as some interesting peculiarities, but not as a manifestation of principal properties which

govern geological processes and the Earth's evolution.

The new concept is that the real media is:

- hierarchically inhomogeneous from the size of a large part of the globe down to the individual grains of minerals;
- nonlinear: a nonlinear character is natural to geodynamical processes: creep, seismicity, stress-state changes, seismic waves, electromagnetic waves, and electricity propagate non-linearly;
- active: it not only absorbs the energy, but also radiates it in the form of acoustic and electromagnetic emissions; these processes are highly sensitive to external influences such as stress field change, seismic vibrations, and electricity;
- temporally changeable: temporal variations in geophysical properties are tied mostly with stress field change which is the most dynamical one, as a result of the high tenso-sensitivity of rock properties; these changes are, by nature, endogenous and exogenous (Earth tides, atmospheric pressure changes, technogenic impact);
- geophysical fields interact with one another: the interaction is manifested in a direct form like the seismoelectric effect and in an indirect form like tenso-acoustic plus acoustic-electromagnetic effects.

As a result, on the level of fine structure, all geophysical fields are in complex mutual relations.

These five principles should be accepted as Creeds.

Here are some results of experimental investigations that illustrate these properties in the real Earth.

Seismic nonlinearity is manifested as a nonlinear interference of harmonic waves of small amplitude less than 10-8 (Beresnev et al., 1987, In: Problems of Non-Linear Seismic, Editors: A.V. Nikolaev and I. Galkin, Moscow, Nauka, 251-257, in Russian), as wave-velocity changes due to tidal deformation of the Earth's crust (Aki et al., 1970, Bull. Seismol. Soc. of Amer., v. 60, 1315-1335), and as nonlinear interference of eigen-oscillations of the Earth observed after the Chilean and Alaskan earthquakes (Zadro, 1971, Bull. of Geophys. Teor. ed Appl., V. VIII, 187-195).

Another manifestation of nonlinearity is strong tenso- and vibro-sensitivity of the physical properties of rocks (elastic and nonelastic constants, electric conductivity, etc.) and of geodynamical processes. One illustration of that is the Earth tide influence on a seismic flow and its time variations. The detailed investigation of earthquake catalogs in different seismically active areas shows that the ratio of the number of earthquakes that occurred during the phase of tidal compression to the number that occurred during the time of tidal extension changes both in space and time. Overcompressed areas respond to tidal compression and over extended areas to tidal extension. Periods of strongly expressed tidal triggering effects in many areas are interrupted by periods with no triggering effects, the observed dominant time being 10-20 years. The significant peculiarity is that the triggering effects are connected with some harmonic components of the Earth tide which differ by area (Nikolaev, 1994, In: Induced Seismicity, Editors: A.V. Nikolaev and I. Galkin, Moscow, Nauka, 103-114, in Russian).

Vibro-sensitivity, i.e., sensitivity of geophysical processes to seismic vibrations, was revealed as a large-distance influence of underground nuclear explosions and earthquakes upon seismicity over a wide magnitude range (Nikolaev, 1993, Heralds of the Russian Acad. of Sciences, v. 63, 83-86, English translation; Nikolaev et al., 1994, In: Induced Seismicity, Editors: A.V. Nikolaev and I. Galkin, Moscow, Nauka, 251-257, in Russian). In the course of 5-10 days after strong remote events (M5.5), seismicity increases mostly by 10-30%. This effect is most strongly expressed by low magnitude earthquakes (M=3.0-3.5) at a distance range of more than 1000 km.

Seismic and acoustic emissions are extremely high tenso- and vibro-sensitive processors. The effect of their amplitude modulation by the Earth's tide is especially clearly seen after strong earthquakes when the Earth's crust is excited by the strong shock. Such a phenomenon was observed after the M=7.2 Gazli earthquake in Western Uzbekistan, 400 km from the epicenter (Diakonov et al., 1990, PEPI, v. 63, 151-162). Sometimes the vibro-sensitivity increases up to the level of self-excitation and the media emits not a random but harmonic signals whose frequencies are in the band 10-80 Hz.

Sometimes the self-excitation is not full, like in an oscillator. In this case, the system acts as an active frequency filter. It has a high quality Q and very high magnification to external processes. If the frequency of an external process coincides with the resonance frequency of a such system, it can be amplified very strongly, up to 3-4 orders and perhaps more. Taking this into account, let's turn again to the discovery of Sadech, Ben-Menahem, and Meidav which was rejected by the scientific community (Sadeh and Meidav, 1972, Nature, v. 240, 136-138). They found that the harmonic component in microseisms has a frequency which is exactly equal to the double frequency of the pulsar CP1133. I believe in this result; it could be true. The next century will judge the dispute.

Therefore, even extremely weak internal and external processes may influence distinctly and even significantly the fine structure of geodynamics. An especially important role belongs to the Earth's tide whose influence is permanent and constantly directed during billions of years. The nonlinear seismic and acoustic response on the Earth's tide means that it could cause slow movement towards some direction. Here one should remember the hypothesis of the westward drift of the lithosphere which is practically turned down. Perhaps its time will come again.

Also, nonlinear processes in real media are displayed in a wide range of effects which would be impossible in a linear and passive Earth. The characteristic features of fine structure of real-time tectonics are:

- highest sensitivity to weak internal processes, both artificial and natural, of telluric and cosmic origin;
- interaction between the parts of the system, which is particularly displayed in the form of the self-excitation of seismic and acoustic emissions, coherent behavior and long-range interaction of remote parts of the media;
- frequency-dependent response and magnification of weak external excitations.

The media behavior is as complex as a living being. The biological principle of emergent evolution is very much applicable in geodynamics. The principle claims that new character and qualities that appear in the process, in the more complex level of organization, can not be predicted solely by studying less complex levels of organization. As a result of that, the behavior of the complex system can not be predicted, even when we know its less complex parts, and many results obtained using comparatively simple models of real media by means of numerical modelling and theoretical speculations will be revised and, perhaps, rejected.

It will take some time to accept widely the ideas and the spirit of nonlinearity. What we have now are some dispersed results and general ideas about the processes in the real Earth. The construction of more or less real physical and mathematical models of the Earth or even its small parts is an extremely difficult problem which will be solved in the course of the 21st and following centuries.

Let's look at the problem of Earth structure. The main role in the study of the Earth's structure belongs to seismic investigations. There are two main types of seismic studies, which use different techniques, seismology and seismic prospecting, that is, passive and active approaches.

Seismic prospecting uses very dense arrays of receivers and sources. The images of media which it obtains are much more detailed than those in seismology. In principle, the seismic prospecting technique might be applied in deep interior studies. The depth interval up to 40-60 km is already available for DSS studies using a seismic vibrator. The expansion of DSS at depth, the detailed study of the whole Earth, its mantle and core, using a powerful seismic vibrator, should be the signatures of the 21st century.

A 200 ton long-frequency seismic vibrator was designed by Novosibirsk geophysicists for deep studies. A continuous 60 min sweep-signal of 6-9 Hz was used. From the point of view of signal-to-noise criterion, it was equivalent to a 4 ton TNT charge. In principle, the design of a seismic vibrator which will be able radiate the whole Earth is today a comparatively simple engineering problem. So the 21st century's radiation of the Earth could be planned today.

Lithosphere monitoring. A new method, which is being developed now using a powerful vibrator, is the monitoring of wave velocity changes in the lithosphere. Systematic observations were conducted on Lake Baikal. Seismic rays radiated by the vibrator established on the eastern shore pass

through the Baikal Rift and are recorded on the western shore, at a distance of 130 km. A similar study in a smaller scale was conducted some 10-15 years ago in Central California (Clymer and McEvilly, 1978, Bull. Seismol. Soc. of Amer., v. 71, 1903-1927). The main result of both experiments is that the sensitivity of this technique is high enough to monitor the wave velocity variations which are linked with stress field changes due to geodynamical processes and Earth tides. Such studies of geodynamical processes are expensive. If the following generations are reached than we have, they will monitor the most important volumes of the Earth's interior with high detail and precision.

The method of deep interior seismic monitoring is similar to the geodetical study of surface movement. In this case, the seismic rays are used as light beams in geodesy. Unlike real geodesy, the temporal variations of travel times are connected not with distance changes but with changes in wave velocities connected with temporal variation in the stress field. Such studies will yield information on rock movement in the deep interior. A realistic structure of mantle convection, lithospheric plate movement, elastic energy accumulation in the zones of strong earthquake preparation - these are problems which will be solved in the next century.

Earthquake prediction. Application of this technique to the problem of earthquake prediction looks to be very promising. There is no doubt that solution of the earthquake prediction problem needs comprehensive geophysical information on processes in the seismic source region.

The new understanding of the geophysical catastrophe development is based on the ideas of nonlinear dynamics. In the source area before the shock, the weak seismicity and seismic emissions are getting more and more spatially coherent and sensitive to the inducing processes. Distant earthquakes, explosions and vibro-sources could be used to control the medium condition and to predict strong earthquakes.

The development and verification of new methods, based on the fine spatial-temporal studies of the geophysical processes, need much more dense and sensitive multi-disciplinary networks than those we are able to apply now. This is practically a matter of finance. Being optimistic, let's hope that the earthquake prediction problem will be significantly advanced in the 21st century, the losses will be strongly reduced, not only due to seismic resistance construction, but also due to earthquake prediction.

From the point of view of conventional science, many observed results are looking realistic because they are impossible by definition. The disputes around problems of nonlinearity are the signatures of the end of this century. In the near future, the inertia and resistance will be overcome. A new source of disputes is appearing now and it might be the signature of the next century. This is the problem of anomalous unusual events.

Experimental investigations of consciousness influence on non-stable physical processes, like generation of electrical noise, shows a positive effect with a very high confidence level (Jahn and Dunne, 1988, Harvest/Book 270 pp). If the influence of human consciousness on a delicate physical process is true, why can not the consciousness interfere in and influence geophysical processes? Here we come back to the question, which was raised by ancients, that natural disasters are initiated by the behavior of people, by social events.

Let one propose that this is so. So, the consciousness influences Earth processes in two ways: indirectly through technogenic activity and directly through the impact of consciousness on geodynamical processes. The fine structure of geodynamical processes reflects the metastability of the energy saturated medium evolution. Acoustic and electromagnetic emissions (generation of random noise) have extremely high sensitivity to external influences, so they might be sensitive also to the consciousness.

Vladimir Vernadsky developed teachings on the neosphere, the living sphere of the Earth which has consciousness in the form of humanity. He proposed the anthropogenic impact on the Earth's evolution as the technogenic influence on geological and other natural processes. If the human consciousness affects geodynamical processes directly, it might be accepted as the manifestation of the consciousness of the Earth itself. Since each of us is an atom of the Earth, everyone should understand the deep involvement in and responsibility for the Earth's evolution. An understanding of this mission would be the most significant signature of the next century.

A. V. Nikolaev

International Association of Geomagnetism and Aeronomy

Welcome to another IUGG General Assembly—the 21st General Assembly being held here in Boulder, Colorado. We appear to have numerous stimulating IAGA scientific sessions to experience. Not only will IAGA scientists discuss their work with colleagues from around the world but there is also ample opportunity to talk with, to exchange views with, and to initiate collaborative studies with scientific colleagues from other IUGG Associations —one of the primary benefits of the IUGG General Assemblies.

As we begin this Scientific Assembly I wish to thank Prof. Juan Villas and his colleagues for organizing and conducting such a successful Scientific Assembly in Buenos Aires in 1993. They certainly continued the tradition of stimulating and productive IAGA Assemblies and set a good example for this meeting to follow.

Next I would like to thank the Nominating Committee for the hard work they invested in identifying a very good slate of nominations for the 1995-1999 term. The committee was chaired by Prof. D. Ian Gough and its members were Profs. Attia Ashour, Brian Fraser, Atsuhiro Nishida, and Christian Sucksdorf. Thank you all for a job well done.

Also thanks are due the Finance Committee for its inspection of and report on the state of IAGA finances; more on this topic later. The Finance Committee was chaired by Prof. Gordon Rostoker, and its members were Profs. Kaljui Eerme and Michel Menvielle. Again, thanks for a job well done.

This evening I will present a short status report on IAGA, IUGG, and the relations between the IUGG and the Associations. First let me present a report on IAGA activity. This information was provided by the Division chairs. I greatly appreciate and thank them for their timely and most useful input. Due to time and space limitations, I shall not be able to mention all the activities occurring in areas of IAGA interest over the past four years. I will present samples of this activity in order to give a sense of the wide variety of efforts being pursued by IAGA scientists. I apologize in advance if I have omitted your favorite topic(s), but time and space restrictions left little if any leeway.

Division I scientists participated in numerous meetings and workshops dealing with all four of their main topics of interest: theory of the Earth's magnetic field, electromagnetic induction, paleomagnetism, and rock magnetism. A new activity was developed to aid in the analysis and interpretation of data and in the testing of models and hypotheses. These were called mini-workshops and were dedicated to hands-on interpretation of field data. These small workshops, held in conjunction with larger meetings, were based on intensive examination of data sets distributed to participants some months earlier. A requirement for admission was the detailed examination of at least one of the data sets. Access to computing facilities, analysis and presentation software, and to the participants home computational facilities were made available. These mini-workshops have been quite successful, resulting in special issues of the Journal of Geomagnetism and Geoelectricity.

New scientific results from Division I include indications of extremely rapid field changes during geomagnetic polarity transitions, possible relationships between the nature of the non-dipole field and the preferred paths of transitional virtual geomagnetic dipoles, and analysis of paleomagnetic data suggesting the presence of a supercontinent in the late Precambrian era that was quite different from the now-familiar one of Pangaea.

Finally, many IAGA data bases for paleomagnetism and rock magnetism have been established and are described by Charles Barton in an upcoming issue of EOS.

Division II scientists have participated in a variety of new scientific thrusts. For example, data from the Upper Atmosphere Research Satellite have provided, for the first time a global view of upper atmospheric winds, a view showing that there is great variability in the global-scale winds, including the tides and planetary waves, in addition to the previously known smaller-scale variability associated with gravity waves. UARS has also been helping to clarify the complex chemical processes of the middle atmosphere, for example by giving indications that the currently understood chemistry may indeed be able to account for the observed ozone

densities around the stratopause, in contrast to earlier modeling studies that found an "ozone deficit."

Further there has been great excitement about the recognition that electrical phenomena in the stratosphere and mesosphere above major electrical storms are quite common. Even though upward-going lightning has occasionally been reported for over a hundred years, the advent of sensitive video cameras that can detect subvisual phenomena has brought to light stratospheric "blue jets" and mesospheric "red sprites." A number of theories are being developed to explain those phenomena, and their possible significance for the electrodynamics and chemistry of the middle atmosphere are being explored.

There is increasing evidence that various types of long-term change can occur in the middle and upper atmosphere, and that significant anthropogenic change may have already occurred. The ozone hole is a well-known example, but evidence has come out that mesospheric water vapor may have been increasing and that the mesopause region may have been cooling, accounting for an increased frequency of noctilucent clouds, a lowering of the height of mesospheric sodium and electron-density layers, and a possible increase of exospheric hydrogen.

Over the past four years, Division III scientists have seen the International Solar-Terrestrial Program (ISTP) finally, and slowly, take shape. It began in late 1992 with the successful launch of the first flagship of this program, the GEOTAIL satellite, built by the Japanese Institute for Space and Astronautical Sciences. Still working exceptionally well, GEOTAIL has fulfilled the deep tail portion of its mission and has been lowered to its final orbital position of roughly 9 Re perigee and 30 Re apogee. GEOTAIL, together with the first of the ISTP ground arrays, the Canadian CANOPUS array, formed the beginnings of the ISTP program. In late 1994 they were joined by the NASA WIND satellite, placed in an orbit to measure solar wind properties in detail and thereby providing solar wind input to the magnetosphere. Scientific results from GEOTAIL in the Earth's distant magnetic tail regions include size and strength estimates of flux ropes, filamentary characteristics of the tail, non-convective behaviors of tail plasma, and acceleration of ionospheric atomic and molecular ions to several hundred keV in energy.

SAMPEX, a low altitude satellite launched by NASA, has returned new and novel data on radiation belts, cosmic rays, and energetic electrons. For example a component of the radiation belts consisting of anomalous cosmic rays has been discovered and is being studied. This and the many other new results emanating from the SAMPEX satellite provide yet more dramatic examples of the value of small, inexpensive satellites to the space physics community.

ASTRID, a small low altitude Swedish satellite, has returned the first data from instrumentation designed to image macro-scale regions of magnetospheric charged particles by measuring neutral atoms created in the charge-exchange process. Along these same lines there has been dramatic development in instrumentation to obtain global images of the magnetosphere and its component parts. It is possible that at some future IAGA meeting we will get to see global pictures of the magnetosphere. In this regard ASTRID has been an initial and a hopeful step.

Division IV scientists share the excitement of Division III scientists with launch of the WIND satellite. The new and sophisticated instruments are providing better-than-ever observations of solar wind plasma ion composition and charge-states, ion and electron phase space characteristics, and time variability. Similar improved data is being received on the interplanetary magnetic field, waves, and energetic solar particles-all these improvements required to better (or in many cases, just develop) our understanding of the generation and propagation of shocks in the interplanetary medium, and the stimulation and operation of acceleration processes from the sun to the heliopause.

Speaking of the heliopause, there remains a continuing anticipation (and excitement) as the constellation of Voyager and Pioneer spacecraft continue their journey towards the solar system boundary with the galactic-medium. You've seen the results from the spacecraft inferring heliopause positions ranging from many tens to less than 200 AU. In addition, researchers using data from these spacecraft, ingeniously have inferred properties of the local galactic medium from observations of hydrogen and helium pick-up ions. Here we have the first direct observation of local galactic properties that

can be compared directly with the views of the astrophysicists!

Finally the launch and flight of the ESA Ulysses spacecraft through the interplanetary medium, past Jupiter, through the high latitude heliosphere, and over the poles of the sun has been (and continues to be) a highly exciting mission for Division IV scientists. For example, data obtained over the solar poles indicate that at the very least the high latitude connection to the galactic medium is more complex than envisioned earlier.

IAGA's Division V members have had a busy four years and have experienced the appearance of new systems and capabilities that will change the way we handle and disperse our data. First let me note that the INTERMAGNET network continues to grow with more than 50 observatories now participating in the program. Five geomagnetic information nodes (GIN) have been established to provide rapid and easy access to the data. The GINs are located in Edinburgh, Golden, Kyoto, Ottawa, and Paris. By taking advantage of and using contemporary technology, the INTERMAGNET program is succeeding in greatly improving the access to large magnetic field data sets and in this way greatly improving observatory science. This forward looking approach will improve the credibility of the observatory network in the eyes of those outside IAGA.

Division V organized a workshop on magnetic observatories held in September 1994. It was successful with problems being presented and discussed openly and cooperative efforts identified that will contribute to the raising of observational standards into the future.

Along this line, IAGA through Division V leadership (and in particular David Kerridge) has been encouraging, through Program Outreach, institutions in richer countries operating observatories to aid similar organizations in countries where support is at less than critical levels. This initiative has had some success but is limited by the limited resources available any-where for geomagnetic observatories. Even were it more successful, Program Outreach was viewed only as a short-term fix to this problem. The long-term solution still requires follow-up discussions, proposals, and implementation by the world-wide observatory community. I believe that IAGA should remain at the fore-front of this effort and become its primary standard bearer.

As far as applications of geomagnetic data go, the concept of space weather is having new life breathed into it. Recent examples of the need for space weather alerts, warnings, and forecasts include power outages, transformer damage, and satellite failures. Improved space environment data is available from the launch of two new NOAA geostationary weather satellites and from real-time solar wind data available from the WIND satellite. INTERMAGNET has under study the goal of providing near-real time magnetic data for use in operational space weather forecasting.

Through the leadership of Division V, IAGA continues to produce magnetic field models, catalogs, and guide books. The 1995 revision of the IGRF will be agreed to here in Boulder. An IAGA Catalog of Regional Magnetic Survey, Chart, and Model Descriptions, with entries for 82 countries, appeared in June 1995. Two guide books, The IAGA Guide for Magnetic Observatories by Jankowski and C. Sucksdorff and The IAGA Guide for Magnetic Repeat Station Surveys by L. Newitt, C. Barton, and J. Bitterly are due out this year.

That covers briefly a sample of the activities engaging IAGA scientists over the past four years. Let me now spend a few moments on the IUGG and its relation to IAGA and our sister Associations. As mentioned above, the IUGG consists of an eight-member Bureau and a fifteen-member Executive Committee (EC) made up of the Bureau and the seven Association Presidents. The EC met in Boulder in July 1994 and are meeting here again during this Assembly. These meetings have continued the very positive spirit of cooperation that was established in earlier EC meetings.

It was agreed (and finalized at this meeting) to transfer $50K from the Bureau budget to the Associations. Following some adjustments to the algorithm devised to allocate funds to the Associations (agreed to by all the Associations), IAGA's new allocation for the 1995-1999 period will be $116K—an increase of some $8K. In addition each Association will receive a $20 surcharge for each of its registrants at this Assembly. This will provide $15K-$20K for IAGA. This represents a significant im-

provement in our financial picture over the past four years.

The next IUGG EC has the following budget policy items to finalize during the 1995-1999 term: i) allocate funds to the Associations according to the algorithm mentioned above (this will result in a somewhat larger allocation for IAGA) and ii) settle on the transfer of an additional amount of funds from the Bureau to the Associations (this will shift the division of Bureau and Association funding further towards the historical values of 20-30 years ago, i.e., 60% to the Associations and 40% to the Bureau).

As noted above, the IUGG EC consists of fifteen members, eight Bureau members and the seven Association Presidents. The present EC agreed that the Associations should have a majority vote when policy and financial matters are considered. Consequently it has been proposed to the IUGG Council that the number of IUGG Bureau members be reduced by one and that the role of the Past-President be changed from a voting to a non-voting member, thereby providing the Associations a one vote majority on a thirteen member EC. (Note: at their meetings in Boulder, the Council has rejected by a very narrow margin the one-member reduction in the Bureau membership). However it approved the change in the role of the Past-President. The EC now is a fourteen member committee consisting of seven Bureau members (President, Vice-President, Secretary General, Treasurer, and three at-large members, and the seven Association Presidents). I will finish this report with some brief comments on data availability and IAGA (IUGG) resources.

The enormous increase in data and data rates that our observations now provide, the tremendously expanded capability to store large data sets easily and efficiently, the ability to transfer data in numerous formats over electronic networks, and the dramatic capabilities provided by the services of Internet (WWW, Netscape, etc.) have changed the way that data are handled and accessed. IAGA scientists are utilizing these evolving capabilities and are beginning to change (permanently, I believe) the ways that they process, store, and distribute data. IAGA must remain in the forefront of this effort and should establish an active working group in this area responsible for exercising the Internet capabilities on behalf of IAGA (e.g. establish an IAGA home page), guiding IAGA into this exploding field of data access and re-examining the role of World Data Centers in this new era of data availability and access. Simultaneously IAGA must fulfill its responsibilities to those who may not have access to these capabilities. This is a difficult challenge and one worthy of IAGA's best efforts.

Finally let's consider resources. On the surface our present financial picture looks much improved over that of four years ago. This is due mainly to i) the new IUGG allocations, ii) the surcharge expected from this Assembly, and iii) the holding of fewer IAGA Executive Committee meetings during the 1991-1995 term. This is a positive development but there are ominous signs on the horizon. You are all familiar with the cutbacks that are occurring in many nations in not only our areas of science but in all scientific areas. In this climate, I do not believe that funding for international organizations such as IUGG will go untouched and that budget reductions will occur in the future, possibly in the near future. To date I have seen no plans being developed as to how best to cope with budget reductions and still maintain the goals of the organization. IAGA should begin serious discussions between the Executive Committee and the Division Chairs to identify ways of fulfilling IAGA's main responsibilities on a significantly reduced budget. This is another difficult challenge and its solution is, I believe, critical to the continued existence of IAGA (and the IUGG).

It has been an honor and a privilege being your President these past four years. It has also been my good fortune to have been able to work with an exceptional Secretary General, Michael Gadsden, and a talented, dedicated Executive Committee; Vice-Presidents Masaru Kono and Juan Villas, members Ibrahim Eltayeb, Gaston Fischer, Giovanni Gregori, Oleg Troshichev, Robert Vincent, and Roger Gendrin (Ex Officio). I wish the new President and Executive Committee well and I look forward to seeing you in Uppsala, Sweden in 1997.

D. J. Williams

International Association of Meteorology and Atmospheric Sciences

I have been involved in a number of activities on your behalf over the last few years. Rather than give a list of these I will give a few comments on how IUGG and IAMAS have worked and how they might develop in the future.

As you know, IUGG is composed of seven Associations. In shortened form, their areas of interest are geodesy, seismology, volcanology, aeronomy and geomagnetism, hydrology, meteorology and oceanography. The first three have their focus on the solid Earth, the last three on the fluid Earth and IAGA has a bit of both. There had previously been a move to split the fluid Earth Associations off from IUGG. However, we felt no necessity to pursue this. Under the guidance of the current President of IUGG there was a very positive spirit in the Executive Committee, and amongst the Association Presidents in particular. The inter-disciplinary argument is now stronger for IUGG than ever before.

There is no doubt that the Associations are very different from one another in the way they function. The solid Earth Associations are the international organising bodies for observation and theory in their areas. This contrasts with the IAMAS situation where WMO, WCRP and IGBP play a large role in our subject. The hydrologists, perhaps because of their contact with engineering, have a very formal, structured organization and run a large publication business.

In addition to the Associations, IUGG has an Inter-Union Commission on the Lithosphere with the Union for Geological Sciences. IUGG also has two Inter-Association Commissions, Studies of the Earth's Deep Interior and the Committee for Mathematical Geophysics.

The Association Presidents have been concerned that, in recent years, less than half of IUGG funds have been passed through to the Associations, the majority being retained for Union business and the Inter-Union and Inter-Association bodies. The trend has now been reversed and we expect this reversal to continue. The non-Association bodies have been placed under close scrutiny. The Committee for Mathematical Geophysics, for example, has been supported in its move to cover the fluid earth sciences, and urged to input into our Assemblies rather than subtract from them.

There has also been a move away from funding the Associations on a historical basis and towards a more rational basis which includes measures of activity. This will be beneficial for IAMAS.

There have been many discussions on changing the executive structure of IUGG. One of the drivers for this has been to give a higher profile to the Associations. At this time the only tangible result is the agreement by Council that the Past-President should no longer have a vote on the Executive Committee.

Another item that has concerned some is to seek for a focus or for themes that will help produce a unity in IUGG. I see such themes as just cutting the cake different ways. To me the one theme or focus for IUGG is the desire to produce a scientific understanding of the world around us. IUGG exists to enable research towards this theme. In particular, it should enable interactions between the Associations, between scientists from around the world, and with other international organizations and programmes.

Turning to IAMAS, the first thing to say is that at last this is our official title. The changing of "Physics" to "Science" recognises the importance of chemistry, and the interaction of physics and chemistry in our subject.

IAMAS is in many ways a smaller scale version of IUGG. Its essential ingredients are seven Commissions. These Commissions differ widely on their levels of activity, their formulae for symposia and their involvement in international programmes. If we were starting from scratch we would not decide on the division of our subject encapsulated in them. However, they have grown used to dealing with their boundaries and overlaps, and my aim has been to help their activities rather than to redefine them.

One of the crucial aspects which has concerned me as well as previous Presidents is the role of IAMAS, given the existence of the WMO, WCRP, and IGBP. The mission of the WMO is clearly to provide the

necessary international collaboration for meteorological services. It is often a co-sponsor of IAMAS symposia and there is a positive relationship. Our role vis-a-vis the two international programmes WCRP and IGBP is certainly important. I believe that IAMAS, through its Commission and Scientific Symposia should provide the link between relevant activities in the Programmes and the scientists on the ground. This should be a two-way link. Discussion of the Activities should provide the stimulus for young scientists to work on the relevant problems. Equally it should enable new ideas to be fed into the evolving development of the Activities. The Commissions of IAMAS should also provide the mechanism for developing new Activities for the International Programmes.

I know that these interactions already occur. Many of our Scientific Symposia are related to and co-sponsored by the International Activities. In the recent past, the SPARC (Stratospheric Processes and their Role in Climate) Programme of WCRP was initiated through IAMAS. This year the IGAC Programme of IGBP, which was itself initiated through IAMAS, has been broadened to cover more aerosol physics by an IAMAS initiative. A significant part of GEWEX has originated through IAMAS.

In order to make the links even stronger, I am encouraging all the Commissions to seek a liaison person on the Scientific Steering Groups in the relevant International Activities. Both WCRP and IGBP have given their warm support to this approach.

My final thoughts are on the subject of communication in IAMAS. There is no doubt that IAMAS would work better if the President and Secretary General could have an easy dialogue with the Bureau and with the Commission Presidents and Secretaries, and if they in turn had fast communication with those involved in their Commission Activities. At one time IAMAS had a Newsletter, and its revival has often been discussed but then rejected because of the work and expense involved. However, electronic communication possibilities have now totally altered the situation. IUGG aims to set up a World Wide Web page which the Associations will be able to use. IAMAS must take advantage of this. The Commissions must have e-mail address lists so that direct communication with IAMAS scientists around the world is possible. In this development it must, however, be recognised that scientists in some countries will, for a time, need postal communication to make sure that they are not marginilised.

I believe that IAMAS has an extremely important role in world atmospheric science. By increasing our liaison with the international programmes and using modern communication, we can make sure that we perform this role even better in the future.

B. Hoskins

MINUTES OF COUNCIL MEETINGS

FIRST MEETING OF COUNCIL
21st. G.A., Boulder, Colorado, USA, July 2-14, 1995
Sunday, July 2

PARTICIPANTS:

NATIONAL DELEGATES AT COUNCIL

Algeria	S. Kahlouche	Ireland	P. Lynch
Australia	R.W. Johnson	Italy	C. Morelli
Austria	S.J. Bauer	Japan	S. Uyeda
Belgium	P. Paquet	Korea (South)	C.G. Baag
Brazil	D. Blitzkow	Netherlands	F.C. Zuidema
Canada	R. Langley	New Zealand	R.I. Walcott
Chile	O. Gonzales-Ferran	Nigeria	R.O. Cooker
China	Liu Guangding	Russia	G.A. Sobolev
Czech Rep.	J. Vanek	Slovenija	B. Sket-Motnikar*
Denmark	C.C. Tscherning	South-Africa	R.J. Kleywegt
Egypt	A. Ashour	Spain	J. Mezcua
Estonia	R. Room	Switzerland	H. Lang
France	F. Barlier	Taipei	*
Germany	R. Roth	U.S.A.	C. Harrison
Great-Britain	M.J. Hamlin	Zimbabwe	F. Podmore
Hungary	J. Adam		

* late afternoon

EXECUTIVE COMMITTEE

FINANCE COMMITTEE

Opening at 9:20 a.m. by H. Moritz, IUGG President.

1. Presentation of the Credentials

25 National Delegates are present at the opening, 22 being eligible to vote. The total number of Member Countries eligible to vote is 55. The quorum (= 19) is reached.

Other National Delegates will arrive in the course of the meeting, their number reaching a maximum of 28 at a given time; some will sometimes leave the room, the number eligible to vote being never smaller than 21.

2. Approval of Agenda

Egypt asks to add an item to the agenda on the "Condition of Geophysics in Developing Countries". It is seconded by USA. Proposed by the President to be before item 28. Vote by hand almost unanimous.

Denmark asks for moving up item 27 before item 14. It is seconded by Germany. Solid majority for it (vote by hand). It is approved.

3. Approval of the Minutes of the Council Meetings at Vienna (1991)

Approved.

4. The President's Report

The President prefers not to deliver a detailed report. His work will appear in the course of the various items.

5. The Vice-President's Report and the Work of the Advisory Board on Scientific Policy

A 2 page summary report is distributed and shown in viewgraphs. References are made to the different reports published in Chronicle 226 (papers by H. Moritz, P. Wyllie, C. Mooers, the Advisory Board on Scientific Policy, V. Keilis-Borok, G. Balmino).

Among all points reported upon, emphasis is put on:

- Geochemistry in IUGG activities, to be continued in the future;

- an informal discussion on the future of IUGG organized by C. Mooers will take place during this G.A., which will be focused on Earth Observing Systems. Of utmost importance is how IUGG can become more effective. There are structural and scientific issues:

- Structure: there was a proposition of the Secretaries General of Associations made about having an Executive Committee with no real Bureau. Another proposal by the Executive Committee is the reduction of the Bureau composition by one member and the withdrawal of the Past-President vote, the Association Presidents being in majority.

- Activity in Science:

i) the quadrennial General Assembly is the most important platform of IUGG; historically, the balance between disciplinary and multidisciplinary sessions has been debated for each General Assembly.

ii) a possible focus for the future activities of IUGG is being explored which could be in the areas of environment or natural disasters. Candidates are: 1) Earth Observing Systems; 2) Megacities.

In summary, assuming healthy Associations, the future of IUGG relies much on the success of its G.A.s.

A discussion follows. Denmark says there is not a chance to discuss here on the matters raised by the Delegates and Country Members. A group should be formed to assess the reports presented. It is supported by USA. Egypt thinks that the Executive Committee should evaluate first. The Vice-President answers that the Advisory Board including all Associations Presidents generated this report and the full Executive Committee has discussed the report. Belgium is not too much in favor of the Denmark proposal and would prefer a clarification on parts of the report. Since there are two groups with different views and since the Danish proposal requires duplication of the mandate of the Advisory Board, a vote by hand takes place. Result is: 7 in favor; 11 against; 4 abstentions; the proposal for a formal assessment is not considered.

6. The Secretary General's Report

The written quadrennial report was sent 3 months ago (in French and English). Important items are:

- evolution of membership,

- definition of the core of the Scientific Program of G.A. in Paris (November 93) at Executive Committee meeting,

- financial support of 20 workshops, schools, symposia (many in Developing Countries), and 67 individuals were funded for this 21st G.A.,

- ICSU grants enabled the support of 12 projects in 4 years (total amount: about $120K). Annual reports to ICSU were widely circulated.

- transformation of IDNDR Committee; Sec. Gen. was appointed Secretary of Committee. A brochure describing IUGG involvements in Natural Disasters mitigation was produced and is distributed at Boulder.

- the Chronicle continued to be published (20 issues over the period) under the responsibility of Honorary (former) Secretary General. Difficulties are encountered. Circulars, sent to National Committees, had little feed-back. Solution for the future will be proposed at this G.A. Anyhow, the 75th anniversary of IUGG was the occasion of publishing interesting histories of the Associations.

Egypt comments that ICSU relations information (besides the annual report of the Union) should be distributed more broadly than only to the Bureau and Executive Committee (i.e., to National Committees and different bodies of the Union). Denmark agrees.

7. Report of the Treasurer

The report was sent in two parts, in due time. One third of countries are late in payment. 95 % of IUGG income arise from the subscription fees. Various ideas have been proposed to increase the income but nothing concrete has been set up. It will be proposed to adjust to some rate of inflation the annual fees. Egypt comments that any proposal for changing the fees should have gone to the Finance Committee first; S. Gregersen says that two years ago he, the Treasurer agreed, with the Finance Committee on that subject. USA points that money-making from publications has not been investigated enough. This point will be discussed under item 16. UK reminds that they asked for review the category system. This point will be treated under item 11 and the President proposes to move this item as well as item 10 to the beginning of next Council meeting. It is approved and UK will provide input.

8. Changes of Statutes and By-Laws

8.1. Secretary General proposes to first take care of the most obvious and easy changes proposed, i.e.,:

> a. Revision of wording to bring French and English versions into conformity
>
> b. Proposal for an improved description of the Union objectives (Statute 1)
>
> e. Proposal for change of IAMAP/AIMPA, into IAMAS/AIMSA (By-Law 1)
>
> h. Proposal for an addition to By-Law 14.

Zimbabwe proposes two small wording modifications in Statute 1 and By-Law 14 which are accepted by a vote by hand.

The formal vote on the four items listed above gives:

VOTE 1 (items a, b, e, h):
24 yes; 0 no; 0 abstention.

8.2 The President introduces an important proposal:

> c. Provision for a second Adhering Body from one country under specific conditions (Statutes 4 and 5)

It is explained that it is aimed at allowing a second Adhering Body of a country to become Member of the Union in order to solve the long-lasting problem of China, Taipei: IUGG is almost the only Union not having Taipei as a Member because of our Statutes. Ye Duzheng says that China worked in favor of having Taipei as a Member. China thinks this change of Statutes looks good and that all Members should agree. Egypt would like that the words "only under extraordinary circumstances" be removed from the Statute text. President and Secretary General argue that the wording has been very carefully prepared and should be kept.

VOTE 2 (item c):
25 yes, 0 no, 0 abstention.

8.3 President introduces a proposal for a change of composition:

d.Proposal for changes in the composition of the Bureau and Executive Committee (Statutes 8, 9 and By-Law 12)

The perception of the role of the Past President appears uncontroversial, withdrawing his vote does not seem harmful. The reduction from 3 Bureau Members to 2 Bureau Members is more delicate.

Not in favor:

Egypt is very much against both changes and thinks that the Bureau acts as a sort of referee on any matter raised independently from Associations; the 7 to 6 ratio (Association Presidents / Bureau) is not a very good decision. It would be better to increase the number of Bureau Members. Monin agrees, Belgium too, saying that the vote has to be different by more than one voice on important matters. IASPEI President emphasizes the broad character of the scientific field covered by IUGG and considers that the present system is good enough to be kept. Ye Duzheng wishes to have 3 Members because of the geographic distribution and for the benefit of Developing Countries. It is extremely difficult to have a President of an Association from a developing country. A decrease from 3 to 2 would imply that a Member from a developing country will have a smaller chance to be elected.

In favor:

IAVCEI President recalls why we proposed this change: if all Associations agree on something important, we wish it to be approved. IAGA and IAMAS Presidents express their viewpoint in favor of the reduction. Denmark agrees. USA and UK think that reducing from 3 to 2 would contribute to smooth the perception by the Associations of a conflicting situation within the Executive Committee. Australia shares this opinion.

Secretary General informs the Council that all votes on decisions made in the past were never close to a tie.

President says he will be happy if he has voice but no vote as a future Past-President. Reduction from 3 to 2 is less clear to him. He was responsible for initiating the proposal but now thinks it is an error. For instance, he is convinced that one needs 3 positions for the work of the Nominating Committee. At the Executive Committee meeting the day before, he recommended to stick to the present situation but the Executive Committee voted in favor of the proposed changes. His personal recommendation on this item is to accept the Past-President with no vote but keep the present Bureau Members number.

The votes on these 2 proposals are done separately:

VOTE 3 (Past-President right of vote withdrawal):
19 yes, 6 no, 0 abstention.

VOTE 4 (3 TO 2 Bureau Members):
11 yes, 14 no, 0 abstention. No change in the Statutes and By-Laws on this matter.

8.4 Other proposed changes:

Secretary General introduces:

f. Proposal for an addition to By-Law 9

It will help preserving the integrity of the Union.

VOTE 5:
24 yes, 1 no, 0 abstention.

President introduces the next one:

g. Proposal for changes in the election procedures (By-Law 10)

One should recognize that the election procedure is very old-fashioned in IUGG.

President reads and comments the text of the proposed modified By-Law. A discussion runs mostly on the wording which could be improved to render the procedure a little more open and clearer:

- Egypt proposes to replace "taking advice" by "soliciting nominations". Seconded by UK. Vote by hand: majority in favor.

- IAHS proposes to replace "at" (in "at the beginning of the General Assembly") by "no later than".

UK agrees. USA seconds. Vote by hand: majority in favor.

- Egypt proposes to add: "together with their resumes" in the last paragraph after "candidates" and "further nominations". Seconded by UK and USA. Vote by hand: majority in favor.

The formal vote by ballots is then made:

VOTE 6 (modification of By-Law 10 with agreed wording):
21 yes, 1 no, 1 abstention.

9. Applications for Membership

President and Secretary General inform the Council of:

a. The confirmation of membership for Estonia (following decision taken in Vienna in 1991).

b. The replacement of Former Soviet Union (FSU) by Russia

c. The replacement of Czechoslovakia by the Czech and Slovak Republics

Secretary General recalls the applications of Croatia and Slovenia and asks for:

d. The ratification of membership of: Croatia, Slovenia

VOTE 7:
21 yes, 0 no, 0 abstention.

Then, and since the modifications of Statutes 4 and 5 have been approved, the President introduces:

e. The application of the Academy of Sciences located in Taipei, China

Ye Duzheng and China speak in favor of it.

VOTE 8:
21 yes, 0 no, 0 abstention.

The President congratulates and thanks the Council for this wise decision.

Secretary General introduces:

f. The application of the Ex-Yugoslavian Republic of Macedonia

The Executive Committee approved it on scientific grounds at its meeting two days before.

VOTE 9:
21 yes, 0 no, 0 abstention.

g. Other applications (made between Feb. 27 and July 2, 1995).

- *Mongolia:*

Application was also approved two days before by the Executive Committee vote.

VOTE 10:
21 yes, 0 no, 0 abstention.

- *Yugoslavia (standing for Serbia and Montenegro):*

The President describes the application, says that the scientific merit was well assessed by the Executive Committee but an embargo from U.N. exists on everything but Sport and Culture. Science is not part of Culture. Secretary General distributes copy of the analysis made by an international lawyer at the request of the President, which explains the political problems and give hints on how to proceed. A discussion follows. Egypt thinks that the admission of Croatia and Macedonia implies that we cannot consider Yugoslavia unless it is a different country. President and Secretary General, on the basis of the international lawyer report, explain that the membership of (old) Yugoslavia, although neither terminated by IUGG nor asked for by this Member Country, has ceased de facto with the end of the statehood of Yugoslavia (in its structure). The situation today is that of a new country: Yugoslavia (Serbia and Montenegro) is to be considered. This is why the admission of Croatia and Macedonia could be considered and voted upon.

Secretary General would like the Council to concentrate now on scientific aspects. Belgium is in favor of the admission of Yugoslavia because there are individual scientists in this country working very hard and suffering because of the presence of embargo. UK suggests that one should have the opportunity to discuss between the Delegates before voting. We should postpone the decision to later on. It is agreed. The position of the President

is that one should accept Yugoslavia (Serbia and Montenegro) on the provision that the sanctions may be lifted anytime in a near future, before the next IUGG G.A.

Discussion and decision are postponed to next meeting.

10. Countries in Arrears of Payment of their Contribution

a. Countries in Observer Status

b. Suspension of membership of some countries

Postponed to next meeting.

11. Review of the Categories of Member Countries (By-Law 11.G)

Postponed to next meeting.

12. Appointment of the Resolution Committee

Secretary General gives the list of proposed names for this Committee:

- Chairman: P. Wyllie (USA)
- Members:
  Gerard LaChapelle (Canada) (IAG)
  Pierre Hubert (France) (IAHS)
  Brian Fraser (Australia) (IAGA)
  Guenadii Sobolev (Russia) (IASPEI)
- Back-ups:
  G. Young (USA) (IAHS)
  P. Paquet (Belgium) (IAG)

This proposal realizes an acceptable geographic and disciplinary balance, and takes care of the bilingual constraint.

Vote by hand: majority approves.

13. The Nominating Committee and the Election Procedure to be Used

The proposal for the Committee is: H. Moritz (Chairman), J. Dooge (substitute for D. Lal unable to come), A. Gabrielov, R. Hide, C. Kisslinger.

The list of all nominees is read by the President. The list of nominations, established by the Nominating Committee will be distributed in the pigeonholes of the Council Delegates on Tuesday, 4th, at around 2 p.m. and posted everywhere.

29. (Moved Up). UK Invitation for Next G.A.

The invitation by UK which had been announced in 1991 was confirmed. No other invitation was received; implicitly, UK was inviting and other countries did not send any. President reads the letter from the Royal Society, dated June 21, received on June 26 (addressed to P. Melchior) by which the invitation is conditional for IUGG to sharing at the 50% level the financial implications. The UK Delegate (M. Hamlin and Chairman of the IUGG panel in the UK) explains the situation. In 1993, Manchester University and Birmingham University were considered as possible venues; in 1994, Birmingham was supported by the UK panel. Potential of sponsoring companies appeared to be non existent. The Royal Society cannot commit itself to cover all the expenses at its own full risk. IUGG should be ready to cover part of the deficit in any occurs and to share any profit. It is noted that for a meeting of such size and duration, registration has been very cheap. The fees were not increased since Canberra in 1979. Is IUGG prepared to share the risk of a deficit?

The President asks the President of the Finance Committee to comment: it is a very difficult question. If a country inviting the G.A. cannot support the cost, what does that mean? Losses related to the meeting depend very much on the way the inviting country organizes it. How can IUGG control the real useful costs? The inviting country does not contribute to the cost of the visiting people. It only provides assistance for the realization of the meeting which also brings a lot in terms of rewarding inputs (scientific thrust, international prestige).

The Executive Director of AGU which has been in charge of organizing this 21st G.A. informs that $500K might be the projected loss for AGU due to a number of facts. He also states that a G.A. could become an income generator in the future. We must consider all aspects.

The IUGG Treasurer estimates that losses at that level are far beyond the reach of IUGG budget ($300K/year).

Secretary General reminds that the financial balances of all G.A.s, since Grenoble (1975), were positive (except maybe Hamburg, 1983). In many cases, government organizations were backing the inviting institutions. It is true that registration fees are very low. One may consider increasing the registration fees though the attendance from the Developing Countries might be reduced. Management should be handled in a way that increase in registration fees be kept to a minimum.

The delegate from KOREA understands that an increase of the registration fees is the only possibility but also expresses his concern since, for instance in his case, he had to pay from his own pocket for his registration fees and living expenses. One should be careful with a possible increase.

The President announces he will ask for an investigation by Members of the Finance Committee (Father Cardus, A. Ashour, M. Hamlin, F. Spilhaus and J. Somogyi). The matter will be debated again at the next Council meetings.

27. (Moved Up). Future Organization of IUGG General Assemblies

A proposal by Denmark was sent 3 months ago to all National Committees for reducing the duration of the G.A.s.. The Danish Delegate distributes a document, explaining the reasons in more detail. It also gives recommendations to organize the future G.A.s..

Denmark declares, in relation with the preceding discussion, that the cost of a G.A. could be reduced with a shortened meeting. USA, as for it, thinks that G.A.s should be planned in a much better way than done until now. A Program Committee should be set up to coordinate the scientific inputs and activities (a one page document is distributed).

President thinks that valuable elements are given by Denmark and USA to be thought about. The item will be discussed again together with the question of the next G.A.

Additional note

* The Delegate from Slovenia had entered the Council meeting room in the middle of the session and had been congratulated by the President for the ratification of Slovenia membership.

* The Delegate from Taipei had been asked to enter the Council meeting room. Taipei expressed its thanks for being accepted. Taipei scientific community was very eager to enter the Union.

CLOSED AT 4:40 p.m.

SECOND MEETING OF COUNCIL
21st. G.A., Boulder, Colorado, USA, July 2-14, 1995
Friday, July 7

PARTICIPANTS:
NATIONAL DELEGATES AT COUNCIL

Algeria	S. Kahlouche	Ireland	P. Lynch
Australia	B. Kennett	Italy	C. Morelli
Austria	S.J. Bauer	Japan	S. Uyeda
Belgium	P. Paquet	Korea (South)	C.G. Baag
Brazil	D. Blitzkow	Netherlands	F.C. Zuidema
Canada	R. Langley	New Zealand	R.I. Walcott
Chile	E. Gillmore	Nigeria	R.O. Cooker
China	Liu Guangding	Poland	L.W. Baran
Croatia	K. Colic	Portugal	L. Mendes-Victor
Czech Rep.	J. Vanek	Russia	G.A. Sobolev
Denmark	C.C. Tscherning	Slovenija	B. Sket-Motnikar
Egypt	A. Ashour	South-Africa	R.J. Kleywegt
Estonia	R. Room	Spain	J.O. Cardus
Finland	J. Kakkuri	Sweden	O. Kulhanek
France	R. Schlich	Switzerland	H. Lang
Germany	R. Roth	Taipei	C.Y. Tsay
Great-Britain	M.J. Hamlin	Turkey	O. Ergunay
Hungary	J. Adam	U.S.A.	C. Harrison
Iceland	R. Stefansson	Zimbabwe	F. Podmore
India	V.K. Gaur		

EXECUTIVE COMMITTEE

FINANCE COMMITTEE

NOMINATING COMMITTEE (during item 26 - elections).

The Illusion of Progress is short but exciting.

(Unkn).

H. Moritz opens the meeting at 9.00 a.m. 35 National Delegates are present. 31 are voting.

VOTE:
22 yes (in favor), 7 no, 2 abs.

9.g Application of Yugoslavia (Serbia and Montenegro) - cont'

Secretary General reads a letter from the Delegate of Netherlands requesting further information on the official situation of Yugoslavia within IUGG. He distributes then the documents related to the application of Yugoslavia. He explains that the membership of (old) Yugoslavia ceased de facto. President reads a letter on behalf of Croatia from Prof. K. Kolic. In his letter, after thanking the Council for the ratification of Croatia membership, he asks that Yugoslavia (Serbia and Montenegro) be evaluated in the same way.

South Korea Delegate expresses how detestable ethnic fights are. One needs international cooperation in terms of individual beings. State must be separated from the church. In the same way, politics must be separated from science. His view is that the application must be accepted by IUGG as soon as possible. Denmark points out that part of the report from the lawyer states that the membership cannot be accepted now. President emphasizes that the report indeed says that the application can be accepted and the membership declared later. France proposes to vote in making provision for accepting membership as soon as possible. Belgium seconds it. Germany says they would be ready to accept it as soon as embargo is lifted. Slovenia would like that no abbreviation be used; we should keep "Serbia and Montenegro". Netherlands asks about the scientific aspects and financial guarantees. President states that he has been given convincing arguments by Prof. Mihailovic (who submitted the application) that the annual fees will be paid.

President proposes to vote on accepting the application of Yugoslavia (Serbia and Montenegro), the membership being declared when the UN embargo is lifted.

29. UK invitation for G.A. in 1999 - cont'; 27. Organization of future G.A.s - cont':

A document is provided by the Fin. Com. It is commented by the Fin. Com. President. He underlines that there was a feeling that the UK proposal introduced a difficult, and perhaps a dangerous precedent in some other cases of invitation and preparation of a General Assembly, and that the terms of the documents aim at avoiding financial problems in case the UK proposal was accepted. The Committee thinks that we could favorably consider the UK proposal but conditions are to be placed. Most important would be the establishment of an Oversight Committee, comprising 4 members, with the main responsibility to take actions to meet the budgetary requirements. President thinks that this is a very balanced proposal. On the next Council meeting, we will have a presentation from the UK Organizing Committee.

A discussion follows and runs on 3 major issues:

1) Change in the mode of organizing and operating the G. A.s:

Australia opposes and considers we should have a position on principle, aside from the specific case raised here for the next G.A. France seconds the proposal as it is felt that we are facing a major change here. Sharing the responsibility between IUGG and the inviting country is a very very important decision. It is likely that we will enter in an increasing number of difficulties. President states that this case should be exceptional and we should then stick back to our 'usual' mode of operating. France states that a precedent would be made and it would be almost impossible to reverse the trend. Egypt thinks that the point raised by France is essential. Clarification is needed. Nigeria notes that the critical situation with the UK proposal gives opportunity to review the whole G.A. system. IUGG

should have a list of countries ready to invite the G.A., not only the next one but also the next following ones in order to have a choice. President hopes that USA proposal in 1991 and UK present one are special cases in the sense that nobody else wanted to compete and that other invitations will now be forthcoming.

France considers that making an invitation is an honor for the country and sharing the responsibility for IUGG is a major step. France is not in favor to vote for it. Belgium supports this statement.

2) Related financial implications:

UK apologizes for both the late arrival and the caveats in the Royal Society letter. However, the present situation might be an opportunity to investigate about how to improve preparation and cost matters related to G.A.s. Treasurer thinks it is challenging for IUGG to look at the financial outcomes of a G.A. France asks about the cost of the present G.A. and related figures (number of registrants, ...). F. Spilhaus (AGU, 21st G.A. organizer) quotes a budget of $2.2 M, 4400 registrants as of today, and a projected loss of up to $500K. IAPSO defection and shortage of government money ($250K expected in vain) are the main causes for it. It was a mistake to agree to a fixed registration fee 4 years in advance. Constraints should be put upfront but some flexibility should be retained in order to be able to accomodate the real situation. Indeed, it appears today that $500 to $600 would have been the adequate level for the registration fees at Boulder.

Egypt considers that the Fin. Com. study document is independent from the issue of the duration of the next G.A. (cf. Denmark proposal below).

3) Duration of G.A., Structure and Contents of the scientific program:

Asked about its proposal (item 27) by the President, Denmark thinks the proposal from Fin. Com. is reasonable and should be accepted, and points out that the meeting duration could be decisive with respect to the financial requirements. Korea questions whether the 9 days constraint should be a maximum (Denmark proposal) or a minimum time frame. Fin. Com. answers that the proposed 9 days is not a definite number. It is a matter of attempting to come to a balance between effective cost and duration of next G.A.. UK is not in favor of less than 9 days. Algeria considers that the proposal to reduce the G.A. duration to 9 days and to increase the cost of the registration fees is not a good idea. A selection will be made and it is not in the spirit of IUGG G.A. which is to bring together geophysics and geodesy in all fields of research, at worldwide scale. Canada is in favor of shortening IUGG G.A.s and proposes that one reduces to 1 to 1.5 day the time allocated to Union Symposia in order to avoid some conflicts of attendance between Associations and Union. Australia recalls that science is the essence and the reason of our presence at G.A.s; reducing the meeting may be a necessity but should not be at the expense of science. Vice-President estimates that the opinion of Associations is very important at the present time. India says that, if the value of G.A.s is indeed recognized, the degrees of freedom controlling them should be in the hand of the Associations. IAMAS is of a similar opinion and thinks that the Council should not be too prescriptive. Scientific interests of the Associations should be well represented and they should have the opportunity to share at best the decisions and compromises in the scientific program. Egypt stresses that attendance to different events is the essence of the present G.A. and in case of duration shortening, the definition of the program should be reworked. IAGA mentions that, despite the considerable pruning done in the contents of their meetings, they have still parallel sessions running. Japan points out a conflicting situation in the fact that the G.A. appears today to be too long and too dense, and that shortening them will make the problem even more difficult.

President proposes that any decision be postponed to the next Council meeting. Egypt asks to accept the document. It is not seconded.

Then, President asks to vote on accepting the document provisionally.

Vote by hand:
3 delegates for it. Motion is not carried.

President thanks UK for the invitation. The item will be discussed again at next meeting.

10. Countries in arrears of payment:

The Treasurer distributes the list of countries in arrears of payment and explains that, according to the IUGG statutes, countries which have not paid since 1986 are considered expelled.

Countries which have not paid since 1990 are in observer status if they have expressed the wish to continue membership.

Nigeria is very surprised to be considered in Observer Status: the National Delegate declares that the membership fees have been paid regularly, also since 1989, the year indicated as the last being paid; the Treasurer says he never received any payment.

Besides, the Nigerian Delegate received no information on this G.A.. It seems there is a technical problem with mailing which needs to be clarified between the Nigerian delegate and the Secretary General and Treasurer. Egypt recommends that we should be a little lenient in applying Statute 14. Otherwise, a large number of Developing Countries would disappear from the audience as observers; IUGG would turn into a northern union. Observer Status should be extended and the letter needed for that should be requested.

Secretary General and Treasurer confirm that this is how the Exec. Com. has applied this Statute. President says that a letter will be written to Countries in arrears to inform them of the options they have.

11. Review of the categories of Member Countries (By-law 11.g)

Treasurer distributes a table of the Member Countries ordered by category. Finance Committee will review the list and the categories.

14. Changes of Statutes and By-Laws in some Associations

. IAHS

After reviewing its statutes, IAHS came to the conclusion that the procedures for the elections had to be made very transparent, allowing people to contribute. A nominating panel was set up, chaired by M.J. Hamlin. Handouts describing how IAHS proceeds are available.

IAVCEI

Several changes were introduced. The main one is a change about membership. The Status of Affiliates was created in order to increase the participation of scientists of some countries not necessarily members of IUGG. Affiliates pay a subscription fee independent from IUGG fees (this will increase the funds of the Association). Protections have been set up to prevent the Affiliates (who could be very numerous) to occupy a position in the Exec. Com. of IAVCEI, in order maintain the involvement of Developing Countries.

15. Problem with IAPSO

President explains this item is put here to let off steam. To prevent the repetition of such situation, a modification of By-Law 9 was proposed and accepted at the first Council meeting.

16. IUGG publications

a. The Chronicle; creation of an Editorial Board. The future.

Secretary General introduces the historical and the present backgrounds. Very weak input and response from the Associations have been experienced in the last years. However, the 75th anniversary of IUGG was the occasion for the Associations to publish their histories, which 5 of them did so far. An Editorial Board was set up last year in Boulder without any positive outcome. A questionnaire was sent to Adhering Bodies, National Committees and various groups. We received 20 answers, which was very meager but sufficient to reveal opinions.

Chronicle has improved (see issue No. 226). Despite this, it has little future in its present form. Consequently, the following proposal is made:

- to keep a real yearbook (with update of National Committees, addresses, yearly report to ICSU); it would be the regularly printed record of activities for IUGG involving Associations and Committees.

- to establish an electronic bulletin board with 2 levels: 1) administrative matters of the Union; 2) Section dedicated to the Associations which will be responsible for it. It would be on W3. The present

drawback would be that many Developing Countries have no access to W3. Therefore, there should be an interim period during which a printed version of information and updates would have to be distributed worldwide.

USA asks if scientific articles publication was considered for the Chronicle. Secretary General replies it was indeed last year but turned down. Denmark would like the bulletin to bridge with similar boards of AGU and publications of National Societies.

Germany comments that the Chronicle in its present form is not much read. The future evolution proposed is quite appropriate. The Treasurer thinks that this project is cost effective, except that IUGG will have to pay for the mailing of printouts to some countries during an intermediate undefined period of time. Egypt says that the form of the proposed yearbook is close to the ICSU one but there is no need in IUGG for a yearly update. A lot of repetition will arise otherwise. Secretary General disagrees and states that many changes occur each year mostly in the composition of the National Committees and also within the Union itself.

Treasurer stresses that the tremendous piece of work achieved by P. Melchior has to be recognized and that he should be thanked by the Council. Congratulations are expressed by the Council delegates who applaud.

b. Contract with AGU for the publication of the Boulder Union's symposia

Secretary General informs that the contract has been signed. Thanks are expressed to AGU.

President underlines the valuable work achieved by the following Committees and Commissions:

17. International Lithosphere Programme (ILP) and Inter-Union Commission on the Lithosphere (ICL)

S. Gregersen (ICL representative) is asked to give an overview report. Exec. Com. decided that we will continue our support but financial funding will not exceed the minimum funding attributed to anyone of the Associations. K. Burke (ICL chairman) is replaced by A. Green; the new Secretary General will be J. Erzinger; T. Kato was appointed in the ICL Bureau. At a question of Netherlands, the Treasurer indicates that the financial support is not settled but it will be likely around $17,000 per year.

18. Inter-Association Committee on Mathematical Geophysics (CMG)

President introduces the results of this committee. CMG holds very successful symposia but is not very much paying attention to administrative matters. The next symposium will be in Santa Fe in June 96, in relation with the Santa Fe Institute on Complexity. One should let them work. Denmark considers that not enough information is stemming out from CMG. At a question of USA, Treasurer informs that IUGG only gives seed money, about $4000 a year.

19. Inter-Association Committee on the Study of the Earth Deep Interior (SEDI)

Secretary General describes briefly the history, structure, achievements of the group (e.g., core physics, geodynamo theory, petrology, high pressure physics). The present Chairman Le Mouël will likely be replaced by K. Lambeck. One notes that links with planetary sciences are weak at the moment but there is some expectation in this field. At a question of USA (as above), Treasurer informs that IUGG only gives seed money to SEDI, like for CMG, i.e. about $4000 a year.

Secretary General reports on items 20,21,22 and summarizes, going through the whole list:

20. Relations with ICSU (projects financed) and ICSU Scientific and Special Committees (renewal of Liaison Officers):

Secretary General recalls that three projects a year are currently financed by ICSU for a total amount of about $30K (a little more before 95, a little less now). The renewal of Liaison Officers is discussed:

a. FAGS (Federation of Astronomical and Geophysical Data Analysis Services): O. Andersen, G. Balmino.

b. WDCs (World Data Centers): direct links with the Associations are being established (decisions in July 94).

c. CODATA (Committee on Data for Science and Technology)

Associations did not find a large interest in CODATA and it was decided to withdraw in 1994. Denmark is not happy with this decision. Secretary General restates that all 7 Associations were again asked two days before and confirmed they had no interest in CODATA.

d. COSPAR (Committee on Space Research): Janet Luhmann (IAGA, USA) recommended a posteriori by D. Williams (former Liaison Officer).

e. COWAR (Committee on Water Research) turned into SCOWAR; H. Colenbrander, proposed by IAHS *confirmed a posteriori.*

f. SCAR (Scientific Committee on Antarctic Research): T. Hirasawa continues.

g. SCOPE (Scientific Committee on Problems of the Environment) Canada will contact R.E. Munn.

h. SCOR (Scientific Committee on Oceanic Research): Denmark thinks IAPSO should play a major role in SCOR. IAMAS indicates that IAMAS and IAPSO Presidents are ex-officio members of SCOR and therefore can ensure the liaison. It is agreed.

i. SCOSTEP (Scientific Committee on Solar-Terrestrial Physics): D. Williams.

j. IGBP (International Geosphere-Biosphere Programme): C. Schuurmans (IAMAS, Netherlands) proposed *a posteriori* by Netherlands - to be confirmed.

k. CTS (Committee on the Teaching of Science): abolished by ICSU. Egypt informs that it was replaced by a Capacity Building Committee in ICSU; we are left without clear information. IUGG President will enquire about this new Committee.

l. WCRP (World Climate Research Programme): B.J. Hoskins (U.K.) - new appointment.

21. Relations with inter-governmental organisations

a. United Nations

Secretary General indicates that our representation was discussed by the Exec. Com., but that no clear conclusion emerged from it. President suggests to withdraw and Egypt suggests to limit our cooperation with U.N. to links with its cartographic office only (see below).

b. UNESCO

R. Adams will continue.

c. Cartographic Office of the United Nations

J. Kakkuri will continue.

d. WMO (World Meteorological Organization)

Next Secretary General of IAMAS.

e. IHO (International Hydrographic Organization)

LeProvost resigned; successor must be found.

USA suggests the new president of IAPSO be approached; the decision is delegated to the Bureau.

22. Relations with other organisations

a. PSA (Pacific Science Association)

Links cancelled.

b. IPGH (Instituto Panamericano de Geografia e Historia)

W. Torge could replace J. Tanner (to be confirmed).

Ye Duzheng suggests that we appoint a representative on UNEP.

Vote by hand: majority approved.

UK proposes Golubev, Vice-President of IAHS. It is accepted.

24. Finances and budget, 25. Adjustment of the unit of subscription

A short comment is made by the Finance Com. Chairman. It is deemed more appropriate to discuss these items in detail at the next meeting.

General information is given at this stage: what would be the rate of increase of subscription ? In Vienna, it was proposed to adjust on the rate of inflation, but actually more abrupt changes were

adopted. A 2.5 % rate could be chosen arbitrarily per year, or some official rate (e.g., OCDE). Fin. Com. expresses its thanks to the Secretary General for reducing the expenses. 50 % of the money entering the Union goes to the Associations. A small committee worked on fixing the right amount which should go to the Associations. A reserve for the G.A. ($100K) could be constituted by saving $25K per year.

France underlines that the budget has to be discussed with papers in hand and this should be systematic in the future. Presidents say it will be done. Egypt points out that it was not intended to give a finance report from the Fin. Com. at this second meeting of the Council. President agrees and postpones any further discussion.

26. Elections (37 Delegates are present, 34 are voting)

President introduces the Nominating Committee (see item 13). It was formed in March 1994 and started to work immediately. A circular letter was sent to all National Committees for IUGG and all officers in June 1994 soliciting nominations for all open positions in the Bureau and Finance Committee. The deadline for submitting nominations was March, 31st, 1995. The Committee worked by correspondence and finally at Boulder, 3 days ago. Secretary General was elected for 8 years in Vienna and is not standing for election. The resulting list of nominations and resumes were distributed to Council Delegates (the distribution has been made at best of the available possibilities on the campus to reach the people). It was also posted everywhere. There was an additional nomination for Bureau Member by the US National Committee. The Nominating Committee will not speak in favor of his designated candidates unless asked for. The same will apply for the list proposed by the US National Committee.

Egypt says that elections were never conducted with a discussion of the Council Delegates on the nominees. President asks the Council on how they want to proceed about the candidates. Denmark would like to know the Robert's rules about elections. Australia thinks it is not in the best interest of the Union to have an open discussion about the candidates.

President: according to his interpretation of Robert's rules, there should be no discussion on the candidates. He reads the ad'hoc rule. Belgium and France agree. J. Dooge is asked for advice due to his long diplomatic experience. He thinks that President asks the Council whether they want a discussion on the candidates or not. A vote by hand on this matter is decided.

Vote by hand:
Not in favor of a discussion: 19 / 34; in favor 13; 2 Abstentions.

Election takes place for each position at a time:

a. President
P. Wyllie is the sole candidate.

VOTE: 33 yes, 0 no, 1 abs.

P. WYLLIE IS ELECTED.

b. Vice-President
U. Shamir is the sole candidate.

VOTE: 30 yes, 2 no, 2 abs.

U. SHAMIR IS ELECTED.

c. Treasurer
S. Gregersen is the sole candidate.

VOTE: S. GREGERSEN: 33 yes, 0 no, 1 abs

S. GREGERSEN IS ELECTED.

d. Bureau Members
There are four candidates for three positions: J. Chen, A. Monin, S. Uyeda, K. Whaler. Each delegate is asked to vote in favor of up to 3 candidates.

VOTE:

CHEN:	22	yes.
MONIN:	20	yes.
UYEDA:	25	yes.
WHALER:	19	yes.

J.CHEN, A. MONIN, S. UYEDA are elected.

e. Finance Committee
There are five candidates for five positions.

VOTE:

ASHOUR:	32	yes.
TGAUR:	33	yes.
GROTEN:	33	yes.
HAMLIN:	33	yes.
SPILHAUS:	33	yes.

A. ASHOUR, V.K. GAUR, E. GROTEN, M. HAMLIN, F. SPILHAUS are elected.

30.(*Moved up*). Geophysics and geodesy in Developing Countries.

Egypt introduces the case at the Vienna meeting: the "IUGG Committee on Advice to Developing Countries in Geodesy and Geophysis" was abolished. Given the trend of the past years with respect to the "southern hemisphere" countries, Egypt asks for reinstating the committee. The motion is seconded by USA. A discussion takes place. Treasurer comments that IUGG has helped and is still wishing to help the Developing Countries but does not believe in the efficiency of a committee with no further specific scientific aim. Secretary General says that after the IUGG Committee was abolished, the Associations were asked to form their own Developing Countries Committees, but he did not keep track of what has been made to help Developing Countries within each Association. He supported the idea of having three Bureau Members, one of them being devoted to the help of Developing Countries, which should maximize IUGG support.

IAMAS supports the idea of having a Bureau Member treating specifically this matter. Algeria confirms that in IAG there is a Committee for Developing Countries. The issue is not a matter of money only, it is also related to administrative difficulties in these countries. IAG confirms. Associations have a better knowledge of what is happening in the field in a number of countries, than IUGG at its level. However, the Union has to establish a global policy. Regional meetings are a good approach to the problem. Denmark is not in favor of a Committee and thinks it is better to spend money on supporting schools for students from Developing Countries.

France is in line with Egypt's concern but not in favor of the creation of a committee. To have a better picture, the French Delegate asks how much was spent from IUGG resources to support Developing Countries' students attending this G.A. He also recommends to try to get the money from the governments of developed countries such as the inviting country in this case.

The Portuguese Delegate thinks we have to raise funds for the Developing Countries in order to increase the attendance and participation of their scientists to our meetings. Like France, Portugal would like to know how many people from developing and developed countries are being funded at Boulder. Treasurer and Secretary General inform that $55K were given, of which 60% went to the Developing Countries, but in addition the Associations funded directly many Developing Countries scientists.

USA says that one task of the Committee should be to organize regional meetings in places where Developing Countries may come easily, either in Africa or Asia. Support is given to the proposal for a Bureau member to be put in charge or the committee to be formed.

Secretary General reminds that 4 meetings in geodesy were organized in Africa, and a fifth one will be in 1996 or 97 and will be supported by IUGG. Ye Duzheng asks about the relationships between advanced countries and Developing Countries: do needs of developed countries from Developing Countries exist? Nigeria speaks of bilateral agreements set up for instance between France and Developing Countries but says that here we are debating on something different. IUGG has to take into account the Developing Countries where one is fighting for settling departments of geodesy or geophysics, and where nothing compares for instance with Russia which is a "developed developing" country. Besides, Nigeria does not believe in the efficiency of a Bureau Member alone. Secretary General disagrees.

Uyeda, speaking as new Bureau Member and Delegate of Japan, thinks that initiative coming from Associations or somewhere else is needed. Not a single person such as a Bureau Member is sufficient.

Also, it is not clear why the previous committee did not work or was disbanded. Egypt reminds that the IUGG Committee started in the late sixties and was chaired by Ashour from 1971 until 1983; whatever little money was attributed to the Committee, it was used for publication of textbooks on geodesy, earthquakes, physical oceanography,... for the use of Developing Countries. No money was used for travelling. Between 1983 and 1991, the Committee was chaired by somebody else. Egypt is not asking for money but asks for appointing dedicated members within the Associations to take care of this problem under the umbrella of the Union, and does not believe that one Bureau Member is sufficient. The example is given of the IAGA Buenos Aires meeting in 1993 where among other participants, 22 from Argentina, 17 from Russia got grants to attend it but none from Developing Countries. Such situation must be avoided in the future and in a way controlled by a committee. *Therefore, the proposed motion is*, as said at the beginning, *that the Union reinstates the Committee for Developing Countries, composed of appointed persons in the Associations, working under the guidance of a Bureau Member as Chairman.*

Vote by hand:
21 yes, 5 no, 2 abs. (some delegates had left)

23. IDNDR (International Decade for Natural Disaster Reduction)

Secretary General introduces the matter. The committee was formed at the beginning of the decade, following the U.N. declaration. Then, its prerogatives were transferred to the Exec. Com. in 1992. The work consisted in:

- defining actions in the framework of the Megacities Project (cf. article published in Chronicle No. 226),

- attending the mid-term U.N.-IDNDR meeting in Yokohama in 1994 (IUGG presented a poster),

- making the brochure on IDNDR distributed at this G.A.

The Council is then informed of an appeal by WMO to participate in studies to extend the use of GTS (Global Telecommunication System) for the purpose of hazards monitoring and population alert. This project has been discussed by the Exec. Com. here at Boulder. Opinions of the Associations diverge on how to respond to WMO and how to tackle the problem. The question will be put on the next Exec. Com. meeting agenda and/or transferred to the future Executive Committee.

President acknowledges the work of the Secretary General on this matter.

CLOSING AT 5:00 p.m.

THIRD MEETING OF COUNCIL
21st. G.A., Boulder, Colorado, USA, July 2-14, 1995
Thursday, July 13

PARTICIPANTS:

NATIONAL DELEGATES AT COUNCIL

Australia	B. Kennett	Japan	S. Uyeda
Austria	H. Sünkel	Korea (South)	C.G. Baag
Belgium	P. Paquet	Luxembourg	J. Flick
Brazil*	D. Blitzkow	Netherlands	F.C. Zuidema
Canada	R. Langley	New Zealand	R.I. Walcott
Chile	E. Gillmore	Nigeria*	R.O. Cooker
China	Liu Guangding	Poland	L.W. Baran
Croatia	K. Colic	Portugal	L. Mendes-Victor
Czech Rep.	P. Holota	Romania	C. Demetrescu
Denmark	C.C. Tscherning	Russia	G.A. Sobolev
Egypt	A. Ashour	Slovakia	M. Hvozdara
Estonia	R. Room	Slovenija	B. Sket-Motnikar
Finland	J. Kakkuri	South-Africa	R.J. Kleywegt
France	F. Barlier	Spain	J.O. Cardus
Germany	R. Roth	Sweden	O. Kulhanek
Great-Britain	M.J. Hamlin	Switzerland	H. Lang
Hungary	J. Adam	Taipei*	C.Y. Tsay
Iceland	R. Stefansson	Turkey	O. Ergunay
India	V.K. Gaur	U.S.A.	C. Harrison
Ireland	P. Lynch	Zimbabwe*	F. Podmore
Italy	C. Morelli		

* not voting

EXECUTIVE COMMITTEE

FINANCE COMMITTEE

BIRMINGHAM (M. Hamlin, M. Gadsden, D. Walling, G. Westbrook) during presentation.

H. Moritz opens the meeting at 9.00 a.m. 35 National Delegates are present. 31 are voting.

A. Presentation of the University of Birmingham

M.J. Hamlin and D. Walling from the U.K. National Committee, M. Gadsden from IAGA and G. Westbrook from the University of Birmingham (Head of Department of Geology and Geophysics) are invited to make the presentation of the bid. M.J. Hamlin outlines the organisational structure which is committed to meet IUGG requirements. The bid is based on the present pattern of General Assemblies. G. Westbrook comments a 2 minute video on the University of Birmingham. He then presents the budget, in which a surplus of £60K has been budgeted (~$100K). Questions addressed are answered by the four persons.

A Committee with 6 to 8 persons is to be formed. The budget looks well balanced. For 3 600 participants, the registration fees would be on the same level as in Boulder. The whole G.A. would be at Birmingham University with the opening and closing ceremonies at the International Convention Center of Birmingham if the numbers exceeded the capacity of the largest assembly hall of the University (brochures and maps are distributed). There are direct flight from Europe and U.S.A., and London is one hour and a half by train. There are about 9 000 rooms in two star hotels, 2 000 student rooms at the University (several hundreds with facilities). The cost of hotel rooms in Birmingham ranges from 30-40 pounds (in small hotels) to 70-100 pounds in more luxury places. The potential organizers have a lot of experience in social events and happenings.

A discussion takes place; main points are summarized below.

Geohost program

President stresses that there should be a Geohost Program helping the (young) scientists from countries with poor economic resources to attend. M.J. Hamlin thinks it is a decision to be set up by the Council (a resolution to that effect was passed); though he would be very much in favor. Austria comments that 100 people were financed by such a program in Vienna, supported by the Academy of Austria. Egypt underlines that the Geohost Program priority should be to provide support for accomodation to Developing Countries people. It is noted that nothing appears in the presented budget. Zimbabwe suggests that some percentage of the income from registration fees could go to the Geohost Program.

Budget

France wishes to have copies of the budget sheet. It is seconded by Austria, Belgium, Portugal and others. (No copying facilities being available in the building, it is agreed that copy of the budget paper be given later.) France also asks to have more details about the assumptions made. Westbrook answers that their analysis has taken into account the experience from Austria; they are also aware of the way it was organized in the USA case though it had different aspects. M.J. Hamlin comments that, in the USA budget, there are indirect costs for AGU, etc. whereas there is nothing of this kind in the UK proposal budget. A projected attendance of 4500 being comparable to the Vienna case, Austria comments that the cost for registering the participants was reduced since most was done in house: is it absolutely necessary to have a specific staff for conference booking ? Westbrook replies that it also implies accomodation booking. Booking arrangements would be best done by 'specialists' taken from outside (including computers and software to handle everything).

Facilities

USA asks about the facilities which will be made available for rooming the IUGG officers, the conference sessions etc..

Gadsden tells that, for each Association, all sessions could be in one building. Clustering will be possible. 35 conference rooms (fitting a minimum of 100 persons, some of them many more) have been identified. In addition there are numerous classrooms (some of them quite large) at the University (in the budget, the cost for the rooms at the University is accounted for).

The Birmingham delegation is thanked for its presentation.

B. Remaining Agenda Items

25. Adjustment of the unit of subscription

Introduction by Treasurer.

Egypt wishes to have this presented by the Finance Committee. This is done by its President (Father Cardus). The proposal is to use the inflation rate of OECD, to adjust yearly the unit instead of having abrupt changes. Canada makes the motion of discussing this; it is seconded by Egypt.

Canada quotes that this inflation rate has been ~ 3.8% in the past recent years. The mechanism considered by the Finance Committee seems reasonable.

President reminds that the matter is financial and therefore that we will proceed to a weighted vote.

USA and Egypt ask that the statement of the rule to be used be read.

President of Finance Committee reads it: "The unit of subscription for each year shall be adjusted by the same percentage that the OECD inflator for the USA changes over the 12 months ending in September of the previous year. The first adjustment shall begin in 1996, based on the 1995 Unit of 1200 dollars and on the September 94 to September 95 OECD inflator for the USA".

President is very much in favor; Austria agrees.

The Council is also informed that ICSU has a rate based on the same rule.

VOTE (weighted):
130 Y, O N, 1 abs.

24. Finances and Budget

President of Finance Committee states that the Union finances are in good health at present though reserves are low. There is some concern about countries in arrears of payment. Secretary General and Treasurer should try to find ways to incite them to pay their arrears.

A paper on the budget proposed by the Finance Committee for the period 1996-1999 is distributed. President underlines the important work done by the Finance Committee.

Following the decision taken by the Council to reinstate the Committee for Developing Countries, the Finance Committee proposes to have the IUGG officers working on raising funds from governmental and non governmental agencies for supporting it. This is seconded by Egypt. The discussion is opened. Egypt says it is a logical step after the decision to create the Committee for Developing Countries. We must have all possible help of the Bureau to reach funds outside the Union. President says it is to be passed to the future Executive Committee and Bureau.

Nigeria fully supports the motion but wants to clarify the conditions to be attached to the scientists who will benefit from such fund. For example, it is sometimes stated that assistance can be given only to candidates from Member Countries which are not in arrears of subscriptions. Nigeria feels that this should not be the case with funds coming from outside the Union (though collected by the Union) and if the needs of young scientists from Developing Countries are to be met. Besides, the responsibility of soliciting funds should not be confined to members of the Bureau alone, but scientists from the developed countries should also be involved in the fund raising.

VOTE by hand on the motion including Nigeria recommendation:
a large majority in favor. The motion is accepted.

President of Finance Committee then makes the presentation of the budget. On the chapter of expenditures, it is noted that the cost of administration is kept at a very low level thanks to the Secretary General, also that the cost of publications preparation and printing is low due to the efforts of the Honorary Secretary General—the mailing being covered thanks to Luxembourg support.

The allocation to symposia to be distributed by the Secretary General is smaller than over the preceeding period, one result of the readjustment of the allocations to Associations.

President recalls that Associations Presidents contributed to the elaboration of this readjustment, and they must be thanked.

Italy moves and Germany supports to discuss the matter.

Belgium asks clarification on the provision of $100K made in the budget for the next General Assembly: is it an acceptance of a new way of management? President of Finance Committee answers that it is a reserve for any purpose related to the next G.A.

France wants to know who is responsible for the use of this money? It is answered that the Secretary General and the Treasurer will be pending the approval of the President.

P. Wyllie says that it is to be discussed at the Executive Committee meetings when appropriate.

President asks to trust the new Executive Committee.

F. Spilhaus remarks that it is not expected to be spent, except in the event of a big trouble. It may be used to support scientists attending the G.A..

VOTE on the next period budget (weighted):
131 yes, 0 no, 0 abs.

27. Future organization of IUGG General Assemblies (cont')

Vice-President re-introduces the discussion, after reminding where it had been left and recalling the proposal of Denmark to reduce the length of G.A.s.

Past-President stresses the role of the future Program Committee where Secretaries General would have to play the double role (defending their Associations and the Union view).

Netherlands wonders about the necessary time to be devoted to administrative matters at the Union and also Associations level. Vice-President thinks that too many facts are unavailable to us at the present time to make a decision.

Treasurer recommends to do what is best for the scientists.

France thinks that it is not our role to settle the length of the G.A. here since it is a too complex issue. However, we can encourage the Program Committee to reduce the length of the G.A..

President reminds of the fact that at Boulder, the overlap with the Union lectures was very criticized and that the Program Committee will have to avoid this to happen again.

Spain thinks that, today, governments are inclined to reduce the money supporting science; however, science is growing. Before discussing, one must understand what it is intended by a General Assembly and how it can be achieved. For instance, is it necessary to put all topics at every meeting, why would not we make a selection of topics with a rotation through time, since each Association individually establishes a full program on all its topics at its own Scientific Assembly.

Secretary General supports this view.

Netherlands suggests to focus on global programs such as the Earth Obsevation system, the Megacities, etc ... and that this should be considered by the next Executive Commmittee and Advisory Board. (P. Wyllie says it will).

Switzerland states we should strongly recommend and find ways on how to avoid collisions between Associations and strengthen Union Symposia.

Vice-President supports the idea of protecting Union Lectures and in the same time not to compete with speakers in parallel sessions.

Russia is of the opinion that one must reduce the number of symposia and small business workshops of the Associations; one must preserve Inter-Associations symposia.

Australia thinks that restricting the range of topics as proposed by Spain may end up in narrowing too much the topical subjects since this is decided long in advance.

Austria notes the enormous increase of the number of symposia. Attendance at non Association symposia was hampered by the Associations' internal symposia. It is what we want to avoid at G.A.s which should show IUGG as a Union.

IAGA reminds that they are very interdisciplinary. The particular value of IUGG G.A.s is that they are very widely international. One must realize that the explosion of data may require IUGG to meet every 2 years! One should not try to force by a commit-

ment the scientists to be interdisciplinary; rather, one should try to bring the matter within the Associations. Otherwise, the scientists may flee away from IUGG G.A.s. Following on this, President reminds of the case of Grenoble (1975) with Coulomb's dictatorial view of the scientific program (multidisciplinary at all cost!), resulting in many Associations having organized their separate program just after the G.A. itself.

Vice-President proposes a non-binding vote by hand about Union Lectures protection just in order to obtain a correct picture of preferences.

Egypt agrees, Japan wishes not to take a strict position.

VOTE: 5 are in favor of competition with other sessions; vast majority is in favor of no parallel sessions during Union Lectures.

29. Next General Assembly (cont'.)

President comes back on the related matter of the UK invitation. Implications for the future of IUGG might be far greater than those engendered by an acceptance of the Royal Society conditions. He feels that, due to the experience of UK, the '99 G.A. is likely to be a success, but that it may be very different in the future with another country if we change the way of functioning of IUGG for the G.A.s.

USA makes the motion to vote on the UK proposal, seconded by different countries.

Belgium says that we do not have to make a decision today; we should see within the next 6 months how it evolves.

The Treasurer finds the UK proposal sound and that we have a good chance to make some profit.

France thinks that, if we are obliged to share the risk, we must also oblige ourselves to be involved in the day-to-day preparation of G.A.s; consequently, France is strongly opposed to enter into this commitment. One should reopen the competition for invitation.

Egypt wishes to settle the case now for it could be worse in 6 months if no other invitation is made.

President feels we need much more time for coming to a decision on such an important move to which we are driven in a frantic way.

U. Shamir says that differing our decision may be very negative since Birmingham people said they could not maintain their offer longer than a few months. We must take a vote on this issue now and an Oversight Committee has to be settled.

Netherlands fully agrees with the document prepared by the Finance Committee and is not in favor of postponing the decision.

USA makes the remark that the UK proposal comes up with a very pessimistic estimate on the attendance; it is a very good proposal which is very conservative but minimizes the risk.

Portugal thinks we are indeed trying to modify the way of operating of IUGG. We have to consider the different issues separately: the document prepared by the Finance Committee, and then the UK proposal.

Vice-President considers that we may be pioneers in this evolution, but it may be generalized in the future given the world we are in. We should proceed, assuming a strong Oversight Committee.

Secretary General summarizes his viewpoint, emphasizing the following: (i) we have had a provisional offer made by U.K., and no competition; (ii) it would not harm to delay by a few months our decision since nothing in the Statutes and By-Laws (cf. By-Laws 5, 6) forces the Council to take such a decision now; (iii) the Bureau and the Executive Committee are entitled to take decisions later (Statute 7); (iv) being given the present situation, the idea of the Oversight Committee, to be established in all cases (of other invitations), is good, though we have to limit its power on the implications.

F. Spilhaus wishes to separate the two issues: first vote on accepting the invitation and if we do, then decide on how to proceed.

France refuses because the information were given only a few days before; National Committees for IUGG and geophysical societies are quite active in some countries and new options may come in the next months.

USA proposes to vote on the Finance Committee document, with two modifications. The Secretary

General asks for an exact wording of the modifications. The USA Delegate reads them; the written version will be passed to the Secretary General afterwards (see attachment 3).

Egypt seconds the proposal.

At a question on the character of the vote (general or financial ?) President decides (Statute 20) that it is to be a general one.

> VOTE: 20 in favor, 8 against, 7 abstentions.
> **The amended text of the Finance Committee on the examination of the invitation by a country for a G.A. and the organisational implications, is accepted.**

Several National Delegates then ask whether we accept now the UK proposal or we postpone the decision until December, 31st, 1995.

USA proposes that, since we accepted the Finance Committee document (with amendments), we should logically proceed to a vote on this second issue. M.J. Hamlin states the University of Birmingham offer is valid until the end of August of this year. The US motion is seconded by several countries (Belgium, Netherlands, ...). Some confusion follows.

President asks to vote precisely on the following question: do we accept the UK proposal subject to a positive evaluation by the Oversight Committee (to be formed right after this General Assembly) ?

> VOTE:
> **25 in favor, 4 against, 6 abstentions.**

28. Adoption of resolutions.

The text of the 7 resolutions prepared by the Resolution Committee is distributed.

The resolutions are commented one by one. A vote by hand takes place on each of them, separately: the majority is obtained for each resolution.

Before concluding, apologies are expressed to Nigeria for its forced Observer Status implied by the non reception of its annual dues, which payment had apparently been sent.

President warmly thanks Father Cardus for his very dedicated work in the Finances of the Union. He also thanks the Bureau and Presidents of Associations, and finally UK for its invitation and M. Hamlin for his work, cleverness and gentleman's way of making it acceptable.

P. Wyllie expresses his gratitude toward H. Moritz for his hard work at conducting the Union affairs over these four years, and at reducing the tensions between the Bureau and the Associations.

CLOSED at 1:30 p.m.

N.B. (1) A document, "How Science in China Makes Best Use of IUGG General Assembly", prepared by Ye Duzheng at the request of the President following a meeting of the Bureau the week before, is distributed, but not discussed.

(2) The minutes of the discussion on agenda items 27 and 29 have been kept in the narrative mode so as to better show how decisions were taken.

UNION LECTURES

UL 1 Dr. Susan Solomon (USA)
"Ozone Depletion and Global Changes"

UL 2 Dr. Richard Peltier (Canada)
"Chaotic Dynamics and Complexity in Three Dimension Geophysical Fluids"

UL 3 Dr. Uri Shamir (Israel)
"Fresh Waters in the World

UL 4 Dr. Marie Lise Chanin (France)
"New Issues in Climate Change Forcings"

UL 5 Dr. Kurt Lambeck (Australia)
"Sea Level, Ice Sheets, and the Physics of the Earth"

UNION SYMPOSIA

U 1 Human Impact and the Earth's Environment: Looking to the 21st Century and 3rd Millennium
Lead Convenors: A. V. Nikolaev (Russia), R. G. Bilham (USA)

U 2 Migration of Chemical Elements in the Earth's System
Lead Convenors: P. Gasparini (Italy), N. E. Peters (USA)

U 3 The Hidden Earth as Revealed from Space
Lead Convenor: J.O. Dickey (USA)
Co-Convenors: P. Mouginis-Mark (USA), J. Dozier (USA), F.W. Taylor (UK), K.Lambeck (Australia), S. Zerbini (Italy), J.L. Fellous (France), A. Nishida (Japan)

U 4 Dynamic Complexity
Lead Convenor: R.W. Peltier (Canada)
Co-Convenors: J. Rundle (USA), D. Rothman (USA)

U 5 Recreating the Solar System: Roles of Processes in Homogenizing and Differentiating Solar System Objects
Lead Convenors: G.L. Siscoe (USA), T.V. Johnson (USA)

U 6 Origin and Evolution of the Continental Lithosphere
Lead Convenor: K. Burke (USA)
Co-Convenors: R. Taylor (Australia), J. Dewey (UK)

U 7 Inverse Problems in Geodesy and Geophysics
Lead Convenors: F. Sanso (Italy), M. Sambridge (Australia)

U 8 Natural Disaster Reduction
Lead Convenor: B.A. Bolt (USA)

U 9 The 1995 Intergovernmental Panel on Climate Change (IPCC) Report
Lead Convenor: B.J. Hoskins (UK)
Co-Convenor: Sir J. Houghton (UK)

SYMPOSIA

(Organized by the Associations and Commissions During the XXI General Assembly)

International Association of Geodesy (IAG)

IAG Joint Symposia (joint sponsors are listed in parentheses)

G JS1
Crustal Deformation Along Plate Boundaries
(IAG, IASPEI)
Convener: J- B Minster (USA)

G JS2
Geodetic Remote Sensing, Seismic Monitoring of Volcanoes
(IAG, IASPEI, IAVCEI)
Lead Convener: C. Reigber (Germany)
Co-conveners: A. Hasegawa (Japan), A. Linde (USA)

G JS3
Inner Core, Core, Mantle, and Their Interfaces
The Figure of the Earth and Earth Rotation and Its Monitoring
Ocean and Atmosphere, Global Change
(IAG, IAMAS, IAPSO, IASPEI, IAGA, IAHS, SEDI)
Lead Convener: M. Feissel (France)
Co-conveners: D. Cartwright (UK), R. Hide (UK), R. Sabadini (Italy), J. Wahr (USA), P. Brosche (Germany).

IAG Association Symposia

G 1
Spaceborne Applications of the GPS
Kinematic Applications of the GPS
The GPS and Its Relations to Geophysics
The IGS and Other Continuously Operating GPS Reference Networks
Lead Convener: G. Beutler (Switzerland)
Co-conveners: G. Hein (Germany), W. Melbourne (USA), G. Seeber (Germany)

G 2
Geodesy in Southeast Asia
Lead Convener: J. Rais (Indonesia)
Co-convener: J. Manning (Australia).

G 3
Global Gravity Field and Its Temporal Variation
Lead Convener: R. H. Rapp (USA)
Co-conveners: A. Cazenave (France), R. S. Nerem (USA)

G 4
Airborne Gravity Field Determination
Lead Convener: K. P. Schwarz (Canada)
Co-conveners: J. Brozena (USA), G. Hein (Germany)

G 5
The Geoid and the Solution of the Boundary Value Problem
Lead Convener: B. Heck (Germany)
Co-conveners: R. Forsberg (Denmark), H. Sunkel (Austria).

G 6	Geodetic Networks for Addressing Geophysical Issues Lead Convener: M. Prilepin (Russia) Co-conveners: Y. Bock (USA), J. Kakkuri (Finland)
G 7	New Concepts in Space Geodesy Lead Convener: P. L. Bender (USA) Co-conveners: F. Nouel (France), C. Reigber (Germany), R. Rummel (Germany).
G 8	Applications of Geodesy to Engineering Section I: Positioning Convener: M. Prilepin (Russia); F. K. Brunner (Australia)
G 9	Applications of Geodesy to Engineering Section II: Advanced Space Techniques Convener: C. Reigber (Germany)
G 10	Gravity Observations and Evaluation Gravity Field Determination Gravity Variation With Time Geoid Determination Oral Session 1: Business Session Convener: Hans-Georg Wenzel (Germany) Oral Session 2: Gravimetry Convener: Iginio Marson (Italy) Oral Session 3: Geoid Determination Convener: Hans Sunkel (Austria) Poster Session 4: Common for Both Oral Sessions 2 and 3. Convener: Rene Forsberg (Denmark)
G 11	Section IV: General Theory and Methodology Convener: F. Sanso (Italy)
G 12	Section V: Geodynamics Reference Frames and Crustal Motion Tides and General Topics Lead Convener: J. Dickey (USA) Co-conveners: M. Feissel, H. Hsu, T. Tanaka.
G 13	Joint Symposium on Education Conveners: R. Langley (Canada)

International Association of Seismology and Physics of the Earth's Interior (IASPEI)

IASPEI Joint Symposia and Workshops (joint sponsors are listed in parentheses)

S JS1	Earthquake Generation Processes (IASPEI, IAVCEI). Lead convenor: M. Matsu'ura (Japan) Co-convenors: T. Lewis (Canada), C.J. Marone (USA), S. McNutt (USA), M. Takeo (Japan)
S JS2	Physical and Chemical Evolution of the Earth (IASPEI, IAVCEI). Lead convenor: T.J. Ahrens (USA)

Co-convenors: P. Gillet (France), W. McDonough (Australia), E. Ohtani (Japan)

S JS3 Long-Term Seafloor Observations and Networks (IASPEI, IAG, IASPSO, ION). Lead convenor: K. Suyehiro (Japan)
Co-convenors: J-P. Montagner (France), J. Orcutt (USA), A. Chave (USA), A. Schultz (UK), F. Spiess (USA)

S JS4 Modeling Earth's Structure and Dynamics (IASPEI, IAGA, IAG)
Lead convenor: S. Constable (USA)
Co-convenors: A.G. Duba (USA), I. Jackson (Australia), J-P. Poirier, (France), T.A. Herring (USA)

S JS5 Core-Mantle Boundary Region (IASPEI, IAGA, IAG, SEDI).
Lead convenor: R. Jeanloz (USA)
Co-convenors: B. Buffett (Canada), K. Whaler (UK)

S JS6 Rock Properties Related to Environmental Concerns (IASPEI, IAHS, SEG).
Lead convenor: G.A. Sobolev (Russia)
Co-convenors: S. Ingebritsen (USA), G. Olhoeft (USA), H. Spetzler (USA)

S JS7 Mantle Dynamics and the Geological Record (IASPEI, SEDI, ILP).
Lead convenor: M. Richards (USA)
Co-convenors: S. Cloetingh (Netherlands), G. Davies (Australia), M. Gurnis (USA)

S JS8 Modeling the Earth's Interior (IASPEI, IAVCEI, IAG, SEDI).
Lead convenor: R. O'Connell (USA)
Co-convenors: G. Masters (USA), M. Brown (USA), V. Dehant (Belgium)

S JW1 Geophysical Networks (IASPEI, IAGA, IAG).
Lead convenor: D.W. Simpson (USA)
Co-convenors: G. Beulter (Switzerland), G. Boedecker (Germany), D. Kerridge (UK), G. Roult (France)

S JW2 Geophysical Data Challenges in the 21st Century (IASPEI, IAG, IAGA, CODATA, WDC).
Lead convenor: M.A. Chinnery (USA)
Co-convenors: G.A. Sobolev (Russia), C.C. Tscherning (Denmark)

IASPEI Association Symposia

S 1 Seismicity Induced by Petroleum, Mining and Geothermal Activities (IASPEI, SEG).
Lead convenor: M. Fehler (USA)
Co-convenor: C. Trifu (Canada)

S 2 Earthquake Prediction.
Lead convenor: K. Hamada (Japan)
Co-convenor: A. Lindh (USA)

S 3 Continental Evolution Revealed in Geophysical Transects (IASPEI, ILP).
Lead convenor: W.D. Mooney (USA)

Co-convenors: R. Clowes (Canada), H-J. Goetze (Germany), S. Mueller (Switzerland), N. Pavlenkova (Russia)

S 4 — Origin and Evolution of Sedimentary Basins (IASPEI, ILP, SEG).
Lead convenor: R. Allis (New Zealand)
Co-convenors: C. Beaumont (Canada), C. Clauser (Germany), S. Cloetingh (The Netherlands)

S 5 — Ground Motion Analysis From Recent Strong-Motion Data.
Lead convenor: Li-li Xie (China)
Co-convenor: N.A. Abrahamson (USA)

S 6 — Quantification of Earthquakes
Lead convenor: G. Ekstrom (USA)
Co-convenors: H. Kawakatsu (Japan), S.A. Sipkin (USA)

S 7 — Rheology and Lithospheric Deformation (IASPEI, ILP).
Lead convenor: S. Karato (USA)
Co-convenors: J. Braun (Australia), S. Sobolev (Russia)

S 8 — Microearthquakes and Tectonics of the Ocean Bottom (cancelled)

S 9 — Earthquake Hazards Related to Geological Structures (IASPEI, ILP).
Lead convenor: V. Schenk (Czech Republic)
Co-convenors: R.C. Agrawal (India), D. Giardini (Italy), A. Shapira (Israel)

S 10 — Seismology and Physics of Anisotropic and Heterogeneous Media (IASPEI, SEG). Lead convenor: J-M. Kendall (Canada)
Co-convenors: E.M. Chesnokov (Russia), G. Pratt (UK)

S 11 — Real Time Tectonics
Convenor: W.E. Holt, (USA)

S 12 — Geophysical Tomography in Complicated Heterogeneous Media (IASPEI, SEG). Lead convenor: E. Kissling (Switzerland)
Co-convenors: L. Lines (Canada), A. Morelli (Italy)

S 13 — Application of Artificial Intelligence Computing in Geophysics (IASPEI, SEG). Lead convenor: G.B. Patnaik (USA)
Co-convenor: F. Aminzadeh (USA)

S 14 — Methods and Interpretation of 2D And 3D Earth Structure (IASPEI, SEG).
Lead convenor: C. Thomson (Canada)
Co-convenors: D. Miller (USA), M. Weber (Germany)

S 15 — Dynamics of the Subduction Process.
Lead convenor: R. Wortel (The Netherlands)
Co-convenors: R.D. van der Hilst (Australia), Y. Fukao (Japan).

IASPEI Association Workshops

S W1 — Seismological Networks for the Next Century.
Lead convenor: A. Tarantola (France)
Co-convenor: R. Phinney (USA)

S W2	Thermoelastic Properties of Deep Mantle Phases (IASPEI, SEDI). Lead convenor: O.L. Anderson (USA) Co-convenor: I. Jackson (Australia)
S W3	Acquisition and Processing of Deep Crustal Seismic Data (IASPEI, SEG). Lead convenor: S. Smithson (USA) Co-convenors: P. Docherty (UK), P. Hubral (Germany)
S W4	Reliability of Earthquake Precursors and Prediction. Convenor: M. Wyss (USA)
S W5	Recent Devastating Earthquakes. Convenor: H. Kanamori (USA)
S W6	Earthquake Warning Systems: Progress and Results. Lead convenor: W.H.K. Lee (USA) Co-convenors: J.M. Espinosa-Aranda (Mexico), Y. Nakamura (Japan), T.C. Shin (Taiwan)
S W7	Intra-Continental Earthquakes. Lead convenor: Chen, Yun-tai (China) Co-convenor: J.W. Dewey (USA)
S W8	Seismological Data and Practice Into the 21st Century. Lead convenor: E.A. Bergman (USA) Co-convenor: D. Giardini (Italy)
S W9	Methodology of Seismic Risk Assessment. Lead convenor: Chen Yong (China) Co-convenor: A. Shapira (Israel)
S W10	Exploiting Large Volumes of Digital Waveform Data Lead convenor: R. Snieder (The Netherlands) Co-convenors: J.C. VanDecar (USA), H. Benz (USA)
S W11	Deja Q: Anelasticity in the Earth's Deep Interior (IASPEI, SEDI). Lead convenor: M. Ritzwoller (USA) Co-convenor: B. Romanowicz (USA)
S W12	GSHAP Related Advances in Seismic Hazard Assessment (IASPEI, ILP). Convenor: P. Basham (Canada)
S W13	Improving Regional Cooperation in Observational Seismology (cancelled)
S W14	Seismic Noise - Stability and Change in Time and Space. Lead convenor: A.A. Ostrovsky (Russia) Co-convenors: E. Hjortenberg (Denmark), P. Bormann (Germany)
S W15	Statistical Characteristics of Earth Heterogeneity (IASPEI, SEG). Lead convenor: O. Gudmundsson (Australia) Co-convenors: A. Levander (USA), Wu Ru-shan (China)
SW16	Database of 3-D Structure of Lithosphere and Asthenosphere (IASPEI, ILP) Lead Convenor: F. Schwab (USA) Co-convenor: A. Ram (India)

International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI)

IAVCEI Joint Symposia (joint sponsors are listed in parentheses)

V JS1 — Geodynamic Evolution of the Andean Region
(IAVCEI, IASPEI, IGCP, ILP)
Lead Convener: Suzanne Kay (USA).
Co-conveners: Bryan Isacks (USA), Paul Silver (USA).

V JS2 — Subduction Zone Processes at 25-200 km Depth
(IAVCEI, IASPEI, ILP)
Lead Convener: Simon M. Peacock (USA)
Co-conveners: Gray E. Bebout (USA), Craig Manning (USA).

V JS3 — Volcanic Crater Lakes (IAVCEI, IAHS)
Lead Convener: Sam Freeth (UK)
Co-convener: F. van de Ven (IAHS) (The Netherlands).

V JS4 — Geochemical and Geophysical Signatures of Mantle Plumes (IAVCEI, IASPEI, IAG, SEDI)
Lead Convener: W. M. White,(USA)
Co-conveners: L. Fleitout (IASPEI), B. Hager (USA), L. Kellog (USA).

V JW1 — Electromagnetic Effects of Earthquakes and Volcanoes (IAVCEI, IASPEI)
Lead Convener: Malcolm Johnston (USA)
Co-conveners: M. Gokhberg (Russia), M. Parrot (France), Y. Fujinawa (Japan).

IAVCEI Symposia

V 1 — Origin of Large Igneous Provinces
Lead Convener: Mike Coffin (USA)
Co-conveners: Nicholas Arndt (France), John Ludden (Canada).

V 2 — Seafloor Volcanism
Lead Convener: Mike Perfit (USA)

V 3 — Magma Degassing and Explosive Eruptions
Lead Convener: Marcus Bursik (USA)
Co-convener: Andrew W. Woods (UK).

V 4 — Evolution of Large Volcanic Systems
Restless Calderas
Restless Calderas/Evolution of Large Volcanic Systems
Lead Convener: John Pallister (USA)
Co-conveners: Ken Hon (USA), Jim Cole (New Zealand), and Marta Mantovani (Brazil).

V 5 — Dynamics of the Magma/Hydrothermal Interface
Lead Convener: Steve Ingebritsen (USA)
Co-convener: Claude Jaupart (France).

V 6	Arc Volcanism and Sedimentation Lead Convener: R. V. Fisher (USA) Co-conveners: Ray Cas (Australia).
V 7	Volcano Flank Instability Lead Convener: Roger Denlinger (USA) Co-conveners: Andrea Borgia (Italy), Paul Okubo (USA).
V 8	Decade Volcano (cancelled) Lead Convener: Donald Swanson (USA) Co-convener: R. Wally Johnson (Australia)
V9	General Volcanology/Geochemistry

International Association of Geomagnetism and Aeronomy (IAGA)

IAGA Joint Symposia (joint sponsors are listed in parentheses)

GA JS1.02	Relating Geophysical Measurements to Lithospheric Processes Through Continental Drilling (IAGA, IASPEI, ILP) Lead Convener: Volker Haak (Germany) Co-conveners: J. Erzinger (Germany), J. Mutter (USA), D. R. Schmitt (Canada).
GA JS1.05/5.13	Geomagnetic Secular Variation and Core Flow Near the Core-Mantle Boundary (IAGA, IAG, IASPEI, SEDI) Lead Convener: G. Hulot (France) Co-convener: R. A. Langel (USA), D. Crossley (Canada).
GA JS1.07	Lithospheric Anisotropy: Observations and Interpretation (IAGA, IASPEI, ILP) Lead Convener: Marianne Mareschal (Canada) Co-convener: Michael Bostock (Canada).
GA JS1.08	Geophysical Signatures of Modern and Ancient Continental Margins (IAGA, IASPEI, ILP) Lead Convener: John R. Booker (USA) Co-convener: M. Christina Pomposiello (Argentina).
GA JS5.18	Architecture of the Continents: Interpretation of Their Main Structural Elements From Magnetic Anomalies and Other Geophysical Data (IAGA, IASPEI, ILP) Lead Convener: V. Shapiro (Russia). Co-conveners: J. Broome (Canada), L. Antoine (South Africa).
GA W2.17	The Use of Imaging Riometers in Studies of the Ionosphere and Middle Atmosphere Convener: Hillka Ranta (Finland)

IAGA Symposia

GA 1.01/2.08/3.16/ 4.05/5.05	Solar Wind Structures, Energetic Solar Particles, Geomagnetic Activity,and Associated Phenomena Lead Convener: J. T. Gosling (USA)

Co-conveners: D. H. Tarling (UK), J. Lastovicka (Czech Rep.), A. Berthelier (France).

GA 1.04

Core Dynamics and the Dynamo: Experiments and Observational Constraints
Core Dynamics and the Dynamo: Core Dynamics and Core-Mantle Coupling
Core Dynamics and the Dynamo
Core Dynamics and the Dynamo: Magnetoconvection and Dynamo Models
Convener: C. A. Jones (UK)

GA 1.06

Reversals: Observation and Theory
Lead Convener: D. Gubbins (UK)
Co-convener: B. M. Clement (USA).

GA 1.10

Multidimensional Mathematical Advances in Electromagnetic Induction: Decomposition, Modeling, and Inversion
Lead Convener: E. Gomez-Trevino (USA)
Co-convener: T. Smith (UK).

GA 1. 11/2. 16/5. 08

Multidimensional Currents Over Multidimensional Earth Structures: Theory and Observations
Lead Convener: A. G. Jones (Canada)
Co-conveners: A. D. Richmond (USA), E. W. Mbipom (Nigeria).

GA 1. 12

Electromagnetic Studies of the Solid Earth
Lead Convener: Steven Constable (USA).
Co-conveners: S. I. Fontes (Brazil), X. R. Kong (China).

GA 1. 13

Magnetic Signature of Environmental Change
Lead Convener: Subir Banerjee (USA)
Co-convener: Jan Bloemendal (UK).

GA 1. 14

Archaeosecular and Palaeosecular Variations
Lead Convener: Charles E. Barton (Australia)
Co-convener: Q. Y. Wei (China).

GA 1. 15

Innovations in Palaeointensity Studies
Lead Convener: Lisa Tauxe (Netherlands)
Co-convener: J.-P Valet (France).

GA 1. 16

High-Resolution Magnetostratigraphy
Lead Convener: C. G. Langereis (Netherlands)
Co-convener: John Shaw (UK).

GA 1. 17

Nature of Remagnetizations
Lead Convener: R. Douglas Elmore (USA)
Co-convener: Trond H. Torsvik (Norway).

GA 1. 18

Palaeomagnetism and Tectonics
Lead Convener: Jean Besse (France)
Co-conveners: Augusto Rapalini (Argentina), Jim Channel (USA).

GA 1. 19	Applications of Magnetic Anisotropy Lead Convener: D. A. Clark (Australia) Co-conveners: G. Borradaile (Canada), A. Kapicka (Czech Republic).
GA 1. 20	Properties of Minor Magnetic Materials Lead Convener: Mark J. Dekkers (Netherlands) Co-convener: Buffy McClelland (UK).
GA 1. 21	New Approaches in Rock Magnetism Lead Convener: Susan L. Halgedahl (USA) Co-convener: Franz Heider (Germany).
GA 2. 01	Upper Atmosphere Structure, Dynamics, and Electrodynamics: Gravity Waves, Tides, and Long-Term Variations Upper Atmosphere Structure, Dynamics, and Electrodynamics: Planetary Wave Signatures Upper Atmosphere Structure, Dynamics, and Electrodynamics: Structure and Composition Upper Atmosphere Structure, Dynamics, and Electrodynamics: Electrodynamic Phenomena Lead Convener: Sheila Kirkwood (Sweden) Co-conveners: G. Price (Australia), C. Lathuillere (France), A. Manson (Canada), J. Forbes (USA), R. Goldberg (USA).
GA 2. 02	Aeronomy of Aurora and Airglow Emissions and Related Laboratory Measurements Lead Convener: Ian McDade (Canada) Co-convener: D. Murtagh (Sweden).
GA 2. 03	Ionospheric Irregularities and Instabilities Lead Convener: Raymond Greenwald (USA) Co-convener: E. Blanc (France).
GA 2. 04	Developments in Instrumentation and Absolute Calibration Lead Convener: S. Chakrabarti (USA) Co-convener: E. Hilsenrath (USA).
GA 2. 05/7. 03	Equatorial Ionosphere-Thermosphere System Lead Convener: Mangalathayil A. Abdu (Brazil) Co-conveners: K. D. Cole (Australia), C. Amory-Mazaudier (France), J. H. Sastri (India).
GA 2. 09/3. 08	Planetary Atmospheres and Magnetospheres: The Jovian Magnetosphere Planetary Atmospheres and Magnetospheres : Outer Planets' Magnetospheres and Satellite Interactions Planetary Atmospheres and Magnetospheres: The Venus Plasma Environment Planetary Atmospheres and Magnetospheres Planetary Atmospheres and Magnetospheres: Waves in Planetary Magnetospheres Planetary Atmospheres and Magnetospheres: The Martian Plasma Environment

Lead Convener: Michel Blanc (France)
Co-conveners: T. E. Cravens (USA), K. K. Khurana (USA).

GA 2. 10/3. 05 — Large-Scale Electrodynamics in the Coupled Magnetosphere - Ionosphere - Termosphere System
Lead Convener: D. J. Knipp (USA)
Co-convener: R. J. Walker (USA).

GA 2. 11/3. 09 — High-Latitude Aurorae: Formation, Morphology, Dynamics, and Use as a Diagnostic
Lead Convener: H. J. Opgenoorth (Sweden)
Co-conveners: R. D. Elphinstone (Canada), C. W. Carlson (USA).

GA 2. 12/3. 02/4. 04 — Magnetosheath, Magnetopause, Boundary Layers, and Cusp: A Coupled System
Lead Convener: P. Song (USA)
Co-conveners: C. T. Russell (USA), A. Egeland (Norway), D. J. Southwood (UK).

GA 2. 13/3. 03 — Dynamics of the Magnetotail and High-Latitude Nightside Ionosphere
Lead Convener: A. Nishida (Japan)
Co-conveners: H. C. Carlson (USA), V. Angelopoulos (USA).

GA 2. 14/3. 04 — Inner Magnetosphere: Ring Current, Radiation Belts, and Plasmasphere
Lead Convener: J. U. Kozyra (USA)
Co-conveners: D. C. Hamilton (USA), Y. Kamide (Japan).

GA 2. 15/3. 11 — Interhemispheric Contrasts in Substorm Signatures
Lead Convener: John R. Dudeney
Co-convener: J. C. Samson (Canada).

GA 3. 01 — Division III Reporter Reviews
Convener: S. W. H. Cowley (UK)

GA 3. 06 — ULF Wave Response of the Magnetosphere to Solar Wind Energy Input
Lead Convener: D. J. Southwood (UK)
Co-conveners: C. T. Russell (USA), F. W Menk (Australia).

GA 3. 07 — Nonlinear and Kinetic Effects in ULF Waves
Lead Convener: J. C. Samson (Canada)
Co-convener: R. L. Lysak (USA).

GA 3. 10 — Active and Laboratory Experiments in Space Plasma Physics
Lead Convener: W. Gekelman (USA)
Co-conveners: V. N. Oraevsky (Russia), S. Robertson (USA).

GA 3. 12 — Whistler-Mode Waves and Particle Precipitation
Lead Convener: A. J. Smith (UK)
Co-convener: U. S. Inan (USA).

GA 3. 13 — Modeling and Theory for Mission Design and Data Interpretation
Lead Convener: P. J. Tanskanen (Finland)
Co-convener: A. Roux (France).

GA 3. 14	Magnetospheric Models and Their Critical Evaluation Lead Convener: T. I. Pulkkinnen (Finland) Co-convener: G. D. Reeves (USA).
GA 3. 15/4. 03	Pick-up and Seed Ions in Space Plasmas and Their Acceleration Processes: Interstellar Pickup Ions Pick-up and Seed Ions in Space Plasmas and Their Acceleration Processes: Interstellar Pickup Ions, Planetary Pickup Ions Pick-up and Seed Ions in Space Plasmas and Their Acceleration Processes: Ion Injection at Shocks Lead Convener: M. A. Lee (USA) Co-convener: A. J. Coates (UK).
GA 3. 17/5. 04	Artificial Intelligence Applications in Magnetospheric Modeling and Forecasting Lead Convener: R. L. McPherron (USA) Co-convener: A. N. Zaitzev (Russia).
GA 4. 01	Ulysses Latitude Survey Convener: E. J. Smith
GA 4. 02	Observations of the Sun by Ulysses Convener: K. Hurley (USA)
GA 4. 06	Solar/Planetary/Interstellar Origin of Interplanetary Plasma Composition Convener: J. G. Luhmann (USA)
GA 4. 07	Structural Approach To Heliospheric Plasmas Structural Approach To Heliospheric Plasmas: Turbulence, Fractals, Chaos Convener: M. L. Goldstein (USA)
GA 4. 08	The Local Interstellar Cloud and the Boundary of the Heliosphere: Heliospheric Models The Local Interstellar Cloud and the Boundary of the Heliosphere: Local Interstellar Cloud The Local Interstellar Cloud and the Boundary of the Heliosphere: Interstellar/Heliosphere Particles and Processes Convener: R. Lallement (France)
GA 4. 09	Planetary Bowshocks Convener: I. S. Veselovsky (Russia)
GA 4. 10	Division IV Reporter Reviews Convener: S. Grzedzielski (France).
GA 5. 01	Modern Observatory and Repeat Station Instruments and Practice Lead Convener: O. Rasmussen (Denmark) Co-convener: L. Hegymegi (Hungary).
GA 5. 02	Ocean Bottom Geomagnetic Observatories Lead Convener: A. W. Green, Jr.(USA) Co-conveners: L. Law (Canada), J. Rasson (Belgium).

GA 5. 03
High Resolution Geomagnetic Data
Lead Convener: E. W. Worthington (USA)
Co-convener: K. Yumoto (Japan).

GA 5. 06
Geomagnetic Applications
Lead Convener: D. H. Boteler (Canada)
Co-convener: M. E. Shea (USA).

GA 5. 07
Application Data Systems: Real-Time, On-Line and On Disk
Lead Convener: J. H. Allen (USA)
Co-convener: R. Clauer (USA).

GA 5. 09
Field Behavior on Non-Active Days at World Locations
Lead Convener: W. H. Campbell (USA).
Co-convener: H. Deebes (Egypt).

GA 5. 10
Geomagnetic Indices
Lead Convener: M. Menvielle (France)
Co-conveners: T. Iyemori (Japan), R. L. Coles (Canada).

GA 5. 12
Analysis and Modeling of Low Earth Orbit Magnetic Survey Satellite Data With Respect to the Core, Crust, Ionosphere, and Induction
Lead Convener: J. M. Quinn (USA)
Co-convener: Y. Cohen (France).

GA 5. 14
Global and Regional Magnetic Field Models and Charts
Lead Convener: C. Barton (Australia)
Co-convener: D. R. Barraclough (UK).

GA 5. 15
Novel Techniques in Acquisition, Processing, Presentation and Integrated Interpretation of Magnetic Anomaly Data
Lead Convener: C. Reeves (Netherlands)
Co-conveners: K. A. Whaler (UK), D. Teskey (Canada).

GA 5. 16
Magnetic Anomalies in the North Atlantic and Arctic Oceans and Surrounding Regions
Lead Convener: S. Mashchenkov (Russia)
Co-conveners: J. Verhoef (Canada), P. Taylor (USA).

GA 5. 17
Antarctic Magnetic Anomalies
Lead Convener: R. von Frese (USA)
Co-conveners: A. Johnson (UK), A. Meloni (ITALY).

GA 5. 19
Magnetic Petrology and Magnetic Signatures of Ore Deposits and Ore Environments
Lead Convener: D. Clark (Australia)
Co-convener: S. Zhakherov (Russia).

GA 5. 20
Advances in Magnetic Modeling and Efficient Interpretations of Large Magnetic Data Sets
Lead Convener: M. Purucker (USA)
Co-convener: J. Arkani-Hamed (Canada).

GA 5. 22
Local Time Changes of the Earth's Magnetic Field Caused by Recent Tectonic Processes (Tectonomagnetic Method)

Lead Convener: J. Podsklan (Czech Republic)
Co-convener: V. Kuznetsova (Ukraine).

GA 6. 01 — History of Geophysics and of Global Change: Climate and Environment
History of Geophysics and of Global Change: Geophysics and Geodesy
History of Geophysics and of Global Change: Solar Terrestrial Physics
History of Geophysics and of Global Change: Geomagnetism and Aeronomy
Lead Convener: Michele Colacino (Italy)
Co-conveners: L. M. Barreto (Brazil), Deborah C. Day (USA),Wilfried Schroeder (Germany).

GA 7. 01 — Activities and Results of the International Equatorial Electrojet Year (IEEY)
Lead Convener: Christine Amory Mazaudier (France)
Co-convener: C. Agodi Onwumechili (UK).

GA 7. 02 — Priorities in Geomagnetism and Aeronomy in Developing Countries
Lead Convener: Attia A. Ashour (Egypt).
Co-convener: L. M. Barreto (Brazil).

International Association of Meteorology and Atmospheric Sciences (IAMAS)

IAMAS Joint Symposia and Workshops (joint sponsors are listed in parentheses)

M JS2 — Equatorial Atmosphere and Ionosphere Interactions (IAMAS, IAGA, ICM)
Lead Convenor: R. Vincent (Australia)
Co-convenors: A. Richmond (USA); S. Kato (Japan)

M JS3 — Middle Atmosphere: Chemistry, Radiation and Transport
Middle Atmosphere: Dynamics and Chemistry, Radiation and Transport
Middle Atmosphere: Dynamics of the Middle Atmosphere
Middle Atmosphere
Middle Atmosphere: Solar-Terrestrial Interactions
Middle Atmosphere: The Polar Mesosphere
(IAMAS, IAGA, ICMA)
Lead Convener: Rolando R. Garcia (USA)
Co-conveners: B. A. Boville (USA), D. Fritts (USA), M Shiotani (Japan), S. Solomon (USA), J. Russell (USA), L. Gray (UK), G. Thomas (USA), G. Witt (Sweden), R. Goldberg (USA), L. Hood (USA), J. Lastovicka (Czech Republic).

M JS5 — Effects of Pinatubo (IAMAS, IAVCEI)
Lead Convenor: P. McCormick (USA);
Co-convenor: G. Brasseur (USA) (IOC)

M JS6 — Atmospheric CO_2 - Breathing of Earth (IAMAS, IAVCEI, IAPSO)
Lead Convenor: I. Levin (Germany) (ICACGP)
Co-convenors: P. Tans, D. Schimel

MJS14 — Climatic Variability and Forcing Over the Past Millenium
Climatic Variability
High-Resolution Records of Volcanism and Climate Forcing
Implications of Past Climate Variability for the Future
(IAMAS, IASPEI, IAVCEI, IAPSO)

MJS14 (continued)	Lead Convener: Michael McCracken (USA) Co-conveners: C. Folland (UK), P. D. Jones (UK), H. Pollack (USA), A. Robock (USA), S. Self (USA), R. Stevenson (USA), G. Zielinski (USA).
M W2	New Technology and Mesoscale Forecasting: ICDM, ICCP Lead Convener: Keith Browning (UK)
M W3	The Solar Cycle Variation of the Stratosphere: ICM Lead Convenor: L. Hood (USA)
M W4	Gravity Wave Sources and Parameterizations (IAMAS, IAGA) Lead Convener: David Fritts (USA)
M W5	Intercomparison of Middle Atmosphere Models (IAMAS, IAGA) Lead Convener: Steven Pawson (Germany) Co-convener: R. Rood
M W6	Stratospheric Ozone and UV-B Radiation: IOC, ICMA Lead Convenor: C. Zerefos (Greece) (IOC) Co-convenor: J. Kerr (IOC)
M W7	International Global Aerosol Program: ICCP, IRC, ICACGP Lead Convenor: P. Hobbs (USA)

IAMAS Symposia

M1	Meteorology and Atmospheric Science - General Tropospheric Ozone Tropospheric Ozone - (1) Ozone Trends Tropospheric Ozone - (2) Tropospheric Aircraft Tropospheric Ozone - (4) Polar Ozone and - (6) Tropical Ozone and Biomass Burning Lead Convener: H. Niki (Canada) Co-conveners: S. Penkett (UK) and W. Chameides (USA).
M4	Cloud Optics and Radiative Properties Cloud/Aerosol/Climate Radiative Forcing - Clear Sky and Boundary Radiative/Climate Forcing Emerging Technologies and Methods Lead Convenor: G. Stephens (USA) (IRC, ICCP) Co-convenors: S. Warren (ICCl), J. Ogren (ICACGP), A. Slingo (ICCP)
M7	Atmospheric Electrodynamics Thunderstorm Charging: Lab, Experiment, and Model Lightning and Thunderstorm Troposphere - Mesosphere Interaction - Sprites DC Global Circuit AC Global Circuit Lead Convenor: R. Holzworth (USA) Co-convenor: C. Saunders (ICCP)
M8	Boundary Layer and Its Mesoscale Impact: ICDM Lead Convenor: R. Smith (Germany)

M9 — Synoptic and Mesoscale Weather Systems in the Polar Regions
Lead Convenor: J. Turner (UK)
Co-convenor: E. Rasmussen (Denmark) (ICPM)

M10 — Mars and Jupiter: ICPAE, ICDM
Lead Convenor: S. K. Atreya (USA)
Co-convenors: J. R. Barnes, D. McCleese, T. C. Owen, F. W. Taylor

M11 — Spectroscopy and Radiative Transfer: IRC
Lead Convenor: J. McConnell

M12 — Stratospheric Processes and Their Role in Climate , SPARC
Lead Convenor: M.-L. Chanin (France)
Co-convenor: M. Geller

M13 — Atmosphere - Ocean Behavior on Annual and Interannual Time Scales: ICDM, ICCI
Lead Convenor: H. von Storch (Germany)

International Association of Hydrological Sciences (IAHS)

IAHS Joint Symposia and Workshops

H JS1 — Clouds, Convection, and Land Surface Processes
Clouds, Convection, and Largescale Flow
ISCCP and Regional Experiments
ISCCP and Regional Experiments: Radiation Budget Studies
ISCCP and Regional Experiments: Studies of Cloud-Radiation Interaction
Status of Land Surface Process Models (Pilps and Rice)
Land Surface Process Model Development
Land Surface Experiments and Issues of Topography
SVAT Validation Based on Land Surface Experiments
(IAHS, IAMAS)
Lead Convener: John Schaake (USA)
Co-convener: A. Henderson-Sellers (Australia)

H JW1 — Remote Sensing Algorithms in Hydrology: Soil Moisture
Remote Sensing Algorithms in Hydrology: Evapotranspiration
Remote Sensing Algorithms in Hydrology: Snow Cover
(IAHS, IAMAS)
Convenor: R.L. Armstrong (USA)

H JW2 — Hydrologic Cycle in Mountainous Regions
Hydrometeorological and Landsurface Processes
Aggregation and Parameterization of Key Processes
(IAHS, IAMAS)
Lead Convenor: H. Lang (Switzerland)
Co-convenor: H. Davies (Switzerland)

H JW3 — Dynamic Monitoring and Estimation of Water Balance (IAHS, IAMAS)
Lead Convenor: K. McGuffie (Australia)
Co-conveners: Klaus Wilke (Germany); Bill Lau (USA).

IAHS Symposia

H1	Scalar Effects on Fluxes of Water and Contaminant Loads Scalar Effects of Hydrologic and Geomorphic Processes Application of Models to Scale (ICCE and ICWQ) Lead convenor: W.R. Osterkamp (USA)
H 2	Assessing and Monitoring Groundwater Quality I Assessing and Monitoring Groundwater Quality II Assessing and Monitoring Groundwater Quality III Assessing and Monitoring Groundwater Quality IV Assessing and Monitoring Groundwater Quality V (ICGW and ICASVR) Lead Convener: Brian Wagner (USA) Co-convener: T. H. Illangas Kare (USA), K. Jensen (Denmark).
H 3	Snowpack Transformations Snow Hydrology and Hydrochemistry Snowmelt Runoff and Biogeochemical Processes Glaciers: Hydrology and Hydrochemistry Biogeochemistry of Seasonally Snow-Covered Catchments (ICSI, ICWQ, and ICT) Lead Convener: Kathy Tonnessen (USA) Co-convener: Mark Williams (USA).
H 4	Catchment Processes and Synopsis Introductory Session and Mathematical Models in Tracer Hydrology Unsaturated Zone and Groundwater Sediment Transport and Unsaturated Zone Surface Water and Runoff Convener: Chris Leibundgut (Germany)
H 5	Man's Influence on Freshwater Ecosystems (ICSW, ICGW, and ICWQ) Convener: Geoffrey E. Petts (UK)
H 6	Sustainability in Modeling - I Sustainability in Modeling - II Sustainability Modeling Tools - I Sustainability Modeling Sustainability Modeling Tools - II Sustainability Relevant Issues - II (ICWRS) Convener: S. P. Simonovic (Canada)

IAHS Workshops

H W1	Spatial Information Systems in Hydrology (ICRSDT) Lead Convener: Kenneth J. Lanfear (USA) Co-conveners: D. Nebert (USA), A. Ivan Johnson (USA).
H W2	Predictability, Uncertainty and Prejudice in Hydrology (ICWRS) Convenor: C. Cunnane (Ireland)

H W3	Coping With Challenges of Global Change Integrated River Basin Management Regional Patterns and Implications of Climate Change (ICSW) Convenor: L. Oyebande (Nigeria)
H W4	Quality Assurance in Hydrological Measurement (ICWRS) Convenor: H.R. Hudson (Canada)

Ocean Sciences (OS)

OS Joint Symposia

OS JS2	Sea Level and Ice (IAPSO, IAG, IAHS) Lead Convener: David T. Pugh (UK) Co-conveners: Suzanna Zerbini (Italy), Mark F. Meier (USA).
OS JS3	Waves and Mixing (IAPSO, IAMAS) Lead Convener: Michael C. Gregg (USA) Co-convener: Thomas E. Van Zandt (USA).
PS JS4	Hazard Reduction Historical and Contemporary Observations of Tsunamis Tsunami Physical Processes of Tsunami Generation Physical Processes of Tsunami Propagation and Run-Up (IAPSO, IASPEI) Lead Convener: Eddie N. Bernard (USA). Co-conveners: Gerassimos A. Papadopoulos (Greece), Nobuo Shuto (Japan), Stefano Tinti (Italy).

OS Symposia

OS 1	Large-Scale Ocean Circulation
OS 2	Decadal and Interdecadal Ocean Variability Circulation and Climatic Variability Lead Convener: Toshio Yamagata (Japan) Co-conveners: Lawrence A. Mysak (Canada), Sergey S. Lappo (Russia), Ibrahim Amin Maiyza (Egypt).
OS 3	Circulation of Marginal Seas and Semi-Enclosed Seas Lead Convener: Christopher N. K. Co-conveners: George A. Maul (USA), Paola Malanotte-Rizzoli (USA), Nadia Pinardi (Italy), John M. Huthnance (UK), Masaki Takematsu (Japan), Ya Hsueh (USA), Gennady I. Yurasov (Russia), Longfei Ye (China), David A. Brooks (USA).
OS 4	Coastal Ocean: Open Ocean Interaction Lead Convener: John A. Johnson (UK).

Co-conveners: Jason H. Middleton (Australia), Robert Lloyd Smith (USA), Anna I. Ginzburg (Russia)

OS 5 Coastal Ocean: Adjacent Land Interaction

OS 8 Ocean Dynamics From Satellites (IAG)
Lead Convener: David M. Legler (USA).
Co-conveners: David E. Cartwright (UK), Lee-Lueng Fu (USA), Jean-Francois (France), Gennady Korotaev (Crimea), Richard Coleman (Australia) IAG.

OS 10 Waves and Mixing
Lead Convener: Bernd Jaehne (USA)
Co-conveners: Ian S. F. Jones (Australia), Norden E. Huang (USA), Gerbrand J. Komen (Netherlands), John R. Apel (USA)

RESOLUTIONS ADOPTED AT THE XXI GENERAL ASSEMBLY BY THE IUGG ASSOCIATIONS

International Association of Geodesy

RESOLUTION 1

The International Association of Geodesy:

recognizing	that tide gauge records are essentially relative measurements,
endorses	the proposal to fix them in a geodetic reference frame so as to decouple land from ocean effects, especially those of low frequency (e.g. signals related to climate change).
recommends	that vertical positioning be of sub-centimeter accuracy within this framework, and
requests	relevant agencies to ensure that this specification is met directly on site through continuous GPS measurements, or through compatible coastal connections of equivalent accuracy.

Sponsored by E. Groten as chairperson of SSG 5.149

RESOLUTION 2

The International Association of Geodesy:

endorses	progress made in adjusting international vertical control networks,
recognizes	the significant advance in mathematical models of ocean circulation since geodetic and oceanic leveling were last compared,
recommends	continued detailed comparison of mean sea level slopes – calculated from high resolution ocean circulation models – with those obtained from adjusted heights in a vertical geodetic network, and
requests	responsible agencies to provide necessary support for these comparisons to be thoroughly investigated and reported.

Sponsored by E. Groten as chairperson of SSG 5.149

RESOLUTION 3

The International Association of Geodesy:

recognizing	the effort in organizing gravity measurements over a network of existing and future superconducting gravimeters, supplemented periodically by absolute gravimeters,

supports the establishment of a six-year observation period for the global gravity monitoring network.

Sponsored by Marson on behalf of the International Gravity Commission (Graz 1994).

RESOLUTION 4

The International Association of Geodesy:

recognizing that (a) the vast areas of East Asia and the Pacific Basin have not yet been subjected to such close geophysical investigation as that carried out in other areas of the world;

(b) large parts of this region are heavily populated and are experiencing rapid economic growth;

(c) the tectonic character of the region is complex and inadequately understood;

(d) the region is at extreme risk from tectonic, volcanic, seismic and other natural hazards; and

noting that (a) precise geodetic measurements using space and terrestrial techniques give an effective means of monitoring tectonic, volcanic, seismic, and environmental conditions over great spatial and temporal ranges;

(b) the IAG/COSPAR Commission on International Coordination of Space Techniques for Geodesy and Geodynamics (CSTG) has been established to facilitate and coordinate global and regional work in the field of space geodesy and geodynamics;

(c) cooperation between governments, institutions and individuals is essential for large-scale scientific investigations which can lead to the mitigation of the effects of natural disasters;

(d) in this connection the September 1994 UNESCO expert symposium held in Beijing on Space Technology and Applications for Sustainable Development, resolved that;

"An Asian-Pacific space geodynamic project is recommended to be established to promote and coordinate related activities in the region as well as encourage international cooperation in order to provide more basic information for earthquake prediction, volcanic eruptions and sea-level rise..."

(e) the Asian Pacific Space Geodynamic Initiative is a proposal which conforms to this resolution;

recommends that (a) this project be supported by local institutions and international cooperating agencies;

(b) the relevant space geodetic (such as Satellite Laser Ranging, Very Long Baseline Interferometry, Global Positioning System and Synthetic Aperture Radar) and terrestrial techniques (such as gravimetry, tide gauge measurement, meteorological observation) be employed in support of this project;

(c) steps be taken to establish regional communication in support of these activities;

(d) the data acquired by the project be made available for general scientific purposes.

Sponsored by Shu-Hua Ye.

RESOLUTION 5

The International Association of Geodesy:

recognizing that (a) the geodynamics of the continent of Africa are of high scientific interest;

(b) the region is in the early stages of economic growth; and

noting that (a) bilateral agreements, such as in the ADOS campaign which IAG coordinated, have proved a successful vehicle for cooperation in the past;

(b) Kenya has embarked on a project to monitor the current crustal movements in the Kenyan segment of the East African Rift-Valley;

(c) Tunisia and France are cooperating on a geodynamic study to evaluate seismic risk in the Gafsa region in Southern Tunisia;

recommends that (a) bilateral agreements on geodynamic projects should be encouraged and supported by the African community of nations as leading to scientific progress for the continent as a whole;

(b) these projects be supported by local institutions and by international cooperating agencies;

(c) the relevant space geodetic and terrestrial techniques be employed in support of these projects

(d) steps be taken to establish regional communication in support of these activities;

(e) the data acquired by the project be made available for general scientific purposes.

Sponsored by M. Chodota and D.M.J. Fubara

RESOLUTION 6

The International Association of Geodesy:

supports the establishment of a six-year observation period for the global gravity monitoring network.

noting that France and the Institut Géographique National have provided indispensable support and efficient administration to the Association by operating the Central Bureau over the whole period from 1919 to 1995 under the responsibility of the following Secretaries General and Assistant Secretaries General:

G. Perrier
P. Tardi
G. Laclavère
J.J. Levallois
M. Louis
C. Boucher
P. Willis

extends to these friends and colleagues the grateful thanks of the Association for all that they have done to keep the organization alive, healthy and changing with the times.

RESOLUTION 7

The International Association of Geodesy:

noting that the preparations by the American Geophysical Union and by the University of Colorado at Boulder have combined to make the XXIst General Assembly of the IAG in Boulder, from 2 to 14 July 1995, a remarkable and unforgettable occasion.

extends to Jean Dickey, the Organizing Committee and supporting staff, its grateful thanks for all that they have done to make this possible; in particular the willing and friendly assistance of the staff in the IAG office at Baker Hall has been outstanding.

Association Internationale de Géodésie

RÉSOLUTION 1

L' Association Internationale de Géodésie,

constatant que les enregistrements marégraphiques sont essentiellement des mesures relatives,

approuve la proposition de les déterminer dans un système de référence géodésique afin de découpler les effets terrestres des effets océaniques, en particulier pour ceux de basse fréquence (par ex. signaux liés aux changements climatiques)

recommande que la composante verticale de la position dans ce système soit de qualité sub-centimétrique et

demande aux organismes concernés de rechercher à atteindre cette specification directement à la station grâce à des mesures GPS continues, ou par des rattachements côtiers d' exactitude comparable.

Proposé par E. Groten, président du SSG 5.149

RÉSOLUTION 2

L' Association Internationale de Géodésie,

approuve les progrès realisés pour la compensation des réseaux internationaux de nivellement,

reconnaît l' avancée significative faite en modélisation de la circulation océanique depuis les dernières comparaisons entre les nivellements géométriques et steriques

recommande une comparaison détaillée et permanente entre les pentes du niveau moyen des mers calculées à partir de modèles à haute résolution de circulation océanique et celles déduite des altitudes compensées dans un réseau de nivellement, et

demande aux organismes responsables de fournir le soutien nécessaire pour que ces comparaisons puissent être étudiées en détail et publiées.

Proposé par E. Groten, président du SSG 5.149

RÉSOLUTION 3

L' Association Internationale de Géodésie,

reconnaissant l' effort fait pour réaliser des mesures de pesanteur sur un réseau de gravimètres supraconducteurs existants ou en projet, complété périodiquement par des gravimètres absolus,

soutient l' établissement d' une période de six ans d' observations sur le réseau global de surveillance de la pesanteur (parfois connu sous le nom de Projet Géodynamique Global GGP).

Proposé par I.Marson au nom de la Commission Gravimétrique Internationale (Graz 1994)

RÉSOLUTION 4

L' Association Internationale de Géodésie,

reconnaissant que (a) les vastes étendues de l' Asie de l' Est et du Bassin Pacifique n' ont pas encore donné lieu à des recherches aussi intenses que dans d' autres régions du monde;

(b) de larges parts de cette région sont très peuplées et font l' objet d' un développement économique rapide;

(c) la strucure tectonique de cette région est complexe et insuffisamment comprise;

(d) cette région est sujette à des risques importants de nature tectonique, volcanique, sismique ou autres, et

notant que: (a) les mesures géodésiques précises utilisant les techniques spatiales et terrestres donnent un moyen effectif pour surveiller les conditions tectoniques, volcaniques, sismiques et environnementales dans une large bande du spectre spatio-temporel;

(b) que la Commission pour la Coordination Internationale des Techniques Spatiales pour la Géodésie et la Géodynamique de AIG/COSPAR (CSTG) a été établie pour faciliter et coordonner les activités globales et régionales dans le domaine de la géodésie et géodynamique spatiale;

(c) la coopération entre les gouvernements, institutions et individus est essentielle pour les recherches scientifiques à grande échelle qui pourraient conduire à l' atténuation des effets des désastres naturels;

(d) à ce sujet le Symposium des experts organisé en septembre 1994 par l' UNESCO à Beijing sur le thème Technologie Spatiale et applications aux développements soutenables prenait comme résolution que:

"Il est recommandé d' établir un projet de géodynamique spatiale pour l'Asie et le Pacifique afin de promouvoir et coordonner les activités concernées se déroulant dans cette région et également d' encourager la coopération internationale en vue de fournir d'avantage d' informations fondamentales pour la prévision des séismes, des éruptions volcaniques et de l' élévation du niveau de la mer."

(e) l' Initiative pour la Géodynamique Spatiale en Asie et Pacifique est une proposition qui va dans le sens de cette résolution;

recommande que: (a) ce projet soit soutenu par les institutions locales et les organismes intéressée au titre de la coopération internationale;

(b) les techniques spatiales (telles que Télémétrie Laser sur Satellite, Interférométrie à Très Longue Base, Système de Positionnement Global et Radar à Synthèse d' Ouverture) et terrestres (telles que gravimétrie, marégraphie et mesures météorologiques) soient utilisées dans le cadre de ce projet;

(c) des actions soient entreprises pour établir un réseau régional de communications qui offrirait un soutien adéquat à ces activités;

(d) les données acquises par ce projet soient mises à la disposition générale de la communauté scientifique.

Sponsored by Shu-Hua Ye

RÉSOLUTION 5

L' Association Internationale de Géodésie,

reconnaissant que (a) la géodynamique du continent africain offre un grand intérêt scientifique;

(b) la région est dans un stade peu avancé de développement économique; et

notant que: (a) la mise en oeuvre d' accords bilatéraux, tels qu' il s' en est passé lors de la campagne ADOS coordonnée par l' AIG, s'est avérée un véhicule fructueux de coopération dans le passé;

(b) le Kenya a pris part à un projet de surveiller les mouvements actuels du segment kenyan du rift Est-africain;

(c) la Tunisie et la France coopèrent pour une étude géodynamique afin d' évaluer le risque sismique dans la région de Gafsa dans le Sud tunisien;

recommande que: (a) des accords bilatéraux sur des projets géodynamiques soient encouragés et soutenus par la communauté des pays africains comme source de progrès scientifique pour le continent tout entier;

(b) ces projets soient soutenus par les institutions locales et par les organismes intervenant au titre de la coopération internationale;

(c) les techniques géodésiques spatiales et terrestres adaptées à ces projets soient mises en oeuvre;

(d) des actions soient entreprises pour établir un réseau régionnal de communications qui offrirait un soutien adéquat à ces activités;

(e) les données acquises par ce projet soient mises à la disposition générale de la communauté scientifique.

RÉSOLUTION 6

L' Association Internationale de Géodésie,

notant que: la France et l' Institut Géographique National ont fourni un soutien indispensable et une administration efficace à l' Association en opérant le Bureau Central sur l' ensemble de la période 1919-1995 sous la responsabilité des Secrétaires Généraux et Secrétaires Adjoints suivants:

G. Perrier
P. Tardi
G. Laclavère
J.J. Levallois
M. Louis
C. Boucher
P. Willis

exprime à ces amis et collègues les remerciements reconnaissants de l' Association pour tout ce qu' ils ont fait afin de maintenir ce bureau vivant, efficace et à jour.

RÉSOLUTION 7

L' Association Internationale de Géodésie,

notant que: que la combinaison des préparatifs effectués par l'American Geophysical Union et l'Université du Colorado à Boulder a rendu remarquable et inoubliable l'occasion offerte par la XXI^{ème} Assemblée Générale de l' AIG à Boulder du 2 au 14 juillet 1995

étend à Jean Dickey, au Comité d'Organisation et son équipe ses profonds remerciements pour tout ce qu'ils ont fait pour rendre possible cet évènement; en particulier, l' aide active et amicale du personnel du bureau de l' AIG de Baker Hall a été exceptionnelle.

International Association of Seismology and Physics of the Earth's Interior

RESOLUTION 1: Publication Transfer

IASPEI

recognizing the serious lack of scientific literature at many educational and research institutions in developing countries, IASPEI appreciates the establishment of a scheme for transfer of publications, whereby individuals and institutions with surplus copies of scientific

journals, books and other publications make these available for transfer to suitable institutions in developing countries, and

urges all individual scientists and institutions with such surplus publications to make their availability known to the Secretary-General.

RESOLUTION 2: Regional Cooperation

IASPEI

recognizing the good seismology related work being done in Central American countries through support provided by the universities of Uppsala (Sweden) and Bergen (Norway),

urges extension of such cooperation for assessment of seismic risk for this and other developing regions.

RESOLUTION 3: Committee on Education

IASPEI

concious of the impact of recent damaging earthquakes, such as those at Latur (India), Northridge (USA), Kobe (Japan), and Sakhalin (Russia), and of recent technological advances in hazard assessment and mitigation techniques,

by establishing a Committee on Education to promote the transfer of technology to developing countries, and to ensure the continuation and coordination of training courses,

urges all appropriate national and international agencies to support this activity to the fullest possible extent.

RESOLUTION 4: Cataloging Artificial Events

IASPEI

recognizing that catalogues of earthquakes prepared by local, regional, and international organizations are being contaminated by artificial events,

urges that these organizations make all efforts to distinguish natural events from artificial ones so that seismicity is more clearly represented by these catalogues.

RESOLUTION 5: Seismological Data Exchange

IASPEI

recognizing the desirability for free and open exchange of seismological data between major international, national, and regional data centers,

urges — that the United Nations Conference on Disarmament ad'hoc Group of Scientific Experts (GSE) makes the data supplied to the EIDC as readily available as possible to the world seismological community.

RESOLUTION 6: Strong Motion Data

IASPEI

recognizing — the importance of earthquake strong motion data in the evaluation of earthquake hazard and mitigation of earthquake risk, and

recognizing — significant new developments in strong motion instrumentation in many places,

encourages — all government agencies and other organizations operating strong motion instrumentation networks to make data available on request to researchers throughout the world as rapidly as possible.

RESOLUTION 7: Appreciation

IASPEI

Appreciating and utilizing — the very good arrangements made for the XXI IUGG General Assembly,

thanks and congratulates — all the members of the Local Organizing Committee for a most memorable Assembly.

Association Internationale de Seismologie et de Physique de L'intérieur de la Terre

RÉSOLUTION 1: Transfert de Publication

AISPIT

reconnaissant — la pénurie de littérature scientifique dans beaucoup d'institutions d'éducation et de recherche des pays en voie de développement,

apprécie — la mise au point d'un mécanisme de transfert de publicaions, grâce auquel des individus ou des institutions disposant de copies de journaux scientifiques, de livres ou d'autres ouvrages, mettent celles-ci à disposition d'institutions concernées dans les pays en voie de développement, et

encourage — tous les scientifiques et leurs organismes possesseurs de tels doublons à les tenir à la disposition de son Secrétaire Général.

RÉSOLUTION 2: Coopération régionale

AISPIT

reconnaissant — la qualité du travail sismologique entrepris dans les pays d'Amérique Centrale grâce au soutien des Universités d'Uppsala (Suède) et de Bergen (Norvège),

encourage — l'extension de pareilles coopérations pour évaluer le risque sismique dans ces mêmes régions ou dans d'autres en voie de développement.

RÉSOLUTION 3: Comité sur l'Education

AISPIT

conscient — de l'impact de récents tremblements de terre dévastateurs tels que ceux de Latur (Inde), Northridge (USA), Kobé (Japon) et Sakhaline (Russie), et de récentes avancées technologiques concernant l'aléa sismique et les méthodes de prédictions,

en établissant — un Comité sur l'éducation, pour promouvoir le transfert de technologies dans les pays en voie de développement et pour assurer la poursuite et la coordination de cours de formation,

encourage — vivement toutes les agences nationales et internationales concernées à soutenir cette activité dans toute l'étendue de leurs moyens.

RÉSOLUTION 4: Recensement d'évènements artificiels

AISPIT

reconnaissant — que les répertoires de tremblement de terre établis par des organisations locales, régionales et internationales sont contaminés par des évènements non naturels,

encourage — vivement les organisations à déployer tous leurs efforts afin de distinguer les évènements naturels des non-naturels pour que la séismicité apparaisse plus clairement de ces répertoires.

RÉSOLUTION 5: Echange des données sismologiques

AISPIT

reconnaissant — la nécessité d'échanges libres et ouverts des données sismologiques entre les principaux centres internationaux, nationaux ou régionaux,

souhaite — instamment que le groupe ad'hoc d'experts scientifiques de la conférence des Nations Unies sur le désarmement divulgue ses données à la communauté mondiale des sismologues, dans les plus brefs délais.

RÉSOLUTION 6: Données en champ proche

AISPIT

reconnaissant — l'importance des données en champ proche pour les tremblements de terre quant à l'évaluation de l'aléa sismique et à la prévention des risques, et,

reconnaissant — les développements significatifs de l'instrumentation spécifique réalisée en plusieurs endroits,

encourage — toutes les agences gouvernementales et autres organisations responsables de réseaux d'accéléromètres à rendre disponibles rapidement les données requises par des chercheurs du monde entier.

RÉSOLUTION 7: Appréciation

AISPIT

Ayant apprécié — les excellents dispositifs mis en place pour la 21ème Assemblée Générale de l'UGGI,

remercie et félicite — tous les membres du Comité local d'organisation pour cette réunion des plus mémorables.

International Association of Geomagnetism and Aeronomy

RESOLUTION I

IAGA,

recognizing — the success of observations made during the IEEY (International Equatorial Electrojet Year) project, 1991-1994, with the collaboration of member countries and support from ORSTOM, CEA, CETP, CNET/Telecum, French Ministry of Cooperation, University of Abidjan, PAIGH, and others, and

noting — IEEY's direct contribution to the basic understanding of electrodynamics in the Earth's environmental space,

urges — that related geomagnetic and aeronomic research programmes be maintained or extended at low-latitude sites in the coming decades, with the continued support from member countries and sponsors concerned.

CEA: Commissariat à l'Energie Atomique

CETP: Centre des Environnements Terrestres et Planétaires

CNET: Centre National d'Etude des Télécommunications

IEEY: International Equatorial Electrojet Year

ORSTOM: Institut Français de Recherche Scientifique pour le Développement en coopération

PAIGH: Pan-American Institute of Geography and History

RESOLUTION 2

IAGA,

recognizing — the fundamental need for better understanding of the solar-cycle variation of the middle atmosphere for accurate estimation of anthropogenic changes,

recommends — that an increased commitment be made by national and international agencies to support an enhanced level of research into this problem.

RESOLUTION 3

IAGA,

recognizing — that rock magnetic property data provide an essential framework for Palaeomagnetic research and for the interpretation of crustal magnetic anomalies, and

noting — that existing accumulations of data are large, diverse, and dispersed, urges the establishment of an international database for rock magnetism.

RESOLUTION 4

IAGA,

considering — the rapid progress currently being made in retrieving and compiling existing low-level airborne and marine magnetic anomaly data over large continental and oceanic areas, and

noting — the importance of magnetic anomaly data for geological and tectonic mapping of the Earth's crust,

urges — the compilation and publication of a digital magnetic anomaly map and database of the entire world (land and sea).

RESOLUTION 5

IAGA,

recognizing — the importance of field-surveys and charts for describing the surface magnetic field of the Earth, and

noting — that charts should be updated at least every 10 years to take into account the secular change of the geomagnetic field,

encourages — the relevant agencies from different countries to continue to support field-survey work and the production of new charts for epoch 2000 AD.

RESOLUTION 6

IAGA,

noting — the need for the AE and Dst Indices by the international scientific community for studies of solar-terrestrial physics, and

recognizing — the great contribution of World Data Center C2 for Geomagnetism, Kyoto in producing the Dst and AE Indices,

expresses — deep appreciation for the work performed by this Data Center in producing the AE and Dst Indices, and

urges — that priority be given to deriving a near-real time AE Index by accelerating the acquisition of Russian geomagnetic data through transmission by satellite.

RESOLUTION 7

IAGA,

noting — the importance of data from the four Russian geomagnetic observatories, Dixon, Tixie Bay, Cape Chelyuskin, and Cape Wellen, in the derivation of the AE Index, which plays an important role in investigations of the solar-terrestrial environment, and

recognizing — that the present delay in the derivation of the AE Index is caused by difficulties of digitization of analog data and the lack of rapid transmission of the Russian data,

urges — the responsible Russian agencies and related organizations overseas to cooperate in the maintenance of the four observatories, installation of digital magnetometers at those observatories, and improvement of data transmission.

RESOLUTION 8

IAGA,

recognizing the central role of geomagnetic observatory data in the study and applications of all geomagnetic phenomena, and

noting the great value of long, continuous runs of observatory data,

thanks the individuals, host institutions, and national funding agencies whose commitments contribute to the continuing operation of geomagnetic observatories world-wide, and

considering them to maintain their efforts.

RESOLUTION 9

IAGA,

encourages the need to improve secular variation modelling by the addition of ocean-bottom magnetic observatories to obtain a balanced global coverage, and

noting the high cost and long time needed to develop an ocean-bottom magnetic observatory prototype,

urges support of research programs aimed at the design, deployment, and running of ocean-bottom magnetic observatories.

RESOLUTION 10

IAGA,

noting the considerable interest in the effects of the Interplanetary Magnetic Field (IMF) on the geomagnetic field, and

noting recent advances in measurement and data transfer in near-real time,

encourages interested institutes to continue their work in the development of indices and similar parameters to describe IMF structure using ground-based and satellite measurements.

RESOLUTION 11

IAGA,

noting that 15 years have passed since the last high-accuracy vector geomagnetic survey from low-Earth orbit, and

recognizing that continued accurate measurements of the geomagnetic field and its variations with time are crucial for our understanding of the Earth,

urges — the support of on-going missions and the initiation of new efforts to construct satellites capable of measuring accurately the vector geomagnetic field.

RESOLUTION 12

IAGA,

noting — the explosive increase in the amount of data in geomagnetism and solar-terrestrial physics, and

recognizing — the fundamental importance of the construction of accessible databases,

urges — further support for data centers to acquire the facilities and personnel necessary for efficient data exchange in this new situation.

Association Internationale de Géomagnétisme et d'Aérologie

RÉSOLUTION 1

l'AIGA,

reconnaissant — le succès des campagnes d'observations faites durant l'AIEE (Année Internationale pour l'Electrojet Equatorial), en collaboration des pays membres et avec le soutien notamment de l'ORSTOM, du CEA, du CNET/Télécom, du Ministère Français de la Coopération, de l'Université d'Abidjan, du PAIGH et,

constatant — la contribution de l'AIEE à la compréhension des principes fondamentaux de l'électrodynamique dans l'environnement terrestre,

demande instamment — que les programmes de recherche associés à ce projet soient maintenus ou étendus à d'autres sites de faible latitude dans les années à venir, et soient soutenus par les pays membres et des organismes concernés.

CEA: Commissariat à l'Energie Atomique

CETP: Centre des Environnements Terrestres et Planétaires

CNET: Centre National d'Etude des Télécommunications

AIEE: Année Internationale pour l'Electrojet Equatorial

ORSTOM: Institut Français de Recherche Scientifique pour le Développement en coopération

PAIGH: Pan-American Institute of Geography and History

RÉSOLUTION 2

I'AIGA,

reconnaissant — l'importance fondamentale de mieux comprendre la variation de l'atmosphère moyenne associée au cycle solaire afin d'estimer précisément les changements d'origine anthropogénique,

recommande — que les agences nationales et internationales augmentent leurs engagements afin de permettre une montée en puissance de la recherche dans ce domaine.

RÉSOLUTION 3

I'AIGA

reconnaissant — que les données sur les propriétés magnétiques des roches fournissent une base essentielle pour la recherche paléomagnétique et pour l'interprétation des anomalies magnétiques crustales et,

constatant — l'existence de vastes quantités de données d'origine et de nature variées,

demande instamment — la création d'une banque de donnée internationale pour le magnétisme des roches.

RÉSOLUTION 4

I'AIGA,

considérant — la progression rapide dans la mise en forme et la synthèse des données aéromagnétiques et magnétiques marines sur de vastes régions continentales et océaniques et,

constatant — l'importance des données d'anomalies magnétiques pour la cartographie géologique et tectonique de la croûte terrestre,

demande instamment — que soient réalisées la synthèse et la publication d'une carte d'anomalie magnétique numérique du monde entier (terres et mers) et de la base de donnée associée.

RÉSOLUTION 5

I'AIGA,

reconnaissant — l'importance des campagnes de terrain et des cartes pour décrire le champ magnétique à la surface de la Terre et,

considérant — que ces cartes devraient être mises à jour au moins tous les 10 ans afin de prendre en compte la variation séculaire du champ géomagnétique,

encourage les agences concernées dans les différents pays à soutenir le travail de terrain et la production de nouvelles cartes pour l'époque 2000 apr. J.-C.

RÉSOLUTION 6

l'AIGA,

constatant la nécessité pour la communauté scientifique internationale de disposer des indices AE et Dst pour les études en physique de la Terre et du Soleil et,

reconnaissant l'apport considérable du Centre Mondial de Données C2 en Géomagnétisme à Kyoto à la production des indices AE et Dst,

exprime sa profonde gratitude pour le travail réalisé sur ces indices par ce Centre de Données et,

demande instamment de favoriser l'acquisition des données géomagnétiques russes par transmission satellite afin de produire en priorité un indice AE en temps quasi-réel.

RÉSOLUTION 7

l'AIGA,

constatant l'importance des données des quatre Observatoires géomagnétiques russes, Dixon, Tixie Bay, Cap Chelyuskin et Cap Wellen, pour produire l'indice AE, qui joue un rôle important dans les études sur les environnements terrestre et solaire et,

réalisant que le retard actuel dans la production de l'indice AE provient de la difficulté de numériser les données analogiques et du manque de transmission rapide des données russes,

demande instamment aux agences russes responsables et aux organisations étrangères associées, de coopérer pour maintenir ces quatre Obseratoires, pour y installer des magnétomètres numériques et pour y améliorer la transmission des données.

RÉSOLUTION 8

l'AIGA,

reconnaissant le rôle central joué par les données d'Observatoires magnétiques pour l'étude et dans les applications de tous les phénomènes géomagnétiques et,

rappelant qu'il est très important de disposer de séries longues et continues de données d'Observatoires,

remercie — les personnels, les instituts dont dépendent les Observatoires et les organismes nationaux de financement, pour leur engagement permanent qui contribue au fonctionnement ininterrompu des Observatoires magnétiques à travers le monde et,

les encourage — à maintenir leurs efforts.

RÉSOLUTION 9

I'AIGA,

considérant — la nécessité d'ajouter des Observatoires magnétiques fond de mer afin d'améliorer les modèles de variation séculaire grâce à une couverture globale équilibrée et,

notant — le coût élevé et le temps nécessaire pour développer un prototype d'Observatoire magnétique fond de mer,

demande instamment — le soutien de programmes de recherche ayant pour but de réaliser, d'installer et de faire fonctionner des Observatoires magnétiques fond de mer. (Etendue à une résolution UGGI)

RÉSOLUTION 10

I'AIGA,

notant — l'intérêt considérable des études des effets du Champ Magnétique Interplanétaire (CMI) sur le champ géomagnétique et,

constatant — les progrès récents dans la mesure et le transfert de données en temps quasi-réel,

encourage — les instituts intéressés à poursuivre leurs travaux sur le développement d'indices et de paramètres similaires afin de décrire la structure du CMI en utilisant des mesures au sol et par satellite.

RÉSOLUTION 11

I'AIGA,

constatant — qu'il s'est écoulé 15 ans depuis la dernière mission de mesure magnétique vectorielle de haute précision à partir d'une orbite terrestre basse et,

reconnaissant — que des mesures continues et précises du champ géomagnétique et de ses variations sont essentielles pour l'étude de la Terre,

demande instamment — le soutien des missions en cours et la mise en oeuvre de nouveaux programmes de construction de satellites capables de mesurer précisément le champ géomagnétique vectoriel.

RÉSOLUTION 12

l'AIGA,

constatant	l'énorme accroissement de la quantité de données en géomagnétisme et en physique de la Terre et du Soleil et,
reconnaissant	qu'il est essentiel de disposer de banques de données accessibles,
demande instamment	un soutien accru aux centres de données, notamment en matériels et en personnels, afin de leur permettre de faire face à cette nouvelle situation, en continuant d'améliorer l'efficacité des échanges de données.

International Association Of Hydrological Sciences

RESOLUTION to the IAHS that the ICSI Bureau review the structure and operations of the World Glacier Monitoring Service (WGMS), and make recommendations as appropriate.

The ICSI Bureau

recognizing	the great value to the hydrological, atmospheric, and oceanographic sciences of the timely collection and dissemination of data from worldwide glacier monitoring programs,
being concerned	with the adequacy and continuity of funding for the WGMS which is charged with responsibility for the dissemination of these data,
being concerned	that full advantage is not being taken of modern electronic techniques for making these data available and for the timely dissemination of these data to the user community.
wishing	to ensure that the structure and role of the WGMS is consistent and integrated efficiently with the mission of the World Data Centres for Glaciology,
wishing	to exert appropriate oversight of the WGMS glacier monitoring activities to ensure that the WGMS will continue to be responsive to the needs of the scientific community,
and recognizing	its original and traditional role as the Governing Board of the WGMS, as well as the position of WGMS within the Federation of Astronomical and Geophysical Data Analysis Services (FAGS)

resolves that an independent, ad'hoc Panel be appointed by ICSI to conduct a detailed review of the operation, funding, and structure of the WGMS, to develop recommendations on the future operation of the WGMS, and to communicate these to ICSI/IAHS, to FAGS, and to the funding agencies for implementation.

Association Internationale des Sciences Hydrologiques

Résolution faite à l'AIHS pour que le Bureau de la Commission Internationale sur la Neige et la Glace (ICSI) examine la structure et les activités du Service Mondial de Surveillance des Glaciers (WGMS) et fasse les recommandations appropriées:

Le Bureau de l'ICSI

reconnaissant	l'importance, pour les sciences de l'hydrologie, de l'atmosphère et des océans, de la collecte appropriée et de la distribution des données provenant des programmes mondiaux d'observation des glaciers,
étant concerné	par l'adéquation du support financier à WGMS, qui est responsable de la distribution de ces données,
étant soucieux	qu'il ne soit pas fait pleinement usage des moyens électroniques modernes de mise à disposition et distribution de ces données en temps opportun et à l'ensemble des utilisateurs,
désirant	assurer que la structure et le rôle de WGMS soient en accord avec la mission du Centre Mondial des Données de Glaciologie (WDC-glaciologie) et puissent s'y intégrer de manière efficace,
désirant	avoir un droit de regard approprié sur les activités de surveillance des glaciers par le WGMS, afin que WGMS puisse répondre aux besoins de la communauté scientifique,
et prenant en comptes	on rôle original et historique en tant que Bureau Directeur de WGMS, ainsi que le fait que WGMS appartient à la Fédération des Services d'Analyse de Données Astronomiques et Géophysiques (FAGS),

conclue qu'un comité ad'hoc indépendant doit être créé par l'ICSI, afin d'examiner en détail le fonctionnement, le budget et la structure de WGMS, d'émettre des recommandations sur le fonctionnement futur de WGMS, lesquelles seront communiquées à ICSI/AIHS, à FAGS ainsi qu'aux organisations de soutien pour leur mise en oeuvre.

LIST OF USEFUL ACRONYMS

ACR	Antarctic Climate Research
ADOS	African Doppler Survey
AE	Auroral Electrojet
AIEA	Agence Internationale de l'Energie Atomique
AIGA	Association Internationale de Géomagnétisme et d'Aéronomie
AIH	Association Internationale des Hydrogéologues
AISH	Association Internationale des Sciences Hydrologiques
AISPIT	Association Internationale de Sismologie et de Physique de l'Intérieur de la Terre
AISPO	Association Internationale des Sciences Physiques de l'Océan
AIVCIT	Association Internationale de Volcanologie et de Chimie de l'Intérieur de la Terre
AMA	Antarctic Middle Atmosphere
ASRO	Abbreviated Seismic Research Observatory
ASSA	Austrian Solar and Space Agency
AWRA	American Water Research Association
AWS	Automatic Weather Stations
BGI	Bibliographie Géodésique Internationale
BGI	Bureau Gravimétrique International
BHI	Bureau Hydrologique International
BIH	Bureau International de l'Heure
BIPM	Bureau International des Poids et Mesures
BIRP	British Institutions Reflection Profiling
BRGM	Bureau de Recherches Géologiques et Minières (France)
CAS	Commission on Atmospheric Sciences
CCCO	Committee on Climate Changes and the Ocean
CCF	ICSU Climate Coordinating Forum
CERESIS	Centro Regional de Sismologia para America del Sur
CFC	Chloro-Fluoro-Carbons
CIRA	COSPAR International Reference Atmosphere
CIRES	Cooperative Institute of Research in Environmental Sciences
CIUS	Conseil International des Unions Scientifiques
CMG	Commission for Marine Geology
CNES	Centre National d'Etudes Spatiales (France)
CNRS	Centre National de la Recherche Scientifique (France)
COBOL	Coastal Boundary Layer
COCORP	Consortium for Continental Reflection Profiling
CODATA	Committee on Data for Science and Technology
COI	Commission Océanographique Intergouvernementale
COSPAR	Committee on Space Research
COSTED	Committee on Science and Technology in Developing Countries
COTES	Conventional Terrestrial Reference System
COWAR	Committee on Water Research
CRT	Cathode Ray Tube
CSAV	Ceskoslovensk Akademie Vëd (Czechoslovak Academy of Sciences)
CSS	Center for Seismic Studies
CTD	Conductivity Temperature Depth

CTGREF	Centre Technique du Génie Rural des Eaux et Forêts (France)
CTS	Committee on the Teaching of Science (ICSU)
DARPA	Defense Advance Research Agency
DECORP	Deutsches Continentales Reflexions Programm
DHI	Décennie Hydrologique Internationale
DMA	Délégation Ministérielle de l'Armement (France)
DMA	Defense Mapping Agency (USA)
DOTS	Development of Transportable Systems
DSDP	Deep Sea Drilling Project
DWDSS	Directory of World Digital Seismic Stations
DWWSSN	Digital WWSSN Stations
ECA	Economic Commission for Africa
ECOR	Engineering Committee on Oceanic Resources
ECORS	Etude Continentale et Océanique par Réflexion et Réfraction Sismiques
EGS	European Geophysical Society
EISCAT	European Incoherent Scatter Facility
ELAS	Electromagnetic Lithosphere Astenosphere Studies
EMSLAB	Electromagnetic Sounding of the Lithosphere, Astenosphere and Beyond
ERB	Earth Radiation Budget
ERBSS	East Radiation Budget Satellite System
ERS	Environmental Research Satellite
ESA	European Space Agency
ESC	European Seismological Commission
ESCAP	Economic and Social Commission for Asia and the Pacific
ESF	European Science Foundation
EUV	Extreme Ultra Violet
FAGS	Federation of Astronomical and Geophysical Data Analysis Services
FAO	Food and Agriculture Organization
FGGE	First GARP Global Experiment
FIG	Fédération Internationale de Géomètres
FIPY	First International Polar Year
GARP	Global Atmospheric Research Programme
GATE	GARP Atlantic Tropical Experiment
GCM	General Circulation Model
GDSN	Global Digital Seismic Network
GEBCO	General Bathymetric Chart of the Ocean
GEOSECS	Geochemical Ocean Sections Study
GGT	Global Geoscience Transects
GIS	Global Ionospheric Studies
GLONASS	USSR Global Navigational Satellite System
GPS	US Global Positioning System
GSA	Geological Society of America
GSE	Ground Support Equipment
GSFC	Goddard Space Flight Center
HF	High Frequency
HGLPS	High-Gain Long-Period Station
HIRS	High Resolution Infrared Sounder
IAEA	International Atomic Energy Agency
IAEE	International Association of Earthquake Engineers

IAF	International Astronautical Federation
IAG	International Association of Geodesy
IAGA	International Associations of Geomagnetism and Aeronomy
IAGC	International Association of Geochemistry and Cosmochemistry
IAH	International Association of Hydrogeologists
IAHR	International Association of Hydraulic Research
IAHS	International Association of Hydrological Sciences
IAMAP	International Associations of Meteorology and Atmospheric Physics
IAPSO	International Association of Physical Sciences of the Oceans
IASPEI	International Association of Seismology and Physics of the Earth's Interior
IATA	International Air Transport Association
IAU	International Astronomical Union
IAVCEI	International Association of Volcanology and Chemistry of the Earth's Interior
IAWPR	International Association on Water Pollution Research
IAWR	International Association of Water Research
ICA	International Cartographic Association
ICACGP	International Commission on Atmospheric Chemistry and Global Pollution
ICAE	International Commission on Atmospheric Electricity
ICC	International Computation Centre
ICCL	International Commission on Climate
ICCP	International Commission on Cloud Physics
ICDM	International Commission on Dynamic Meteorology
ICET	International Centre of Earth Tides
ICG	Inter-Union Commission on Geodynamics
ICGW	International Commission on Groundwater
ICID	International Commission on Irrigation and Drainage
ICL	Inter-Union Commission on the Lithosphere
ICMUA	International Commission on Meteorology of the Upper Atmosphere
ICPAE	International Commission on Planetary Atmospheres and Their Evolution
ICPM	International Commission on Polar Meteorology
ICSEM	International Commission of the Scientific Exploration of the Mediterranean
ICSI	International Commission on Snow and Ice
ICSU	International Council of Scientific Unions
ICTP	International Centre for Theoretical Physics
ICSW	International Commission on Surface Water
ICWQ	International Commission on Water Quality
ICWRS	International Commission on Water Resources Relations and Systems
IDA	International Deployment of Accelerometers
IERS	International Earth Rotation Service
IGBP	International Geosphere-Biosphere Program
IGC	International Gravimetric Commission
IGC	Instituto Geografico y Cadastral (Portugal)
IGC	International Geological Congress
IGCP	International Geological Correlation Programme
IGN	Institut Gèographique National (France)
IGY	International Geophysical Year
IHB	International Hydrographic Bureau
IHD	International Hydrological Decade
IHFC	International Heat Flow Commission

IHO	International Hydrographic Organization
IHP	International Hydrographic Programme
IIASA	International Institute of Applied Systems Analysis
ILP	International Lithosphere Program
ILS	International Latitude Service
IMS	International Magnetospheric Study
INQUA	International Union for Quaternary Research
IOC	International Oceanographic Commission
IOC	International Ozone Commission
IPMS	International Polar Motion Service
IQSY	International Quiet Sun Years
IRC	International Commission on Atmospheric Radiation
IRI	International Reference Ionosphere
ISC	International Seismological Centre
ISGI	International Service of Geomagnetic Indices
ISM	International Society of Mining
ITCZ	Inter-Tropical Convergence Zone
IUBS	International Union of Biological Sciences
IUCN	International Union for the Conservation of Nature and Natural Resources
IUCRM	Inter-Union Commission on Radio Meteorology
IUGG	International Union of Geodesy and Geophysics
IUGS	International Union of Geological Sciences
IUPAC	International Union of Pure and Applied Chemistry
IUPAP	International Union of Pure and Applied Physics
IUTAM	International Union of Theoretical and Applied Mechanics
IUWDS	International Ursigram and World Days Service
IWRA	International Water Research Association
IWSA	International Water Supply Association
IZMIRAN	Institute of Terrestrial Magnetism, Radio Research and the Ionosphere of the USSR Academy of Sciences
JASIN	Joint Air-Sea Interaction Experiment
JGOFS	Joint Global Flux Study
JPOTS	Joint Panel of Experts on Oceanographic Tables and Standards
JSC	Joint WMO/ICSU Scientific Committee
MAC	Magneto-Archimedean-Coriolis
MAGSAT	Magnetic Field Satellite
MAP	Middle Atmosphere Programme
MERIT	Monitoring of Earth-Rotation and Intercomparison of Techniques of Observation and Analysis
MIFC	Mean Ionospheric Field Corrections
MIZEX	Marginal Ice Zone Experiment
MONSEE	Monitoring of the Sun Earth Environment
MST	Mesosphere-Stratosphere-Troposphere
MSU	Microwave Sounding Unit
NAS	National Academy of Science (USA)
NASA	National Aeronautics and Space Administration (USA)
NATO	North Atlantic Treaty Organization
NCAR	National Center for Atmospheric Research (USA)
NDSN	National Digital Seismograph Network

NEIS	National Earthquake Information Service (USA)
NIVA	Norwegian Institute for Water Research
NOAA	National Oceanic and Atmospheric Administration (USA)
NRM	Natural Remanent Magnetism
NRM	Non Remanent Magnetization
NSF	National Science Foundation (USA)
OAA	Organisation des Nations Unies pour l'Alimentation et l'Agriculture
OECD	Organization for Economic Cooperation and Development
OHP	Operational Hydrology Programme
OMM	Organisation Météorologique Mondiale
OMS	Organisation Mondiale de la Santé
ONERA	Office National d'Etudes et de Recherches Aérospatiales (France)
ORSTOM	Institut Français de Recherche Scientifique pour le Développement en Coopération (France)
PAD	Polar and Auroral Dynamics
PAIGH	Pan American Institute of Geography and History
PHI	Programme Hydrologique International
PHO	Programme d'Hydrologie Opérationnelle
PIANC	Permanent International Association of Navigation Congresses
PNUE	Programme des Nations Unies pour l'Environnement
PSFG	Permanent Service on the Fluctuation of Glaciers
PSMSL	Permanent Service on Mean Sea Level
PAN	Polska Akademii Nauk
QBSA	Quarterly Bulletin of Solar Activity
ROSTSEA	Regional Office for Science and Technology in South East Asia
RSTN	Regional Seismic Test Network
SAR	Synthetic Aperture Radar
SCAR	Scientific Committee on Antarctic Research
SCOPE	Scientific Committee on Problems of the Environment
SCOR	Scientific Committee on Oceanic Research
SCOSTEP	Special Committee on Solar Terrestrial Physics
SHEF	Standard Hydrological Exchange Format
SIL	International Association of Limnology
SIV	Solar and Interplanetary Variability
SMA	Solar Maximum Analysis
SMY	Solar Maximum Year
SPOT	Système Probatoire d'Observation de la Terre
SRO	Seismic Research Observatory
SSG	Special Study Group
SST	Satellite to Satellite Tracking
SST	Sea Surface Temperature
SST	Sea Surface Topography
ST	Stratosphere-Troposphere
STEP	Solar-Terrestrial Energy Program
STETS	Solar-Terrestrial Energy Transfer Studies
STACS	Subtropical Atlantic Climate Studies
STIP	Study on Travelling Interplanetary Phenomena
STP	Solar Terrestrial Physics
STP-M	Solar-Terrestrial Physics/Meteorology

SUN	Symbols, Units and Nomenclature
TAG	Technical Advisory Group
TESS	Transfer of Energy in the Solar System
TIROS	Television and Infra Red Observing Satellite
TOGA	Tropical Ocean and Interannual Variability of the Global Atmosphere
TOPEX	Typhoon Operational Experiment
TTO	Typhoon Tracers in the Ocean
UAI	Union Astronomique Internationale
UATI	Union des Associations Techniques Internationales
UGGI	(see IUGG)
UISG	Union Internationale des Sciences Géologiques
ULF	Ultra-Low Frequency
UN	United Nations
UNCLOS	UN Conference on the Law of the Sea
UNDRO	United Nations Disaster Relief Organization
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
URSI	Union Radio Scientifique Internationale
USGS	United States Geological Survey
USSS	United States Seismic System
VIRA	Venus International Reference Atmosphere
VITUKI	Vizgazd l Kod si Tudom nyos Intézet (Research for Water Resources Development) (Hungary)
VLBI	Very Long Baseline (Interferometry)
WAMEX	West African Monsoon Experiment
WCRP	World Climate Research Programme
WDC	World Data Centre
WGMS	World Glacier Monitoring Service
WHO	World Health Organization
WHOI	Woods Hole Oceanographic Institution
WMO	World Meteorological Organization
WOCE	World Ocean Circulation Experiment
WRC	Worf Research and Development Corporation
WWSSN	World Wide Standardized Seismograph Network

PART II

STATUTES AND BY-LAWS OF THE UNION AND OF THE ASSOCIATIONS

UNION

STATUTS

I. Objectifs et Composition de l'Union

1) Les buts de l'Union Géodésique et Géophysique Internationale sont:

a) Favoriser l'étude de tous les problèmes concernant la figure de la Terre, la physique et la chimie de son intérieur, de sa surface, de l'eau douce, des océans et de l'atmosphère, ainsi que les problèmes similaires concernant les planètes.

b) Provoquer, aider et coordonner les recherches et études de géodésie et de géophysique, qui nécessitent une coopération internationale ou qui présentent un intérêt national.

c) Assurer, sur le plan international, la discussion et la publication des résultats des recherches mentionnées dans le paragraphe précédent.

d) Coordonner les moyens d'action scientifique des pays adhérents dans les disciplines qui intéressent l'Union.

e) Favoriser, par son concours scientifique, l'étude de problèmes pratiques de nature géodésique ou géophysique, lorsque ces problèmes présentent un aspect international ou lorsqu'ils exigent la coopération internationale de spécialistes ou de moyens.

f) Promouvoir et coordonner les activités scientifiques d'un certain nombre de Services Permanents chargés, sur le plan international, de favoriser la normalisation des mesures ou de recueillir, d'analyser et de publier des données géodésiques ou géophysiques en tenant compte des résultats des études planétaires.

2) Pour réaliser ses objectifs scientifiques, l'Union groupe un certain nombre d'Associations Internationales, chacune d'elles s'intéressant à une discipline de la géodésie ou de la géophysique.

3) L'Union adhère au Conseil International des Unions Scientifiques.

4) Tout pays dans lequel une activité géodésique ou géophysique indépendante s'est développée, peut adhérer à l'Union à condition de prendre une part convenable à son entretien.

Ce pays est représenté par un seul organisme, appelé Organisme Adhérent, qui peut être: soit la principale Académie scientifique, soit le Conseil National de la Recherche Scientifique, soit toute autre institution ou groupement d'institutions, non gouvernemental ou gouvernemental, représentant l'ensemble des activités géodésiques et géophysiques du pays adhérent. Lors de circonstances exceptionnelles seulement, le Conseil de l'UGGI (défini à l'article 5 de ces statuts) pourra accepter un nouvel Organisme Adhérent convenablement désigné pour un pays, sous la réserve qu'un Organisme Adhérent de ce pays ait déjà été admis comme membre national du Comité International des Unions Scientifiques (CIUS). Dans ce cas, chaque Organisme Adhérent aura un délégué au Conseil et sera considéré séparément en matière d'élections ou de finances.

Dans ce qui suit, les pays adhérents sont appelés Pays Membres.

5) L'Assemblée Générale est constituée par les Délégués des Pays Membres, dûment accrédités par l'Organisme Adhérent dans chaque pays, plus des personnes invitées en accord avec le règlement intérieur.

Le Conseil de l'Union est constitué par les Délégués, appelés Délégués au Conseil, qui, à chacune des réunions du Conseil, sont désignés par les Pays Membres pour les représenter, à raison de un Délégué au Conseil par Pays Membre, sauf en cas de décision différente conformément à l'article 4 de ces statuts. Chaque Délégué au Conseil devra être officiellement accrédité par l'Organisme Adhérent avant toute réunion du Conseil.

II. Administration

6) La responsabilité pour la direction des affaires de l'Union est dévolue au Conseil de l'Union. Les décisions prises par le Conseil sont présentées à l'Assemblée Générale.

7) Dans l'intervalle des réunions du Conseil, la direction des affaires de l'Union est dévolue au Bureau et au Comité Exécutif, dont les attributions respectives sont définies ci-après.

8) Le Bureau de l'Union est constitué par le Président, le Vice-Président, le Secrétaire Général, le Trésorier et trois membres supplémentaires, tous élus par le Conseil.

Le rôle du Bureau est d'administrer l'Union conformément aux présents statuts et règlement intérieur et en accord avec les décisions prises par le Conseil.

9) Le Comité Exécutif est constitué par le Bureau, les Présidents des Associations Internationales, et le Président sortant. Les Secrétaires des Associations sont invités à assister, à titre consultatif, à toute réunion du Comité Exécutif de l'Union. Le rôle du Comité Exécutif est de guider les Associations vers la réalisation de leurs aspirations scientifiques, en assurant entre elles une coordination effective et en exprimant les conditions générales nécessaires à la bonne marche des travaux scientifiques de l'Union.

Le Comité Exécutif participe, à titre consultatif, à toutes les délibérations du Conseil.

10) Dans le cadre des statuts de l'Union, les Associations Internationales composant l'Union peuvent établir leurs propres statuts et règlement intérieur et assurer leur administration ainsi que la gestion de leurs finances.

III. Finances

11) La Commission des Finances est élue par le Conseil de l'Union auprès duquel elle a un rôle consultatif. Elle comprend cinq personnes qui ne peuvent être membres ni du Bureau de l'Union ou d'une Association, ni du Comité de direction de l'un des Services Permanents subventionnés par l'Union. La Commission des Finances participe, à titre consultatif, à toutes les délibérations du Conseil.

12) Les Pays Membres de l'Union sont répartis en douze catégories, numérotées de 1 à 12. Chaque pays paie annuellement le nombre d'unités de contribution correspondant à sa catégorie. L'Organisme Adhérent représentant le pays est responsable du paiement de la cotisation.

13) Un pays désireux d'adhérer à l'Union doit spécifier la catégorie dans laquelle il propose d'être classé. Sa demande d'adhésion peut être refusée si la catégorie choisie est jugée inadéquate.

Un Pays Membre peut à tout moment augmenter sa catégorie moyennant l'accord de la Commission des Finances. Il ne peut la diminuer qu'avec l'assentiment préalable du Conseil de l'Union.

14) a) L'année financière est l'année civile.

b) Si en fin d'une année, un Pays Membre n'a pas payé sa cotisation relative à l'année antérieure, il perdra les avantages que l'Union offre à ses membres jusqu'à réception du paiement intégral pour cette année antérieure et pour tous les arriérés éventuels de cotisation. De tels Pays Membres auront le statut d'Observateur.

c) Si, au début d'une année, un Pays Membre a eu le statut d'Observateur depuis quatre années, ce Pays Membre sera considéré comme ayant résilié sa participation à l'Union à moins que le Secrétaire Général n'aie reçu de ce Pays Membre une requête écrite formelle sollicitant la prolongation de son statut d'Observateur.

d) Le Bureau de l'Union, ayant consulté la Commission des Finances et obtenu son accord, accordera la prolongation du statut d'Observateur à condition que des efforts évidents visant à payer toutes les cotisations dues paraissent devoir être couronnés de succès.

e) Un Pays Membre peut faire appel de tout refus de prolongation de la part du Bureau lors de la réunion suivante du Conseil.

f) Tout Pays Membre au statut d'Observateur auquel une prolongation est refusée cessera d'être Membre après la réunion du Conseil qui fait suite à sa demande de prolongation auprès du Bureau.

g) Une seule prolongation du statut d'Observateur peut être accordée.

h) Un Organisme Adhérent cesse d'être Membre après huit années consécutives au statut d'Observateur.

i) Un Membre au statut d'Observateur continue à additionner ses obligations quant à la cotisation annuelle.

j) Un Organisme Adhérent dont le statut de Membre a été annulé pour défaut de remplir ses obligations financières peut, après huit années de cessation d'adhésion, être automatiquement réintégré moyennant le paiement de la cotisation de chaque année écoulée depuis la dernière Assemblée Générale de l'Union (cette année étant comptabilisée).

15) En cas de dissolution d'une Association, ses avoirs seront cédés à l'Union. En cas de dissolution de l'Union, ses avoirs seront cédés au Conseil International des Unions Scientifiques (CIUS).

IV. Droit De Vote

16) Pour les questions d'ordre administratif, ou à la fois d'ordre administratif et scientifique, mais sans incidence financière, le vote se fait au Conseil, par Pays Membre, chaque Pays Membre ayant une voix, à condition qu'il ait payé ses cotisations jusqu'à la fin de l'année civile qui précède le vote.

17) Pour toutes les questions financières, le vote se fait au Conseil par Pays Membre à condition également que le pays considéré ait payé ses cotisations jusqu'à la fin de l'année civile qui précède le vote. Le nombre de voix attribuées à chaque Pays Membre est alors égal au numéro de la catégorie dans laquelle adhère le pays.

18) Pour l'admission de nouveaux Pays Membres et pour un appel d'un refus de prolongation du statut d'Observateur, les décisions seront prises au Conseil à la majorité absolue des deux tiers de Délégués au Conseil, chaque Délégué au Conseil ayant une voix.

19) Un Délégué au Conseil ne peut être le Délégué que d'un seul Pays Membre. Aucun membre du Bureau ne peut être choisi comme Délégué au Conseil par un Pays Membre. Aucun autre membre du Comité Exécutif ne participe aux votes du Conseil, sauf si, en raison de circonstances exceptionnelles, il est également le Délégué au Conseil d'un Pays Membre.

Un Pays Membre non représenté à une réunion du Conseil peut voter par correspondance sur toute question bien précisée à l'ordre du jour définitif distribué à l'avance aux Pays Membres, pourvu que les débats sur cette question n'en aient modifié ni l'aspect initial, ni la substance, et pourvu que le vote considéré soit parvenu au Président avant l'ouverture du scrutin.

Pour la validité des délibérations au Conseil au moins un tiers des Pays Membres ayant le droit de vote doivent être effectivement représentés par leurs Délégués au Conseil.

20) Avant un vote lors d'une réunion du Conseil, il revient au Président de décider si la question prise en considération est d'ordre administratif ou financier, et si la procédure du vote par correspondance s'applique.

21) Les décisions du Conseil sont prises à la majorité absolue simple sauf dans les cas spécialement mentionnés dans les présents statuts.

Si, au cours d'un vote au Conseil il y a égalité de voix, la décision appartient au Président.

La majorité simple ou la majorité absolue des deux tiers sont déterminées par la proportion des votes affirmatifs par rapport au total des votes (affirmatifs, négatifs et abstentions) pourvu que le nombre total de délégués ayant voté (affirmatif, négatif, abstention) ne soit pas inférieur à un tiers des Pays Membres de l'Union et ayant droit de vote. Les votes blancs et non valides et les votes non exprimés par les délégués présents sont comptés comme des abstentions.

V. Generalites

22) Les présents statuts, de même que toute modification ultérieure, prennent effet à la clôture de la réunion du Conseil à laquelle ils ont été adoptés.

23) Les statuts de l'Union ne peuvent être modifiés qu'avec l'assentiment des deux tiers des Pays Membres réunis en Conseil.

24) Les propositions formulées par un Pays Membre en vue de la modification d'un article des statuts de l'Union doivent parvenir au Secrétaire Général

au moins six mois avant la date fixée pour la réunion du Conseil au cours de laquelle elles seront examinées. Le Secrétaire Général devra faire connaître à tous les Pays Membres, au moins quatre mois avant la date fixée pour la réunion du Conseil, toutes les propositions qu'il aura reçues à ce propos.

25) Dans le cadre des statuts de l'Union, le Conseil peut adopter un règlement intérieur qui peut être modifié à la simple majorité des voix exprimées au Conseil. Ce règlement intérieur, de même que toute modification ultérieure, prend effet à la clôture de la réunion du Conseil.

26) Sauf au cas où les statuts en décideraient autrement, les réunions de travail seront soumises aux règles de Robert.

27) Le texte français servira exclusivement pour l'interprétation à donner aux présents statuts.

RÈGLEMENT INTÉRIEUR

I. Composition De L'union

1) L'Union est constituée par les Associations suivantes:

- Association Internationale de Géodésie,
- Association Internationale de Sismologie et de Physique de l'Intérieur de la Terre,
- Association Internationale de Volcanologie et de Chimie de l'Intérieur de la Terre,
- Association Internationale de Géomagnétisme et d'Aéronomie,
- Association Internationale de Météorologie et des Sciences de l'Atmosphère,
- Association Internationale des Sciences Hydrologiques,
- Association Internationale des Sciences Physiques de l'Océan.

2) L'Union peut, par décision du Comité Exécutif, constituer, soit avec d'autres Unions, soit entre les Associations, soit pour des raisons spéciales, des Commissions Scientifiques, qui peuvent elles-mêmes former toute Sous-Commission nécessaire. Dans les mêmes conditions, l'Union peut créer des Services Permanents. La liste des Commissions ou Comités Scientifiques et des Services Permanents à la constitution desquels l'Union a participé, est soumise à révision, par le Comité Exécutif, à chaque Assemblée Générale. Des scientifiques de pays non-membres peuvent assister aux réunions de l'Union en tant qu'observateurs, en vue d'assurer les contacts utiles. Il leur est également possible d'être observateur dans les Commissions de l'Union.

3) Le Président représente normalement l'Union au Comité Général du Conseil International des Unions Scientifiques. En cas de force majeure, le Président peut se faire remplacer par le Vice-Président ou le Secrétaire Général.

4) Chaque Organisme Adhérent représentant un pays est invité à provoquer la formation d'un Comité National de Géodésie et de Géophysique, chargé d'assurer, sous ses directives, la participation du Pays Membre aux activités de l'Union.

Dans l'intervalle des Assemblées Générales, le Bureau de l'Union peut consulter directement, par correspondance, le Comité National de chaque Pays Membre, sur toute question d'ordre scientifique ou administratif mais sans incidence financière. Pour les questions financières et à propos de l'admission de nouveaux Pays Membres, le Bureau de l'Union doit s'adresser à l'Organisme Adhérent représentant chaque pays.

II. Administration

5) Les Assemblées Générales se réunissent normalement tous les quatre ans, sur convocation du Président de l'Union. Le terme "période" désigne l'intervalle de temps entre la clôture de deux Assemblées Générales ordinaires consécutives.

6) Le Secrétaire Général transmettra aux Pays Membres, au moins neuf mois à l'avance, notification de la date et du lieu de réunion de la prochaine Assemblée Générale.

Toutes les propositions concernant l'ordre du jour des réunions du Conseil peuvent être formulées par les Organismes Adhérents ou les Comités Nationaux; elles devront parvenir au Secrétaire Général six mois au moins avant la réunion; le Secrétaire Général inscrira obligatoirement toutes les propositions reçues à l'ordre du jour définitif de

la réunion du Conseil. Cet ordre du jour, accompagné d'un exposé des motifs, devra être envoyé au moins quatre mois avant la réunion à tous les Pays Membres. Une question non inscrite à cet ordre du jour pourra être soumise à la discussion du Conseil après un vote favorable du Conseil obtenu à la majorité des deux tiers des Délégués au Conseil.

7) Le Secrétaire Général communiquera la date et le lieu de la prochaine Assemblée Générale aux personnes ou organisations scientifiques de pays n'adhérant pas à l'Union mais où il est notoire qu'il y a une activité en Géodésie et en Géophysique.

Des scientifiques de ces pays seront conviés à participer au programme scientifique de l'Assemblée Générale en tant qu'invités.

Le Président de l'Union peut de sa propre initiative ou à la demande du Président d'une Association ou d'un Pays Membre, convier des représentants d'organisations scientifiques à participer à toute Assemblée Générale en tant qu'invités sans que cela implique une obligation financière pour l'Union.

8) Une réunion de travail plénière des participants à l'Assemblée Générale sera tenue pendant chaque Assemblée Générale en vue de discuter des activités de l'Union.

9) Les Associations tiendront des réunions administratives et des réunions scientifiques pendant les Assemblées Générales de l'Union.

Durant une Assemblée Générale, les réunions scientifiques devraient comporter des séances conjointes de deux ou plusieurs Associations, en vue de discuter de sujets interdisciplinaires. Le programme des réunions et le choix des sujets interdisciplinaires sont décidés par le Comité Exécutif de l'Union deux ans au moins avant la date de l'Assemblée Générale, sur la base de recommandations faites antérieurement par les Associations.

Pour autant que le Comité Exécutif en soit informé, une Association peut organiser elle-même des réunions entre les Assemblées Générales de l'Union, soit séparément, pour traiter de sujets ayant pour elle un intérêt particulier, soit en commun avec une autre Association ou avec plusieurs d'entre elles.

10) Le Président de l'Union est élu pour une période et n'est pas immédiatement rééligible. Le Vice-Président et les autres Membres élus du Bureau sont élus pour une période et ne sont immédiatement rééligibles qu'une seule fois aux mêmes fonctions.

Le Secrétaire Général est élu initialement pour deux périodes et n'est normalement pas rééligible pendant plus de deux périodes successives.

Le Trésorier est élu initialement pour une période et n'est normalement pas rééligible pendant plus de deux périodes successives.

Les Membres de la Commission des Finances sont élus pour une période et sont rééligibles pendant trois périodes successives. Au moins un Membre de la Commission doit être remplacé à la fin de chaque période.

Au moins un an avant l'Assemblée Générale, le Président désignera un Comité des Nominations lors d'une réunion du Comité Exécutif après consultation de celui-ci. Le Comité des Nominations se composera d'un Président et de trois autres membres, eux-mêmes n'appartenant ni au Comité Exécutif, ni au Comité des Finances.

Le Comité des Nominations, après sollicitation de candidatures auprès des Organismes Adhérents des Pays Membres, et des officiers de l'Union et des Associations, proposera un candidat pour chaque poste à pourvoir au Bureau et au Comité des Finances. Dans des cas exceptionnels deux candidats pourront être proposés pour le même poste. On demandera aux candidats de manifester leur accord et de préparer un curriculum vitae résumant les grandes lignes de leur situation, intérêts de recherche et activités au sein de l'Union.

Les délégués seront informés des candidatures retenues au plus tard dès le début de l'Assemblée Générale. La liste des candidatures proposées, accompagnée des curriculum-vitae correspondants, sera affichée de façon à permettre la soumission, pendant une période de 48 h, de nouvelles candidatures. Celles-ci seront soumises par écrit, accompagnées du curriculum vitae, au Secrétaire Général, et appuyées par au moins 3 membres du Conseil. Les délégués au Conseil seront informés de ces nouvelles candidatures ainsi que de leurs curriculum-vitae respectifs au moins 24 heures avant les élections. Aucun candidat ne pourra postuler à plus d'un poste. Les élections seront à scrutin secret.

Nul ne peut simultanément faire partie du Bureau ou de la Commission des Finances et être Président ou Secrétaire d'une Association.

Le Bureau peut nommer des Secrétaires Généraux adjoints et un Trésorier adjoint auxquels des tâches déterminées seront assignées par le Secrétaire Général et par le Trésorier avec l'approbation du Bureau. Ils peuvent participer aux réunions des organes administratifs de l'Union à titre consultatif.

Des scientifiques représentés par des Organismes Adhérents qui ont eu le statut d'Observateur pendant plus de deux ans et des scientifiques de pays qui ne sont pas représentés par un Organisme Adhérent ne sont pas éligibles à des positions électives dans l'Union ou dans les Associations qui la composent.

11) Le Conseil est convoqué par le Président de l'Union. Il se réunit normalement au début et, si nécessaire, au cours de chaque Assemblée Générale.

Il peut être convoqué entre deux Assemblées Générales lorsque la demande écrite lui en est faite par le tiers au moins des Pays Membres, ou une majorité des membres du Comité Exécutif, avec indication des questions à mettre à l'ordre du jour de la réunion; les décisions prises dans ces conditions par le Conseil sont soumises à l'article 5 des Statuts.

Le Conseil:

a) se prononce sur l'admission de nouveaux Pays Membres;

b) décide quant à l'appel d'une décision prise par le Bureau de refuser une demande de prolongation du statut d'Observateur pour un Pays Membre en arriéré de ses obligations financières;

c) élit les membres du Bureau et de la Commission des Finances;

d) reçoit les rapports du Secrétaire Général et du Trésorier de l'Union et examine, pour approbation, les décisions ou les mesures prises par le Comité Exécutif et par le Bureau depuis la dernière réunion du Conseil;

e) examine les propositions de la Commission des Finances et adopte le budget définitif;

f) détermine le montant de l'unité de contribution pour la période suivante (la modification de cette unité ne peut être discutée lors d'une Assemblée Générale que si elle a été inscrite à l'ordre du jour distribué quatre mois auparavant aux Pays Membres);

g) revoit de temps en temps les catégories des Pays Membres;

h) étudie les questions de politique générale ou d'administration des affaires de l'Union et désigne, à cet effet, les Comités qui, le cas échéant, peuvent être jugés nécessaires;

i) examine les propositions de modification des statuts ou du règlement intérieur.

12) Le Comité Exécutif est convoqué par le Président de l'Union. Il se réunit au cours des Assemblées Générales et participe, mais à titre consultatif seulement, à toutes les délibérations du Conseil. En principe, il se réunit également au moins une fois au cours de chaque période deux ans avant l'Assemblée Générale, pour établir un projet d'ordre du jour pour les activités scientifiques interdisciplinaires et un projet d'emploi du temps de l'Union et des Associations pendant l'Assemblée Générale suivante.

Lors d'une réunion du Comité Exécutif, aucun Membre du Bureau, ni le Président sortant de l'Union, ne peuvent se faire représenter par quiconque. Les Présidents des Associations peuvent, en cas de force majeure, être représentés par un Vice-Président ou le Secrétaire de leur Association. Le Président sortant siège à titre consultatif. Pour la validité des délibérations du Comité Exécutif, la moitié au moins de ses membres doit être présente ou représentée.

Les propositions concernant l'ordre du jour des réunions du Comité Exécutif peuvent être formulées par les Membres du Comité; elles devront parvenir au Secrétaire Général au moins six mois avant la réunion.

L'ordre du jour définitif devra être envoyé aux Membres du Comité Exécutif quatre mois au moins avant la réunion. Une question non inscrite à cet

ordre du jour ne pourra être soumise à la discussion du Comité Exécutif qu'après un vote favorable du Comité, obtenu à la majorité des deux tiers des Membres présents à la réunion.

Le Comité Exécutif:

a) prend les mesures nécessaires à la coordination des intérêts des Associations, par exemple en décidant des réunions entre le Secrétaire Général et les Secrétaires des Associations;

b) présente à la Commission des Finances les besoins financiers des différentes Associations pour réaliser leurs objectifs;

c) comble toute vacance qui pourrait survenir, au cours d'une période, parmi les Membres du Bureau ou de la Commission des Finances (lorsque de telles désignations sont confirmées ultérieurement par le Conseil, la période d'exercice ne sera présumée commencer qu'à partir de cette confirmation);

d) présente des recommandations au Conseil sur les questions de politique générale de l'Union.

13) Le Bureau se réunit en principe une fois tous les ans sur convocation du Président de l'Union. Lors d'une réunion, aucun Membre du Bureau ne peut se faire représenter par quiconque. Pour la validité des délibérations, quatre Membres au moins doivent être présents.

Dans l'intervalle entre deux réunions du Conseil, le Bureau prend les mesures nécessaires pour réaliser les objectifs généraux de l'Union; il gère les finances et assure l'administration de l'Union. Il prépare les programmes des réunions du Conseil et du Comité Exécutif.

14) Les demandes d'adhésion ou de renouvellement d'adhésion à l'Union sont présentées au Secrétaire Général. Ce dernier établit un rapport à leur sujet au Comité Exécutif qui juge du bien-fondé, sur le plan scientifique, de chaque demande. Il transmet alors la demande, par les voies les plus appropriées, aux Organismes Adhérents représentant les Pays Membres; ces Organismes votent par correspondance et le résultat du scrutin leur est communiqué par le Bureau. Toute admission prononcée à la majorité simple reste provisoire jusqu'à approbation par le Conseil. La majorité simple et ici déterminée par la proportion des votes affirmatifs par rapport au total des votes (affirmatifs, négatifs) pourvu que le nombre total de délégués ayant voté ne soit pas inférieur au tiers des Pays Membres de l'Union ayant droite de vote. Tout refus ne peut être décidé que par le Conseil.

15) Le Président:

a) représente l'Union dans ses relations avec les institutions et les organisations internationales ou nationales;

b) convoque et préside l'Assemblée Générale ainsi que les réunions du Conseil, du Comité Exécutif et du Bureau;

c) présente à l'Assemblée Générale le rapport sur les activités scientifiques de l'Union pendant la période en cours; En cas de force majeure, le Vice-Président fera fonction de Président. Si le Président est dans l'incapacité de terminer son mandat, le Vice-Président devient alors Président et le Comité Exécutif élit un nouveau Vice-Président parmi les Membres restants du Bureau.

16) Le Secrétaire Général:

a) remplit les fonctions de Secrétaire de l'Assemblée Générale, du Conseil, du Comité Exécutif et du Bureau; organise les réunions de ces organismes; établit et diffuse promptement les ordres du jour et les procès-verbaux de leurs réunions;

b) gère les affaires de l'Union, se charge de la correspondance et assure la conservation des archives;

c) distribue toutes les informations qui concernent l'Union;

d) établit les rapports d'activité de l'Union; diffuse notamment à tous les Pays Membres, trois mois au plus tard avant chaque Assemblée Générale, un rapport sur l'Administration de l'Union depuis l'Assemblée Générale précédente, rapport dont il présente un résumé à l'Assemblée Générale elle-même;

e) accomplit toutes autres fonctions qui lui sont confiées par le Bureau.

17) Pour aider le Secrétaire Général et le Trésorier dans l'accomplissement de leurs tâches, le Bureau peut les autoriser à engager le personnel administratif et le personnel de Secrétariat nécessaire pour assurer le bon fonctionnement de l'Union.

III. Finances

18) Les pays adhérents à l'Union paient annuellement le nombre d'unités de contribution correspondant à leur catégorie d'après le tableau suivant:

Catégorie	Unités de contributions
1	1
2	2
3	3
4	5
5	7
6	10
7	15
8	20
9	25
10	30
11	35
12	40

19) La Commission des Finances élit son Président et son Secrétaire parmi ses membres.

Elle se réunit sur convocation de son Président, au moins une fois au cours de chaque période et pendant les Assemblées Générales; elle participe, mais à titre consultatif seulement, à toutes les délibérations du Conseil. Aucun de ses membres ne peut se faire représenter par quiconque à une réunion de la Commission. Son Président peut inviter le Trésorier à assister, à titre consultatif, à une réunion de la Commission.

La Commission des Finances:

a) examine les différents rapports du Trésorier et présente ses conclusions au Conseil;

b) revoit pour chaque période les sources de revenus de l'Union et présente au Conseil les recommandations appropriées;

c) propose au Conseil les lignes générales de la politique financière de l'Union;

d) en accord avec le Trésorier, prépare pour la période à suivre un budget qu'elle soumet au Conseil;

e) s'assure que la distribution des fonds au sein de l'Union correspond aux responsabilités scientifiques de l'Union;

f) a seule autorité dans l'intervalle des réunions du Conseil, pour apporter une modification au budget voté par le Conseil, sur demande justifiée du Trésorier et après consultation, s'il y a lieu, des Organismes Adhérents;

g) conseille le Bureau, en cours de période, sur toute question financière au sujet de laquelle il est consulté;

h) a autorité pour guider les organes administratifs de l'Union et les Secrétaires des Associations et pour vérifier leurs comptes et leurs rapports.

20) Le Trésorier de l'Union est chargé, sous sa responsabilité, de la gestion des finances de l'Union, conformément aux directives qui lui sont données par le Bureau.

Le Trésorier:

a) réunit les fonds de l'Union et les répartit conformément aux instructions du Conseil et du Bureau;

b) tient les comptes de toutes les transactions financières de l'Union et présente tous les ans son rapport financier à la Commission des Finances;

c) présente à la Commission des Finances et au Conseil tout autre rapport qui lui sera réclamé;

d) rassemble, à la fin de l'année civile qui précède l'Assemblée Générale, les comptes complets de l'Union (y compris ceux des Associations et de toutes les activités de l'Union) pendant la période écoulée, afin de les présenter, trois mois au moins avant l'Assemblée Générale, sous forme d'un rapport au Bureau et à la Commission des Finances, puis, lors de l'Assemblée Générale, au Conseil. Ce rapport devra être accompagné d'états relatifs à chacun des comptes gérés par l'Union, les Associations ou les autres Organismes bénéficiant de l'aide financière de l'Union. Chaque compte devra être certifié par un comptable qualifié;

e) prépare un bref rapport sur les finances de l'Union (y compris celles des Associations et de toutes les activités de l'Union) et en assure la diffusion aux Pays Membres trois mois au plus tard avant chaque Assemblée Générale.

Le Président, le Trésorier et le Trésorier adjoint sont autorisés à tirer sur tous les comptes bancaires de l'Union, mais seulement selon les instructions qui leur seront données par le Bureau.

21) Les dépenses de voyage et les frais de séjour, aux taux établis par le Bureau, ne peuvent être payés par le Trésorier que lorsque sont satisfaites simultanément les trois conditions suivantes:

a) réunions concernant spécifiquement les affaires de l'Union;

b) personnes intéressées représentant l'Union et non un Pays membre;

c) remboursement ne pouvant pas être obtenu dans le pays d'origine de l'intéressé.

Fin Des Statuts Et Du Règlement Intérieur

UNION

STATUTES

I. Objectives and Composition of the Union

1) The objectives of the International Union of Geodesy and Geophysics are:

a) to promote the study of all problems relating to the figure of the Earth, and the physics and chemistry of the Earth's interior, surface, fresh waters, oceans and atmosphere, along with relevant studies of other planets;

b) to initiate, facilitate and co-ordinate research into, and investigation of those problems of geodesy and geophysics which require international co-operation or which are of international interest;

c) to provide, on an international basis, for discussion and publication of the results of the researches indicated in paragraph b) above;

d) to promote co-ordination of scientific activities of the adhering countries in the disciplines of interest to the Union;

e) to assist with scientific advice the study of practical problems of a geodetic or geophysical character when such problems present an international aspect or when they require international co-operation of specialists or facilities;

f) to promote and co-ordinate the scientific activities of several Permanent Services whose objectives are, on an international basis, to facilitate the standardisation of measurements or to collect, analyse and publish geodetic or geophysical data, taking into account the results of planetary studies.

2) To achieve its scientific aims, the Union consists of a number of International Associations, each of which deals with a discipline of geodesy or geophysics.

3) The Union adheres to the International Council of Scientific Unions.

4) Any country in which independent activity in geodesy and geophysics has been developed may adhere to the Union, provided that it takes an adequate share in the maintenance of the Union.

That country shall be represented by a single body, known as the Adhering Body, which may be either its principal scientific Academy, or its National Research Council, or any other institution or association of institutions, whether non governmental or governmental, representing the geodetic and geophysical activities of the adhering country. Only under extraordinary circumstances, the Council of

IUGG (defined in Item 5 of these statutes) may admit a suitably designated additional Adhering Body for a country, provided a corresponding Adhering Body of that country has already been admitted as a National Member of the International Council of Scientific Unions (ICSU). In this case, each Adhering Body will have a separate Council Delegate and will be treated separately in questions of Voting and Finances.

Hereafter adhering countries will be referred to as Member Countries.

5) The General Assembly shall consist of the duly accredited Delegates of the Member Countries, and Guests invited in accordance with the by-laws.

The Council of the Union shall consist of the Delegates known as Council Delegates, designated for each meeting of the Council by the Member Countries, viz. one Council Delegate for each Member Country, unless otherwise decided in accordance with item 4 of these Statutes. Each Council Delegate shall be formally accredited by the Adhering Body in advance of each meeting of the Council.

II. Administration

6) Responsibility for the direction of the Union affairs shall be vested in the Council of the Union. Decisions of the Council shall be reported to the General Assembly.

7) Between meetings of the Council, the direction of the affairs of the Union shall be vested in the Bureau and the Executive Committee, of which the respective responsibilities are hereafter defined.

8) The Bureau of the Union shall consist of the President, Vice-President, Secretary General, Treasurer and three additional Members, all of whom shall be elected by the Council.

The duties of the Bureau shall be to administer the affairs of the Union in accordance with these statutes and by-laws and with the decisions of the Council.

9) The Executive Committee shall consist of the Bureau, the Presidents of the International Associations, and the immediate Past President of the Union. The Secretaries of the Associations will be invited to attend any meeting of the Executive Committee of the Union in an advisory capacity.

The duties of the Executive Committee shall be to further the scientific objectives of the Associations through effective co-ordination and through the formulation of general policies to guide the scientific work of the Union.

The Executive Committee shall meet with the Council at sessions of the latter with voice but without vote.

10) Within the framework of the statutes of the Union, the International Associations of the Union may make their own statutes and by-laws and control their administration and finance.

III. Finance

11) The Finance Committee shall be elected by the Council of the Union and shall be advisory to the Council. It is composed of five persons, none of whom may be a member of the Bureau of the Union or of an Association or of a Directing Board of one of the Permanent Services supported by the Union.

The Finance Committee shall meet with the Council at sessions of the latter, with voice but without vote.

12) There shall be twelve categories of membership in the Union, numbered 1 to 12. Each Member Country shall pay annually the number of units of contribution assigned to the category in which it adheres. In each country the Adhering Body shall be responsible for the payment of the contribution.

13) A country which seeks to adhere to the Union must specify the category in which it proposes to adhere. Its application for admission may be refused if the category proposed is considered inadequate.

A Member Country may raise its category at any time provided the Finance Committee agrees. It may only lower its category with the consent of the Council of the Union.

14) a) The financial year shall be the calendar year.

b) If at the end of any year a Member Country has not paid its subscription for the previous year, the benefits of membership in the Union will be denied to that Member Country until full payment has been made of the previous year's subscription and of any further subscriptions in arrears. Such

Member Countries shall be deemed to be in Observer status.

c) If at the start of any year a Member Country has been in Observer status for four years, that Member Country shall be deemed to have withdrawn from membership unless the Secretary General has received a formal written request from the Member Country for extension of its Observer status.

d) The Bureau of the Union with the advice and consent of the Finance Committee, is authorised to grant requests for extension of Observer status to Member Countries that provide evidence that efforts to pay all subscriptions in arrears are likely to be successful.

e) A Member Country which has been denied an extension by the Bureau may appeal at the next meeting of the Council.

f) Any Member Country in Observer status that is denied an extension shall cease to be a Member Country following the next Council meeting after its request to the Bureau for an extension.

g) Only one extension of Observer status may be granted.

h) An Adhering Body shall cease to be a Member Country after eight consecutive years of Observer status.

i) A Member Country in Observer status will continue to accrue annual subscription obligations.

j) An Adhering Body whose membership has been discontinued for failure to meet its financial obligations may, within eight years of ceasing be a Member Country, be automatically reinstated by the payment of the subscription for each year from the year in which the most recent General Assembly of the Union has taken place.

15) In the event of the dissolution of any Association, its assets shall be ceded to the Union. In the event of the dissolution of the Union, its assets shall be ceded to the International Council of Scientific Unions (ICSU).

IV. Voting

16) On questions of any administrative nature, or of a character partly administrative and partly scientific not involving matters of finance, the voting shall be in Council by Member Countries, each Council Delegate having one vote, provided that the subscription of the Adhering Body has been paid up to the end of the calendar year preceding the voting.

17) On questions involving finance, the voting shall be in Council by Member Countries with the provision that a voting country must have paid its subscriptions up to the end of the calendar year preceding the voting in Council. The number of votes allotted to each Member Country shall then be equal to the number of its category of membership.

18) Questions on admission of new Member Countries and appeals against denial of extension of Observer status shall be decided by a two-thirds absolute majority vote of the Council Delegates meeting in Council, each Council Delegate having one vote.

19) A Council Delegate may represent only one Member Country. No member of the Bureau shall serve as a Council Delegate of a country. No Member of the Executive Committee shall vote with the Council unless under exceptional circumstances he is also the Council Delegate of a Member Country.

A Member Country which is not represented at a Council meeting may vote by correspondence on any specific question provided that the matter has been clearly defined on the final agenda distributed in advance to the Member Countries and that the discussion thereon has not produced any new considerations or changed its substance and provided that said vote has been received in writing by the President prior to the voting.

For the validity of the deliberations of the Council, at least one third of the Member Countries eligible to vote must be represented by their Council Delegates.

20) Before a vote in a Council meeting, the President shall decide whether the matter under consideration is administrative or financial in character and whether the procedure of voting by correspondence applies.

21) Decisions of the Council shall be taken by a simple absolute majority except as otherwise specified in the present statutes.

If a tie should occur in a Council vote, the decision shall rest with the President.

Simple or two-third absolute majorities are determined by the proportion of affirmative votes to the sum of votes (affirmative, negative, abstention), provided that the total number of delegates voting (affirmative, negative, abstention) is not less than one third of the total membership of the Union eligible to vote. Blank or invalid ballots and votes not cast by Delegates present are counted as abstentions.

V. General

22) These statutes or any further modification to them shall come into force at the close of the Council meeting at which they are adopted.

23) The statutes of the Union may not be modified except with the approval of two thirds of the Delegates meeting in Council.

24) Proposals by Member Countries for a change of any article of the statutes of the Union must reach the Secretary General at least six months before the announced date of the Council meeting at which it is to be considered. The Secretary General shall notify all Member Countries of any proposed change, at least four months before the announced date of the Council meeting.

25) The Council has the power to adopt by-laws within the framework of the statutes of the Union. These by-laws may be modified by a simple majority of votes cast at a Council meeting. These by-laws, or any further modification of them shall come into force at the close of the Council meeting at which they are approved.

26) Conduct of meetings, except as otherwise specified in the Statutes, shall be according to Robert's Rules of order.

27) The French text of the present statutes shall be considered to be the authoritative text.

BY-LAWS

I. Composition

1) The following are the constituent Associations of the Union:

- The International Association of Geodesy
- The International Association of Seismology and Physics of the Earth's Interior
- The International Association of Volcanology and Chemistry of the Earth's Interior
- The International Association of Geomagnetism and Aeronomy
- The International Association of Meteorology and Atmospheric Sciences
- The International Association of Hydrological Sciences
- The International Association for the Physical Sciences of the Ocean

2) The Union may, through the Executive Committee, appoint, jointly with other Unions, or jointly between the Associations, or for special purposes, Scientific Commissions which shall themselves have power to create subcommissions as may be necessary. In the same way, it may sponsor Permanent Services. The list of Scientific Commissions or Committees and Permanent Services sponsored by the Union is reviewed by the Executive Committee at each General Assembly.

Scientists from non-Member Countries may attend meetings of the Union as observers for liaison purposes. They may also act as observers in Commissions of the Union.

3) The President shall normally represent the Union on the General Committee of the International Council of Scientific Unions. If necessary he may be represented by the Vice-President or Secretary General.

4) Each Adhering Body shall form a Committee for Geodesy and Geophysics hereafter known as an IUGG National Committee. The function of the National Committee is, under the direction of the

Adhering Body, to provide for the participation of the Member Country in the Union activities.

During the interval between General Assemblies, the Bureau of the Union may directly consult by correspondence the National Committee of each Member Country on any question of scientific character or on administrative matters not involving finance. On matters of finance and on admission of new Member Countries, the Bureau of the Union shall communicate with the Adhering Bodies.

II. Administration

5) General Assemblies shall normally be held once every four years at the call of the President of the Union. The interval of time between the closure of two successive ordinary General Assemblies shall be known as a "period."

6) Notice of the date and of the place of the meeting of the next General Assembly shall be sent by the Secretary General to the Member Countries at least nine months before the Assembly.

Proposals concerning agenda for meetings of the Council may be presented by the Adhering Bodies or National Committees; they must be received by the Secretary General at least six months before the meeting, the Secretary General must place all proposals received on the final agenda for the Council meeting. This final agenda, with explanatory comments, shall be sent to all Member Countries at least four months prior to the meeting. An item which has not been thus placed on the agenda may be discussed at a meeting of the Council if a proposal to that effect is approved by vote of two-thirds of the Council Delegates.

7) The Secretary General may send notice of the date and place of the next General Assembly to individuals or scientific organisations in countries not adhering to the Union, but where there is evidence of activity in Geodesy and Geophysics.

Scientists from these countries will be invited to participate in the scientific program of the General Assembly, with the status of Guest.

The President of the Union may on his own initiative or at the request of an Association or Member Country invite representatives of scientific bodies to attend any General Assembly as Guests provided that there is no financial obligation for the Union.

8) A plenary meeting of the participants in the General Assembly shall be held during each General Assembly for discussions of Union activities.

9) The Associations shall hold business meetings and scientific sessions at the General Assemblies of the Union.

The scientific meetings at a General Assembly should include joint sessions of two or more Associations for the discussion of interdisciplinary topics. The programme of the meetings and the selection of these interdisciplinary topics shall be decided by the Executive Committee of the Union, two years at the latest before the time of the General Assembly, on the basis of recommendations made earlier by the Associations.

Provided that the Executive Committee is informed, an Association may also arrange meetings of its own in the interval between the General Assemblies, either singly to deal with topics of specific interest, or jointly with another Association or other Associations.

10) The President of the Union shall be elected for one period and he is not immediately eligible for re-election. The Vice-President and the additional elected Members of the Bureau shall be elected for one period and may be re-elected for not more than one consecutive period in the same function.

The Secretary General shall be elected for two periods initially and should not normally be re-elected for more than two additional single periods.

The Treasurer shall be elected for one period initially and should not normally be re-elected for more than two additional single periods.

The Members of the Finance Committee shall be elected for one period and may be re-elected for three successive periods; at least one Member of the Committee shall be replaced at the end of each period.

At least one year before the General Assembly, the President shall appoint a Nominating Committee at an Executive Committee meeting, after consultation with the Executive Committee. The Nominating Committee shall consist of a Chairman and three

other members, not themselves members of the Executive Committee nor the Finance Committee.

The Nominating Committee, after soliciting nominations from the Adhering Bodies of the Member Countries, and from the officers of the Union and the Associations, shall propose a candidate for each position in the Bureau and in the Finance Committee. In exceptional cases two candidates can be proposed for the same position. Candidates shall be asked to signify their acceptance of nomination and to prepare a resume outlining their position, research interests and activities related to the Union.

The Delegates shall be informed of these nominations not later than the beginning of the General Assembly. The list of proposed candidates, with their resumes, shall be posted allowing for submission, over a period of 48 hours, of further nominations. Such nominations shall be submitted in written form with resumes to the Secretary General, and supported by at least three members of the Council. The Council delegates shall be informed of these further nominations, together with their resumes, at least 24 hours before the elections. No one can be a candidate for more than one position in the election. Elections shall be by secret ballot. No one shall be at the same time a Member of the Bureau or of the Finance Committee and President or Secretary of an Association. The Bureau may appoint Assistant Secretaries General and one Assistant Treasurer who may be assigned specific tasks by the Secretary General and the Treasurer with the approval of the Bureau. They may attend meetings of the administrative bodies of the Union in an advisory capacity. Scientists represented by Adhering Bodies that have been in Observer status for more than two years and scientists from countries not represented by an Adhering Body are not eligible to hold elected positions in the Union or in its constituent Associations.

11) The Council is convened by the President of the Union. It shall meet normally at the beginning of, and if necessary, during each Assembly.

It may be convened between two General Assemblies when a written request is made by at least a third of the Member Countries or by a simple majority of the members of the Executive Committee, with notice of the questions to be placed on the agenda of the meeting; the discussions reached at such a meeting of the Council shall be subject to article 5 of the Statutes.

The Council shall:

a) decide upon the admission of new Member Countries;

b) decide on an appeal against a decision by the Bureau to deny an extension of Observer status of a Member Country in arrears with regard to its financial obligation;

c) elect the members of the Bureau and of the Finance Committee;

d) receive reports from the Secretary General and the Treasurer of the Union and ratify the decisions or actions taken by the Bureau and the Executive Committee since the last Council meeting;

e) consider recommendations submitted by the Finance Committee and adopt the final budget;

f) determine the amount of the unit of contribution for the ensuing period (the unit cannot be changed at a General Assembly unless proposed on the agenda distributed four months in advance to the Member Countries);

g) review from time to time the categories of Member Countries;

h) examine questions of general policy or administration in the business of the Union and appoint such Committees as may from time to time be deemed necessary for this purpose;

i) consider proposals for changes in the Statutes or By-Laws.

12) The Executive Committee is convened by the President of the Union. It shall meet at General Assemblies, and also at all sessions of the Council with voice but without vote. It shall also meet normally at least once between General Assemblies, two years ahead of the next General Assembly, in order to prepare an outline of the interdisciplinary scientific agenda and of the timetables for the Union and for the Associations during the next General Assembly.

At a meeting of the Executive Committee, no member of the Bureau, nor the Past President of the

Union, can be represented by any other person. The Presidents of the Associations, in case of hindrance, may be represented by a Vice-President or the Secretary of their Association. The Past President has voice but no vote. For the validity of the deliberations of the Executive Committee, at least half of its members must be present or represented. Proposals concerning the agenda for meetings of the Executive Committee may be submitted by Members of the Committee; they must be received by the Secretary General at least six months before the meeting. The final agenda shall be sent to the Members of the Executive Committee at least four months prior to the meeting. No question which has not been placed on the agenda may be discussed at a meeting of the Committee unless a proposal to that effect has been approved by a vote of two thirds of the Members present. The Executive Committee shall:

a) initiate actions, as required, to co-ordinate the common interest of the Associations, such as by meetings between the Secretary General and the Secretaries of the Associations;

b) submit to the Finance Committee the financial needs of the Associations in achieving their objectives;

c) fill any vacancy which may occur between General Assemblies among the Members of the Bureau and of the Finance Committee (when such appointments are later confirmed by the Council, the period of office will be considered to begin only from the date of its confirmation by the Council);

d) make recommendations to the Council on matters of general policy of the Union.

13) The Bureau shall normally meet once a year, at the call of the President of the Union. In a meeting, no Member of the Bureau can be represented by any other person. For the validity of the deliberations, four Members at least must be present. Between the meetings of the Council, the Bureau shall initiate procedures to attain the general objectives of the Union; it shall manage the finances, and ensure the adequate administration of the Union. It shall draw up the programmes for the meetings of the Council and of the Executive Committee.

14) Applications for membership of the Union, or for the renewal of membership shall be referred to the Secretary General. The latter shall report thereon to the Executive Committee, which shall decide on the scientific merits of each application. The Secretary General shall then forward the proposals through the appropriate channels to the Adhering Bodies representing the Member Countries; these bodies will vote by correspondence and the results of the ballot will be communicated to them by the Bureau. Any admission accepted by a simple majority is provisional until approved by the Council. Simple majority is here determined by the proportion of affirmative votes to the sum of votes (affirmative, negative) provided that this sum is not less than one third of the total membership of the Union eligible to vote. Any case of refusal shall be referred to the Council.

15) The President of the Union shall:

a) be the representative of the Union in its dealing with National or International Organisations or Institutions:

b) convene and preside over the General Assembly and over all meetings of Council, Executive Committee and Bureau;

c) submit a report to the General Assembly on the scientific work of the Union during the current period.

In case of his absence, the Vice-President shall act. If the President is incapable of remaining in office, the Vice-President shall become President and the Executive Committee shall elect a new Vice-President from the remaining Members of the Bureau.

16) The Secretary General shall:

a) serve as Secretary of the General Assembly, the Council, the Executive Committee and the Bureau; arrange for meetings of these bodies; prepare and distribute promptly the agenda and the minutes of all their meetings;

b) manage the affairs of the Union, attend to correspondence, preserve the records;

c) circulate all information related to the Union;

d) prepare reports on the Union's activities; at least three months before the General

Assembly, forward to all the Member Countries a report on the administration of the Union since the last General Assembly, and present a summary of this to the General Assembly itself;

e) perform such other duties as may be assigned to him by the Bureau.

17) To assist the Secretary General and the Treasurer in the performance of their duties to the Union, they may be authorised by the Bureau to employ administrative and secretariat personnel as may be required to ensure orderly administration.

III. FInance

18) The Adhering Bodies to the Union shall pay annually the number of units of contributions assigned to the category in which they adhere, according to the following table

Category	Units of Contribution
1	1
2	2
3	3
4	5
5	7
6	10
7	15
8	20
9	25
10	30
11	35
12	40

19) The Finance Committee shall elect its Chairman and Secretary from among its Members. It shall meet at the call of its Chairman at least once in each period and during the General Assemblies and at such other times as may be required. It shall meet with the Council at all sessions of the latter, with voice but without vote. The Treasurer may be invited by the Chairman to attend a meeting of the Finance Committee. No Member can be represented by any other person at a meeting of the Committee.

The Finance Committee shall:

a) examine the Treasurer's reports and submit its conclusions to the Council;

b) review for each period the sources of income and submit to the Council appropriate recommendations;

c) recommend to the Council the general lines of the financial policy of the Union;

d) after consultation with the Treasurer, prepare and submit to the Council a proposed budget for the ensuing period;

e) ensure that the distribution of funds within the Union is consistent with the scientific responsibilities of the Union;

f) have sole authority, in the interval between meetings of the Council, to modify the budget voted by the Council at the request of the Treasurer, if necessary, after consultation with the adhering bodies;

g) advise the Bureau, during the period between Council meetings, on financial matters about which it is consulted;

h) have authority to provide guidance to the administrative units of the Union and the Secretaries of the Associations and to check their accounts and financial reports.

20) The Treasurer of the Union shall be responsible for the financial administration of the Union in accordance with directions issued to him by the Bureau.

The Treasurer shall:

a) collect the funds of the Union and disburse them in accordance with the instructions of the Council and of the Bureau;

b) maintain records of all financial transactions of the Union and submit annual financial reports thereon to the Finance Committee;

c) submit such other reports to the Finance Committee and to the Council as may be requested;

d) assemble, at the end of the calendar year preceding a General Assembly, the complete accounts of the Union (including those of the Associations and of all Union activities) for the past period, for presentation of his report to the Bureau and to the Finance Committee at least three months prior to the General Assembly, and at the General Assembly to the Council. Such report shall be accompanied by statements concerning each account administrated by the Union, its

Associations, and other financially assisted bodies. Each account shall be audited by a qualified accountant;

e) prepare a summary report of the Finances of the Union (including those of the Associations and of all Union activities) and arrange for the distribution of copies thereof to the Member Countries not later than three months prior to the General Assembly.

The President, the Treasurer and the Assistant Treasurer have the authority to draw from any bank accounts of the Union, but only as directed by the Bureau.

21) Travelling expenses and per diem subsistence may be paid by the Treasurer in accordance with rates established by the Bureau.

The following conditions must be satisfied:

a) the meeting must be for specific Union business;

b) those concerned must represent the Union and not Adhering Bodies;

c) those concerned must be unable to obtain adequate allowances from sources in their own country.

End of Statutes and By-laws

ASSOCIATION INTERNATIONALE DE GÉODÉSIE

STATUTS ET RÉGLEMENT INTÉRIEUR

I- STATUTS

I- Définition et mission de l'Association Internationale de Géodésie

1.) L'Association Internationale de Géodésie, ci-après désignée l'Association, est l'une des Associations constituant l'Union Géodésique et Géophysique Internationale, ci-après désignée l'Union.

2.) L'Association a pour mission:

a) de promouvoir l'étude de tous les problèmes scientifiques de la géodésie et d'encourager la recherche géodésique;

b) de prendre toute initiative pour faciliter et coordonner la coopération internationale dans ce domaine et de promouvoir les activités géodésiques dans les pays en développement;

c) d'assurer, sur le plan international, la discussion et la publication des résultats des études, recherches et travaux mentionnés aux paragraphes a) et b) ci-dessus.

3.) Pour atteindre ces objectifs, l'Association comprend un petit nombre de Sections, chacune d'entre elles traitant une partie distincte de la géodésie. Des Commissions, des Commissions Spéciales, des Groupes Spéciaux d'Etudes peuvent être créés selon des formes précisées dans le Règlement Intérieur.

4.) Chaque pays adhérant à l'Union (Pays Membre) est admis à se faire représenter à l'Association par des Délégués.

a) Des scientifiques peuvent devenir *Affiliés* de l'Association, soit en tant que *Compagnons*, soit en tant qu'*Associés*, selon des règles précisées dans le Règlement Intérieur.

II- Administration

5.) L'**Assemblée Générale** de l'Association est constituée par les Délégués des Pays Membres, dûment accrédités par l'Organisme Adhérent de chaque pays, tel que défini par les Statuts de l'Union.

6.) Le **Conseil** de l'Association est constitué par les Délégués, appelés Délégués au Conseil, désignés et dûment accrédités par les Organismes Adhérents des Pays Membres pour les représenter à chacune des réunions du Conseil, à raison d'un Délégué par

Pays Membre. Chaque membre du Conseil est soit un Compagnon, soit un Associé de l'Association.

Aucun membre du Bureau de l'Association ne peut être choisi comme Délégué au Conseil d'un Pays Membre. Le Président de l'Association préside les réunions du Conseil, sans participer aux votes, sauf dans le cas d'égalité de voix comme précisé à l'Art. 16 ci-après.

7. La *responsabilité* de la direction des affaires de l'Association est dévolue au Conseil de l'Association. Les décisions prises par le Conseil sont présentées à l'Assemblée Générale. Si une majorité à l'Assemblée Générale est en désaccord avec les décisions du Conseil, celui-ci doit reconsidérer sa position et prendre une décision qui devient définitive.

8. Dans l'intervalle des réunions du Conseil, la gestion des affaires de l'Association est dévolue au *Bureau* et au *Comité Exécutif* dont la composition et les attributions respectives sont définies ci-après.

9. Le **Bureau** de l'Association est constitué par le *Président*, le *Premier Vice-Président* et le *Secrétaire Général*, tous trois élus par le Conseil. Le rôle du Bureau est d'administrer l'Association conformément aux présents Statuts et Règlement Intérieur et aux décisions du Conseil et du Comité Exécutif.

10. Le **Comité Exécutif** de l'Association est constitué par le Bureau, le Président sortant et le second Vice-Président de l'Association, ainsi que par les Présidents des Sections.

Les Présidents Honoraires et les Secrétaires Généraux Honoraires de l'Association, les Présidents des Commissions, les Secrétaires des Sections, les Secrétaires adjoints de l'Association et le Rédacteur en Chef du Bulletin Géodésique peuvent assister, à titre consultatif, à toute réunion du Comité Exécutif de l'Association.

Le rôle du Comité Exécutif est de guider les Sections et autres organismes scientifiques de l'Association vers la réalisation de leurs aspirations scientifiques, en assurant entre eux une coordination efficace et en formulant les règles générales nécessaires au bon déroulement des travaux scientifiques de l'Association.

Les membres du Comité Exécutif participent, à titre consultatif, à toutes les délibérations du Conseil.

III- Droit de vote

11. Un Délégué au Conseil ne peut être le Délégué que d'un seul Pays Membre.

Un Pays Membre non représenté à une réunion du Conseil peut voter par correspondance sur toute question bien précisée à l'ordre du jour définitif distribué à l'avance aux Pays Membres, pourvu que les débats n'aient pas introduit d'importants aspects nouveaux de cette question, ni modifié sa substance, et pourvu que le bulletin de vote considéré soit parvenu au Président avant l'ouverture du vote.

12. Pour que les délibérations du Conseil soient valables, la présence effective au Conseil de la moitié au moins des Délégués des Pays Membres représentés à l'Assemblée Générale de l'Union est nécessaire.

13. Pour toutes les questions n'ayant aucune incidence financière, le vote au Conseil se fait par Pays Membre, chaque Pays Membre ayant une voix, à condition qu'il ait payé ses cotisations à l'Union jusqu'à la fin de l'année civile qui précède le vote.

14. Pour toutes les questions financières, le vote au Conseil se fait par Pays Membre, à condition également que le pays considéré ait payé ses cotisations à l'Union jusqu'à la fin de l'année civile qui précède le vote. Le nombre de voix attribuées à chaque Pays Membre est alors égal au numéro de la catégorie dans laquelle le Pays adhère à l'Union.

15. Avant un vote en Conseil, il revient au Président de décider si la question prise en considération est d'ordre financier ou non, et si la procédure du vote par correspondance s'applique.

16. Les décisions au Conseil sont prises à la majorité simple, sauf dans les cas spécialement mentionnés dans les présents Statuts. Si, au cours d'un vote au Conseil, il y a égalité de voix, la décision appartient au Président. La majorité simple ou la majorité des deux-tiers sont déterminées par la proportion des votes affirmatifs à la somme de tous les votes (affirmatifs, négatifs, abstentions). Les bulletins blancs, les bulletins non valables et les votes non exprimés par les délégués présents sont décomptés comme abstentions.

IV- Généralités

17. Les propositions formulées en vue de la modification d'un article des Statuts de l'Association doivent parvenir au Secrétaire Général au moins six mois avant la date fixée pour la réunion du Conseil au cours de laquelle elles seront examinées. Le Secrétaire Général devra faire connaître à tous les Pays Membres, au moins quatre mois avant la date fixée pour la réunion du Conseil, toutes les propositions reçues à ce sujet.

18. Les Statuts de l'Association ne peuvent être modifiés que par un vote du Conseil à la majorité des deux tiers.

Les présents Statuts, ou toute modification ultérieure, prennent effet à la clôture de la réunion du Conseil à laquelle ils ont été approuvés.

19. Dans le cadre des Statuts de l'Association, le Conseil a pouvoir d'adopter un Règlement Intérieur. Ce Règlement Intérieur ne peut être modifié que par un vote du Conseil à la majorité simple.

Ce Règlement Intérieur, ou toute modification ultérieure, prend effet à la clôture de la réunion du Conseil à laquelle il (ou elle) a été approuvé(e).

20. En cas de dissolution de l'Association, ses avoirs sont cédés à l'Union.

21. Sauf au cas où les Statuts, ou le Règlement Intérieur, en décideraient autrement, les réunions de travail seront conduites selon les règles: "Robert's Rules of Order".

22. Les présents Statuts et le Règlement Intérieur sont établis en Français et en Anglais.

Leur validité ne peut être mise en cause par toute erreur de caractère formel ou accidentel.

II- RÈGLEMENT INTÉRIEUR

I - Structure de l'Association

1.) Les travaux scientifiques de l'Association Internationale de Géodésie sont répartis dans les *Sections* dont les attributions respectives sont décidées par le Conseil sur recommandation du Comité Exécutif. La structure de ces Sections est revue tous les huit ans (soit deux périodes) par un Comité, appelé Comité Cassinis, qui présente ses propositions au Comité Exécutif. En raison des relations complexes entre les différentes activités de l'Association, des interactions entre les Sections sont nécessaires. L'Association comprend actuellement les *cinq Sections* ci-après:

- Section I: *Détermination de position.*

  - réseaux horizontaux et verticaux de précision;
  - méthodes spatiales de positionnement;
  - méthodes inertielles de positionnement;
  - méthodes cinématiques de positionnement;
  - astronomie géodésique;
  - positionnement en mer;
  - réfraction.

- Section II*: Technologie spatiale avancée.*

  - développement des techniques spatiales en géodésie, telles que: techniques radioélectriques de poursuite de satellite, techniques radio-interférométriques, mesures de distance laser terre-satellite et terre-lune, altimétrie par satellite, poursuite de satellite par satellite, gradiométrie par satellite, mesures géodésiques depuis l'espace;
  - calculs d'orbites;
  - résultats géodésiques directement issus de ces techniques;
  - techniques géodésiques pour la lune et les planètes.

- Section III*: Détermination du champ de pesanteur.*

  - mesures terrestres absolues et relatives de pesanteur;
  - variations de pesanteur non liées aux marées;

- détermination du champ extérieur de pesanteur et du géoïde à l'aide de la gravimétrie, de la gradiométrie, de l'astronomie géodésique, des techniques spatiales et inertielles;
- réduction et estimation des paramètres du champ de pesanteur.

- Section IV: *Théorie Générale et Méthodologie.*

- modèles mathématiques généraux en géodésie;
- analyse statistique et numérique;
- traitement et gestion des données;
- méthodes d'optimisation;
- méthodes des moindres carrés;
- théories différentielle et intégrale du champ de pesanteur;
- théorie de l'estimation, l'approximation et la représentation du champ de pesanteur.

- Section V: *Géodynamique.*

- systèmes de référence;
- observation et étude des phénomènes variant avec le temps: mouvement du pôle, rotation terrestre, marées terrestres, mouvements récents de l'écorce terrestre, variations de la pesanteur, topographie de la surface marine et niveau moyen des mers;
- aspects géodésiques des projets géodynamiques internationaux;
- dynamique des planètes et de la lune;
- interprétation géophysique de la pesanteur et des données s'y rapportant.

a) Chaque Section crée en son sein un **Comité Directeur** constitué par le Président et les Secrétaires de la Section, les Présidents des Commissions et des Commissions Spéciales appartenant à la Section et par toute personne qui, ayant travaillé dans la Section, est cooptée par le Président de Section.

2.) Des **Commissions** peuvent être créées pour certaines activités qui nécessitent une coopération ou une organisation internationale importante, en particulier pour les problèmes de longue durée ou les activités intéressant de vastes territoires.

Chaque Pays Membre de l'Union a le droit de nommer un représentant dans chaque Commission, excepté dans celles traitant de zones géographiques particulières; dans ce dernier cas, seuls les pays membres situés dans la zone géographique considérée peuvent nommer un représentant dans la Commission.

Normalement, une Commission fait partie d'une Section. Chaque Commission peut s'organiser selon les exigences qui lui sont propres tout en respectant les Statuts et Règlement Intérieur de l'Association et en se soumettant à l'approbation du Comité Exécutif; elle peut, par exemple, créer des Sous-Commissions régionales.

a) Des **Commissions Spéciales** peuvent être créées pour étudier des problèmes scientifiques à long terme requérant une coopération étroite entre spécialistes de différents pays.

Normalement, une Commission Spéciale fait partie d'une Section.

Chaque Commission Spéciale peut s'organiser selon des exigences qui lui sont propres tout en se conformant aux Statuts et Règlement Intérieur de l'Association et en se soumettant à l'approbation du Comité Exécutif, elle peut, par exemple, créer des Sous-Commissions pour étudier des problèmes spécifiques dans son domaine.

3.) Des **Groupes Spéciaux d'Etudes** peuvent être créés pour étudier des problèmes scientifiques particuliers d'étendue limitée mais qui requièrent une coopération étroite entre les spécialistes de différents pays.

Normalement, un Groupe Spécial d'Etudes fait partie d'une Section.

4.) La création et la dissolution des Commissions, des Commissions Spéciales et des Groupes Spéciaux d'Etudes sont décidées par le Comité Exécutif qui précise également si la Commission, la Commission Spéciale ou le Groupe Spécial d'Etudes doit être placé sous l'autorité directe de l'Association ou de l'une de ses Sections.

La liste des Commissions, des Commissions Spéciales et des Groupes Spéciaux d'Etudes est publiée dans le Manuel du Géodésien à l'issue de chaque Assemblée Générale.

5.) L'Association peut aussi prendre part aux activités d'organismes scientifiques communs avec d'autres Associations de l'Union Géodésique et Géophysique Internationale ou, représentant l'Union, avec d'autres Unions. Ces Organismes sont administrés suivant des règles spécifiques découlant des relations avec les autres groupes, mais ils présentent un rapport sur leurs activités scientifiques aux Assemblées Générales de l'Association.

Le Comité Exécutif de l'Association décide si la participation à un tel organisme commun doit être placée sous la responsabilité de l'Association ou de l'une des Sections. Cette responsabilité inclut la désignation des représentants à ces organismes ainsi que la participation à la planification de leurs activités futures.

II-Elections

6.) Les élections sont faites par le Conseil au cours de chaque Assemblée Générale Ordinaire de l'Association.

Le Président en exercice, après avoir pris l'avis des membres du Comité Exécutif, désigne un Comité de Nomination composé d'un président et de trois autres membres. Le Comité de Nomination, après avoir pris l'avis des Organismes Adhérents des Pays Membres et des Officiels de l'Association, propose un candidat pour chacun des postes soumis à élection au Conseil. Les candidats doivent signifier leur acceptation et fournir un résumé de leur carrière, en 150 mots maximum, mettant en évidence leur fonction actuelle, leurs intérêts de recherche et leurs activités en rapport avec l'Association. Les délégués sont tenus informés, très tôt au cours de l'Assemblée Générale, de ces candidatures ainsi que des résumés les accompagnant, en outre, des annonces sont faites pour permettre, pendant une période d'au moins 48 heures, à d'autres candidatures de se manifester. Celles-ci doivent êtres présentées par écrit, avoir l'appui d'au moins deux membres du Conseil, et être adressées, accompagnées des résumés tels que décrits ci-dessus, au Secrétaire Général. Les délégués ont connaissance de ces dernières candidatures, des résumés, ainsi que des noms des personnes apportant leur soutien. Les élections ont lieu au scrutin secret.

Une même personne ne peut occuper en même temps plus d'un des postes suivants: Président de l'Association, Vice-Président, Président de Section et Président de Commission ou de Commission Spéciale.

7. L'intervalle de temps séparant les clôtures de deux Assemblées Générales Ordinaires successives de l'Association est appelé "*période*".

8. Le **Président** de l'Association est élu pour une période. Il n'est pas immédiatement rééligible à ce poste, mais le Conseil peut le nommer Président honoraire.

9. Le **Premier** et le **Second Vice-Présidents** sont élus pour une période et ne sont pas immédiatement rééligibles aux mêmes postes.

10. (*Article supprimé*).

11. Le **Secrétaire Général** est élu initialement pour une période. Il peut être ré-élu pour deux autres périodes, par périodes successives.

12. Ces mêmes règles (Art. 11) s'appliquent aux **Secrétaires adjoints** de l'Association, à l'exception du Secrétaire adjoint élu selon la procédure prévue à l'Art. 37A.

13. Les membres du Bureau et du Comité des Finances de l'Union ne peuvent occuper les postes de Président, Premier Vice-Président ou Secrétaire Général de l'Association.

14. Si le poste de Président devient vacant dans l'intervalle entre deux Assemblées Générales Ordinaires, les fonctions en sont assurées jusqu'à la fin de l'Assemblée Générale Ordinaire suivante par le Premier Vice-Président. De la même façon, les fonctions du Premier Vice-Président reviennent alors au Second Vice-Président.

Si le poste de Secrétaire Général devient vacant, le Président charge immédiatement le Comité Exécutif d'élire par correspondance un remplaçant de façon à assurer la continuité de fonctionnement du Bureau Central. Cette élection n'a d'effet que jusqu'à la fin de l'Assemblée Générale Ordinaire suivante.

15. Les **Présidents des Sections** sont élus pour une période et ne sont pas immédiatement rééligibles aux mêmes postes.

16. Les **Secrétaires des Sections** sont élus pour une période et sont rééligibles pour une autre période. Le Président de chaque Commission appartenant à une Section devient Secrétaire de cette Section. Le

nombre maximum de Secrétaires dans une Section est deux, sauf si le nombre de Commissions dans cette Section dépasse un, dans ce cas le nombre de Secrétaires est égal au nombre de Commissions plus un.

17. Si un poste de Président de Section devient vacant entre deux Assemblées Générales Ordinaires, le Comité Exécutif désigne un Président intérimaire qui tient le poste jusqu'à la fin de la prochaine Assemblée Générale.

Dans le cas d'autres vacances, le Comité Exécutif peut désigner des intérimaires.

18. Les **Présidents des Commissions** et des **Commissions Spéciales** sont élus par le Conseil de l'Association pour une période et peuvent être immédiatement ré-élus pour une autre période.

19. Le **Président d'un Groupe Spécial d'Etudes** est nommé par le Comité Exécutif pour une période seulement.

20. Une même personne ne peut être à la fois président de plus d'un des organismes visés aux Art. 18 et 19.

III - Assemblées Générales

21. L'Association tient ses propres Assemblées Générales Ordinaires en liaison avec celles de l'Union, à la même date et dans le même pays.

22. Avant chaque Assemblée Générale, le Bureau de l'Association prépare un ordre du jour détaillé. Pour ce qui concerne les travaux scientifiques, l'ordre du jour est établi par le Comité Exécutif. Cet ordre du jour est envoyé aux pays membres et à tous les Officiels de l'Association de façon à leur parvenir au moins deux mois avant la date de l'Assemblée. En principe, seules les questions qui figurent à l'ordre du jour sont prises en considération pendant les sessions; il peut en être autrement par un vote acquis à la majorité des deux tiers soit en Conseil, soit au Comité Exécutif.

23. A chaque Assemblée Générale, le Président de l'Association présente un rapport détaillé sur les activités scientifiques de l'Association pendant la période de sa présidence. Le Secrétaire Général présente, pour la même période, un rapport détaillé concernant les activités administratives et les finances de l'Association. Ils soumettent chacun des propositions sur les activités à entreprendre au cours de la période à venir dans la mesure où les ressources envisagées le permettent.

Ces rapports sont remis aux Délégués présents à l'Assemblée Générale avant l'ouverture de cette Assemblée.

24. Les réunions scientifiques ont généralement lieu par Section, mais l'étude de certaines questions peut nécessiter des réunions communes à plusieurs Sections ou des symposiums placés sous la responsabilité de présidents désignés par le Comité Exécutif.

Des symposiums communs couvrant des sujets intéressant au moins deux Associations de l'Union peuvent être organisés.

25. A chaque Assemblée Générale, les travaux de chaque Section font l'objet d'un rapport présenté par son Président assisté de ses Secrétaires. De même, les travaux de chaque Commission, Commission Spéciale ou Groupe Spécial d'Etudes sont présentés par les présidents respectifs.

26. L'inscription de communications scientifiques à l'ordre du jour des séances de l'Assemblée Générale est décidée par un Comité constitué par un membre du Bureau et les Présidents des Sections.

27. Les communications scientifiques individuelles sont reproduites par leur auteurs. Elles sont distribuées aux Délégués par le Bureau Central avant la séance à laquelle elles doivent être présentées. Elles peuvent être publiées dans le Bulletin Géodésique sous réserve d'en satisfaire la politique d'édition.

IV - Publication

28. Le journal officiel de l'Association est le **Bulletin Géodésique**, ci-après désigné "le Journal". Le Journal est publié à intervalles réguliers, par une société d'édition liée par accord à l'Association, ou par tout autre moyen approuvé par le Comité Exécutif. Les termes sont négociés par le Président et sont ratifiés par le Comité Exécutif.

Un (ou plusieurs) Rédacteur(s) en Chef, désigné(s) ci-après "le Rédacteur", est (sont) en charge du Journal.

Le Rédacteur est conseillé et assisté par un Comité des Rédacteurs, ci-après désigné "le Comité".

Le Rédacteur est responsable du contenu scientifique du Journal. Tous les articles scientifiques sont soumis à la procédure de revue et le Rédacteur prend la décision finale d'accepter ou non l'article pour le publier. Le Rédacteur informe l'Association des activités et de l'état des opérations concernant le Journal.

a) A chaque Assemblée Générale, le Rédacteur, après consultation et accord du Président de l'Association, recommande des candidats pour devenir membres du nouveau Comité appelé à opérer pendant la période suivant l'Assemblée Générale. Pendant cette Assemblée, le Comité en exercice élit les membres du nouveau Comité parmi les candidats recommandés. Après son entrée en fonction, le nouveau Comité élit un (ou plusieurs) Rédacteur(s) pour la période à venir. La désignation du Rédacteur doit être approuvée par le Comité Exécutif. Le Rédacteur, ainsi que les membres du Comité, sont élus pour une période, mais sont susceptibles d'être ré-élus pour une période supplémentaire.

b) Après chaque Assemblée Générale, il est publié un numéro spécial du Bulletin Géodésique appelé le "**Manuel du Géodésien**". Cette publication a pour but de fournir des informations détaillées sur l'Association, sa structure, ses activités scientifiques et bien d'autres informations à caractère technique ou administratif.

29. A l'issue de chaque Assemblée Générale, l'ensemble des rapports présentés par les Sections, Commissions et Groupes Spéciaux d'Etudes est publié sous le nom de "**Travaux de l'Association Internationale de Géodésie**". Cette publication est adressée gratuitement aux Officiels de l'Association et aux Organismes Adhérents des Pays Membres.

30. L'Association assure également des **publications spéciales** qui présentent les références recommandées en géodésie.

31. A chaque Assemblée Générale les Pays Membres de l'Union sont invités à fournir un certain nombre d'exemplaires de leur **Rapport National** sur les travaux géodésiques effectués depuis la précédente Assemblée Générale. Ces Rapports Nationaux, dans la mesure où ils sont disponibles, sont distribués comme les "*Travaux de l'Association*" par le Bureau Central de l'Association.

V- Administration

32. Le **Conseil** de l'Association:

a) examine les questions de politique scientifique générale ou d'administration dans les affaires de l'Association et désigne, à cet effet, les Comités qui, le cas échéant, peuvent être jugés nécessaires;

b) élit les membres du Bureau et du Comité Exécutif, les Secrétaires adjoints de l'Association, les Secrétaires des Sections, les Présidents des Commissions et des Commissions Spéciales;

c) reçoit les rapports du Secrétaire Général et examine, pour approbation, les décisions ou mesures prises par le Bureau et le Comité Exécutif depuis la dernière réunion du Conseil;

d) désigne les trois membres du comité ad hoc créé pour l'examen des finances de l'Association, étudie ses recommandations et adopte le budget définitif;

e) examine les propositions de modification des Statuts et du Règlement Intérieur.

Le Conseil se réunit sur convocation du Président de l'Association. Il se réunit normalement pendant les Assemblées Générales Ordinaires.

33. Le **Comité Exécutif** de l'Association:

a) prend les mesures et établit les règles nécessaires à l'accomplissement des missions scientifiques de l'Association;

b) comble toute vacance de poste qui pourrait survenir, entre deux Assemblées Générales, selon les règles des Statuts et du Règlement Intérieur;

c) crée et dissout les Commissions, Commissions Spéciales et Groupes Spéciaux d'Etudes;

d) nomme les Présidents des Groupes Spéciaux d'Etudes et approuve l'élection

du(des) Rédacteur(s) en Chef du Bulletin Géodésique;

e) nomme les membres du Comité Cassinis;

f) présente des recommandations au Conseil sur les questions de politique générale de l'Association;

g) sur recommandation du Bureau, désigne les Compagnons et les Associés de l'Association. Les anciens Officiels de l'Association, y compris ceux des Commissions et des sous-Commissions, ont vocation à être nommés Compagnons de l'Association et sont invités à le devenir. Les personnes élues Officiels de l'Association ou désignées comme membres des Commissions, Commissions Spéciales ou Groupes Spéciaux d'Etudes deviennent automatiquement Associés de l'Association. Les personnes de Pays Membres qui en font la demande, en mentionnant leurs activités passées au sein de l'Association, ou présentant une recommandation de leur Organisme Adhérent national ou celle d'un Officiel ou d'un Compagnon de l'Association, peuvent être admises à devenir Associés et sont recommandées par le Bureau.

Le Comité Exécutif se réunit sur convocation du Président de l'Association. Il se réunit au cours des Assemblées Générales et ses membres participent, à titre consultatif, aux réunions du Conseil. Il se réunit également au moins une fois entre deux Assemblées Générales, un an avant l'Assemblée Générale pour préparer le programme des activités scientifiques et le projet d'emploi du temps de cette Assemblée Générale.

Lors d'une réunion du Comité Exécutif, aucun membre ne peut se faire représenter par quiconque, sauf un Président de Section qui peut être représenté par un Secrétaire de sa Section. Les délibérations du Comité Exécutif sont déclarées valides si au moins la moitié des membres sont présents au représentés.

L'ordre du jour de chaque réunion du Comité Exécutif est préparé par le Bureau et adressé aux membres au moins trois mois avant la réunion.

34. Le **Bureau** de l'Association:

a) établit l'ordre du jour des réunions du Conseil et du Comité Exécutif;

b) assure l'administration de l'Association. Il se réunit normalement avant chaque réunion du Comité Exécutif.

35. Le **Président** de l'Association:

a) représente l'Association dans ses relations avec les Organismes ou Institutions nationales ou internationales;

b) convoque et préside les Assemblées Générales et toutes les réunions du Conseil, du Comité Exécutif et du Bureau;

c) présente à l'Assemblée Générale le rapport sur les activités scientifiques de l'Association pendant la période de sa présidence.

Il est membre du Comité Exécutif de l'Union. En cas d'indisponibilité du Président, le *Premier Vice-Président* le remplace.

36. Le **Secrétaire Général** de l'Association:

a) assume les fonctions de secrétaire de l'Assemblée Générale, du Conseil, du Comité Exécutif et du Bureau; il organise leurs réunions, prépare et diffuse promptement l'ordre du jour et les procès-verbaux de toutes ces réunions;

b) remplit les fonctions de Directeur du Bureau Central;

c) gère les affaires de l'Association, se charge de la correspondance et assure la conservation des archives;

d) distribue toutes les informations concernant l'Association;

e) prépare les rapports d'activité de l'Association, en particulier il présente à l'Assemblée Générale le rapport sur l'administration et les finances de l'Association pour la période en cours;

f) accomplit toutes autres tâches qui lui sont confiées par le Bureau.

37. Pour aider le Secrétaire Général dans l'accomplissement de ses tâches envers l'Association, celle-ci établit une structure permanente, le *Bureau Central*, comportant un nombre variable d'employés payés sur des fonds de l'Association.

Le Secrétaire Général est également assisté d'un petit nombre de *Secrétaires adjoints*, dont l'un deux réside dans la même localité que le Secrétaire Général. Ces fonctions sont gratuites et ne peuvent donner lieu qu'au remboursement des frais occasionnées par ces charges.

a) Un Secrétaire Adjoint supplémentaire, désigné "*Le Secrétaire de l'Assemblée*", peut également être nommé par le Conseil sur recommandation du pays où se tiendra la prochaine Assemblée Générale. Si cette procédure de nomination n'est pas réalisable, le Conseil délègue cette nomination au Bureau de l'Association.

En collaboration avec le Bureau Central, ce Secrétaire Adjoint est responsable des relations avec les organisateurs s'occupant de la préparation de l'Assemblée Générale. Ce Secrétaire Adjoint n'est nommé que pour une seule période.

VI - Activités des Sections, Commissions, Commissions Spéciales et Groupes Spéciaux d'Etudes

38. Le **Président d'une Section** a la responsabilité du développement des activités scientifiques de sa Section et il représente sa Section au Comité Exécutif de l'Association. En liaison étroite avec son Comité Directeur, il encourage, guide et coordonne les travaux des Commissions, Commissions Spéciales et Groupes Spéciaux d'Etudes de sa Section, et, en particulier, rend compte annuellement des activités de sa Section aux officiels de la Section ainsi qu'aux membres du Bureau de l'Association.

Le Président d'une Section, ou, à défaut, l'un de ses Secrétaires, doit assister à chaque symposium concernant la Section.

Avant chaque Assemblée Générale, le Président d'une Section reçoit les rapports d'activité des Commissions, Commissions Spéciales et Groupes Spéciaux d'Etudes rattachés à sa Section et, assisté du Comité Directeur, il prépare alors le compte rendu des activités de la Section à présenter à l'Assemblée Générale. Il reçoit les suggestions pour créer de nouveaux Groupes Spéciaux d'Etudes et pour continuer l'activité de Groupes déjà existants, selon la procédure exposée à l'Art. 43. Après consultation du Comité Directeur de la Section, il coordonne ces demandes et transmet ses recommandations au Comité Exécutif.

Chaque **Comité Directeur de Section** se réunit au moins une fois durant chaque Assemblée Générale Ordinaire et au moins à une autre occasion au cours de la période entre deux Assemblées Générales. Lors de la réunion à l'Assemblée Générale, ou au cours de toute autre occasion appropriée, le Comité Directeur passe en revue les activités des Commissions, Commissions Spéciales et Groupes Spéciaux d'Etudes pendant la période écoulée, et examine les programmes de celles et ceux dont la poursuite de l'activité est proposée pour la période suivante.

Les **Secrétaires de Section** assistent le Président de Section dans ses fonctions.

39. Le **Président d'une Commission** a la responsabilité d'en promouvoir et d'en diriger les travaux et d'en recruter les membres, à l'exception des représentants des Pays Membres, désignés comme indiqué à l'Art. 2.

Le Président de chaque Commission établit une brève description du travail à accomplir et une liste des membres, pour publication dans le Manuel du Géodésien après chaque Assemblée Générale.

Afin d'assurer la communication et la coopération au sein de chaque Commission, les membres sont tenus informés, annuellement, des résultats obtenus et des problèmes en cours.

39A. Le **Président d'une Commission Spéciale** a la responsabilité d'en promouvoir et d'en diriger les travaux et d'en recruter les membres.

La répartition géographique de ces derniers doit refléter une bonne coopération internationale sur le sujet d'étude et leur nombre ne doit pas excéder 30.

Le Président de chaque Commission Spéciale établit une brève description du travail à accomplir et une liste des membres, pour publication dans le Manuel du Géodésien après chaque Assemblée Générale.

Afin d'assurer la communication et la coopération au sein de chaque Commission Spéciale, les mem-

bres sont tenus informés, annuellement, des résultats obtenus et des problèmes en cours.

40. Le **Président d'un Groupe Spécial d'Etudes** a la responsabilité d'en promouvoir et d'en diriger les travaux et d'en recruter les membres.

La répartition géographique de ces derniers doit refléter une bonne coopération internationale sur le sujet d'étude et leur nombre ne doit pas excéder 20.

Le Président de chaque Groupe Spécial d'Etudes établit une brève description du travail à accomplir et une liste des membres, pour publication dans le Manuel du Géodésien après chaque Assemblée Générale.

Afin d'assurer la communication et la coopération au sein de chaque Groupe Spécial d'Etudes, les membres sont tenus informés, annuellement, des résultats obtenus et des problèmes en cours.

41. Le Président de l'Association, le Bureau Central et le Président de la Section concernée reçoivent copie des correspondances officielles et des notes aux membres des Commissions, Commissions Spéciales et Groupes Spéciaux d'Etudes.

42. Les rapports d'activité de chaque Commissions, Commission Spéciale et Groupe Spécial d'Etude doivent être transmis au Président de la Section concernée au moins trois mois avant chaque Assemblée Générale. Ces rapports ainsi que les rapports des Sections sont publiés dans les "*Travaux de l'Association Internationale de Géodésie*".

43. La période d'activité de chaque Groupe Spécial d'Etudes prend normalement fin à l'Assemblée Générale ordinaire. Dans le cas exceptionnel où une poursuite d'activité est jugée nécessaire, le Président du Groupe Spécial d'Etudes soumet à son Président de Section trois mois avant l'Assemblée Générale une proposition écrite bien argumentée, y compris une suggestion pour la désignation de son successeur. Le Président de Section présente alors une recommandation au Comité Exécutif.

44. Les Commissions, Commissions Spéciales et Groupes Spéciaux d'Etudes non rattachés à une Section particulière sont placés sous la responsabilité du Président de l'Association.

45. Les Commissions, Commissions Spéciales et Groupes Spéciaux d'Etudes sont libres d'organiser des réunions de travail de leurs membres. S'ils désirent organiser des Symposiums scientifiques, ils doivent suivre la procédure d'approbation des symposiums prévue par l'Association. Les symposiums ne peuvent être organisés que si leur sujet déborde du cadre d'activité d'une Commission, Commission Spéciale ou d'un Groupe Spécial d'Etudes.

VII - Symposiums

46. L'Association peut organiser des symposiums scientifiques pour étudier des problèmes particuliers d'intérêt général.

Le Comité Exécutif a la responsabilité de veiller au choix judicieux des symposiums, de façon à garantir une équitable représentation par sujet et une bonne répartition géographique et aussi à éviter des doubles emplois, des recouvrements et une fréquence injustifiée.

Les symposiums parrainés par l'Association sont ouverts à tous les scientifiques, selon les règles du Conseil International des Unions Scientifiques.

47. Les propositions de symposiums pour la période entre deux Assemblées Générales Ordinaires sont normalement soumises par les Organisateurs au Secrétaire Général, avant l'Assemblée Générale précédant cette période. Au cours de cette Assemblée Générale d'autres propositions peuvent être soumises au Secrétaire Général, au plus tard deux jours avant la dernière réunion du Conseil.

Le Conseil, sur recommandation du Comité Exécutif, décide si l'Association doit parrainer tel ou tel symposium.

Dans des cas très exceptionnels, le Comité Exécutif peut donner son accord à des demandes faites hors des délais normaux. De telles demandes ne peuvent être faites moins de 18 mois avant la date proposée pour le symposium.

48. L'Organisateur d'un symposium doit envoyer une annonce officielle au Bulletin Géodésique au moins un an à l'avance, ou immédiatement après l'approbation par l'Association; la date annoncée ne doit plus changer ensuite.

49. Moins de trois mois après le symposium, l'Organisateur est tenu de fournir un rapport pour le Bulletin Géodésique. Ce rapport doit indiquer si les Actes du symposium seront publiés, et où, et quand ils le seront. Les Actes du symposium, ou au moins

une copie de chaque communication présentée, doivent être adressées au Bureau Central de l'Association.

50. Le parrainage d'un symposium par l'Association signifie une reconnaissance officielle mais n'implique pas un soutien financier.

VIII - Coopération scientifique internationale

51. L'Association peut coopérer à des travaux scientifiques de caractère international ou interdisciplinaire, elle peut également les entreprendre directement ou en surveiller la réalisation. En principe, l'Association est représentée aux Congrès, réunions internationales, Assemblées Générales, etc... des organismes scientifiques internationaux dont l'activité est en rapport avec la sienne propre. Le Président de l'Association ou son délégué représente l'Association à ces réunions.

Les frais de voyage et de séjour du représentant de l'Association peuvent être mis en totalité ou partiellement à la charge de l'Association. Un compte rendu de ces réunions incluant les discussions en rapport avec la géodésie, est préparé par ce représentant, en vue d'une publication, totale ou partielle, dans le Bulletin Géodésique.

L'Association peut aussi représenter l'Union au sein de Commissions inter-Unions ou de Comités spéciaux communs traitant de sujets en rapport avec ses propres études.

La désignation des représentants de l'Association ou de l'Union à ces organismes permanents est faite par le Comité Exécutif. Ces représentants sont élus pour une période et peuvent être ré-élus pour une période supplémentaire.

IX- Finances

52. Les *ressources* de l'Association proviennent:

a) des cotisations des pays membres de l'Union dont une partie, déterminée par le Conseil de l'Union sur recommandation de son Comité des Finances, est versée à l'Association par le Trésorier de l'Union;

b) de la vente des publications;

c) de toute autre origine (subventions, dons, intérêts, fonds disponibles après un symposium, etc...).

53. Le Secrétaire Général reçoit du Bureau et du Conseil de l'Association, la responsabilité de gérer ces ressources conformément aux Statuts et Règlement Intérieur, ainsi qu'aux décisions du Conseil et aux recommandations du Comité des Finances de l'Union.

Le Secrétaire Général est seul responsable de la maîtrise des opérations financières de l'Association, cependant un Secrétaire Adjoint reçoit délégation de signature pour chaque compte bancaire ouvert au nom de l'Association.

54. A chaque Assemblée Générale Ordinaire de l'Association, le Secrétaire Général présente la proposition de budget pour la période à venir et la soumet au Conseil pour approbation.

Le budget, tel qu'approuvé par le Conseil, est exécuté par le Secrétaire Général.

A l'Assemblée Générale ordinaire suivante, le Conseil examine si les dépenses ont été engagées conformément aux propositions précédemment approuvées. Le Conseil désigne un Comité ad'hoc pour effectuer cet examen dans le détail.

l'Union, selon les prescriptions de l'Art. 20 du Règlement Intérieur de l'Union.

INTERNATIONAL ASSOCIATION OF GEODESY

STATUTES AND BY-LAWS

I- STATUTES

I- Definition and Objectives of the International Association of Geodesy

1.) The *International Association of Geodesy*, hereafter called the Association, is one of the constituent Associations of the *International Union of Geodesy and Geophysics*, hereafter called the *Union*.

2.) The *objectives* of the Association are:

a) to promote the study of all scientific problems of geodesy and encourage geodetic research;

b) to promote and coordinate international cooperation in this field, and promote geodetic activities in developing countries;

c) to provide, on an international basis, for discussion and publication of the results of the studies, researches and works indicated in paragraphs a) and b) above.

3.) To achieve these objectives, the Association shall comprise a small number of Sections, each of which deals with a distinct part of geodesy. Commissions, Special Commissions and Special Study Groups may be formed as provided in the By-Laws.

4.) Every country adhering to the Union *(Member Country)* may be represented by Delegates to the Association.

a) Scientists may become *Affiliates* of the Association, either as *Fellows* or *Associates*, as provided in the By-Laws.

II- Administration

5.) The *General Assembly* of the Association shall consist of the Delegates of the Member Countries duly accredited by the corresponding Adhering Bodies, as defined in the Statutes of the Union.

6.) The **Council** of the Association shall consist of the *Delegates*, known as Council Delegates, designated for meetings of the Council and formally accredited by the Adhering Body of Member Countries on the basis of one Delegate for each Member Country. Each Council member shall be an Associate or a Fellow of the Association.

No member of the Bureau of the Association shall serve as a Council Delegate of a country. The President of the Association shall preside over the Council meetings, without vote, except in the case of a tie as provided in article 16 hereafter.

7.) Responsibility for the direction of the Association affairs shall be vested in the Council of the Association. Decisions of the Council shall be reported to the General Assembly. In the case that the majority of those present at a General Assembly meeting disagrees with the decisions of the Council, the Council shall reconsider the question, and make a decision, which shall be final.

8.) Between meetings of the Council, the direction of the affairs of the Association shall be vested in the *Bureau* and the *Executive Committee*, the respective composition and responsabilities of which are defined hereafter.

9.) The **Bureau** of the Association shall consist of the *President*, the *First Vice-President* and the *Secretary General*, all of whom shall be elected by the Council. The duties of the Bureau shall be to administer the affairs of the Association in accordance with these Statutes and By-Laws and with the decisions of the Council and the Executive Committee.

10.) The **Executive Committee** shall consist of the *Bureau*, the *immediate past President* and the *Second Vice-President* of the Association, and the *Presidents of the Sections*.

The Honorary Presidents and the Honorary General Secretaries of the Association, the Presidents of Commissions, the Secretaries of the Sections, the Assistant Secretaries of the Association and the Chief

Editor of the Bulletin Géodésique may attend any meeting of the Executive Committee of the Association, with voice but without vote.

The duties of the Executive Committee shall be to further the scientific objectives of the Sections and other scientific bodies of the Association through effective coordination and through the formulation of general policies to guide the scientific work of the Association.

The members of the Executive Committee shall attend meetings of the Council, with voice but without vote.

III- Voting

11.) A Council Delegate may represent only one Member Country.

A Member Country which is not represented at a Council meeting may vote by correspondence on any specific question, provided that matter has been clearly defined on the final agenda distributed in advance to the Member Countries and that the discussion thereon has not produced any significant new considerations or changed its substance, and provided that the said vote has been received by the President prior to the voting.

12.) In order that the deliberations of the Council shall be valid, the number of the Council Delegates present must be at least half of the Member Countries represented at the General Assembly of the Union.

13.) On questions not involving matters of finance, the voting in Council shall be by Member Countries, each Member Country having one vote, provided that its Union subscriptions shall have been paid up to the end of the calendar year preceding the voting.

14.) On questions involving finance, the voting in Council shall be by Member Countries, with the same provision that a voting country shall paid its Union subscriptions up to the end of the calendar year preceding the voting in Council. The number of votes allotted to each Member Country shall then be equal to the number of its category of membership as defined by the Union.

15.) Before a vote in a Council meeting, the President shall decide whether or not the matter under consideration is financial in character and whether the procedure of voting by correspondence applies.

16.) Decisions of the Council shall be taken by a simple majority, except as otherwise specified in these Statutes. If a tie should occur in a Council vote, the President shall cast the decisive vote. Simple and two-thirds majorities are determined by the proportion of affirmative votes to the sum of all votes (affirmative, negative and abstention). Bank and invalid ballots and votes not cast by delegates present are counted as abstentions.

IV- General

17.) Proposals for a change of any article of the Statutes of the Association must reach the Secretary General at least six months before the announced date of the Council meeting at which it is to be considered. The Secretary General shall notify all Member Countries of any proposed change at least four months before the announced date of the Council meeting.

18.) The Statutes of the Association may not be modified except by the approval of a two-thirds majority of votes cast at a Council meeting.

These Statutes or any further modification of them shall come into force at the close of the Council meeting at which they are approved.

19.) The Council shall have the power to adopt By-Laws within the framework of the Statutes of the Association.

These By-Laws may not be modified except by a simple majority of votes cast at a Council meeting.

These By-Laws or any further modification of them shall come into force at the close of the Council meeting at which they are approved.

20.) In the event of the dissolution of the Association, its assets shall be ceded to the Union.

21.) Conduct of meetings: Except as otherwise provided in the Statutes or By-Laws, business meetings shall be conducted according to Robert's Rules of Order.

22.) These Statutes and By-Laws of the Association are set out in French and in English.

The validity of these rules shall not be vitiated by any error of a formal or accidental nature.

II- BY-LAWS

I- Structure

1.) The scientific work of the International Association of Geodesy is allocated to *Sections*, the respective responsabilities of which are decided by the Council on recommendation of the Executive Committee. The structure of these Sections shall be reviewed every eight years (two periods) by a committee, called the Cassinis Committee, which shall make proposals to the Executive Committee. Because of the complex interrelations among various activities of the Association, interactions between the individual sections are implied. There are at present **five** ***sections*** which are the following:

- Section I *: Positioning.*

  - high precision horizontal and vertical networks;
  - satellite and spatial positioning;
  - inertial positioning;
  - kinematic positioning;
  - geodetic astronomy;
  - marine positioning;
  - refraction.

- Section II*: Advanced Space Technology.*

  - development of space techniques for geodesy, such as: satellite radio-tracking techniques, radio-interferometric techniques, satellite and lunar laser ranging, satellite altimetry, satellite-to-satellite tracking, satellite gradiometry, geodetic measurements from space;
  - orbital computations;
  - direct results of such techniques;
  - planetary and lunar geodetic techniques.

- Section III *: Determination of the gravity field.*

  - absolute and relative terrestrial gravity measurements;
  - non tidal gravity variations;
  - determination of the external gravity field and the geoid from gravimetry, gradiometry, geodetic astronomy, space and inertial techniques;
  - reduction and estimation of gravity field quantities.

- Section IV *: General Theory and Methodology.*

  - General mathematical models for geodesy;
  - statistical and numerical analysis;
  - data processing and management;
  - optimization methods;
  - least squares methods;
  - differential and integral theories of the gravity field;
  - theory of estimation, approximation and representation of the gravity field.

- Section V*: Geodynamics.*

  - reference systems;
  - monitoring and study of time-dependent phenomena: polar motion, Earth rotation, Earth tides, recent crustal motions, variations of gravity, sea surface topography and mean sea level;
  - geodetic aspects of international geodynamic projects;
  - planetary and lunar dynamics;
  - geophysical interpretation of gravity and related data.

  a) Each Section shall set up a **Steering Committee** consisting of the Section President, the Secretaries, the Presidents of Commissions and Special Commissions within the Section, and such other persons, who have participated in the work of the Section, as are coopted to the Committee, on the recommendation of the Section President.

2.) **Commissions** may be formed for activities for which close international cooperation or organization is necessary, in particular for long term problems or activities relating to large regions.

Every Member Country of the Union is entitled to nominate one representative to each Commission,

except those dealing with specific geographical areas; to the latter Commissions, only Member Countries of the Union in the geographical area in question are entitled to nominate one representative each.

A Commission is normally assigned to one Section.

Each Commission may be organized according to its own requirements in compliance with the Statutes and By-Laws of the Association and subject to approval by the Executive Committee, for instance through the formation of regional Sub-Commissions.

a) Special Commissions may be formed to study scientific problems of a long term character which require close cooperation between specialists from different countries.

A Special Commission is normally assigned to a particular Section. Each Special Commission may be organized to its own requirements in compliance with the Statutes and By-Laws of the Association and subject to the approval by the Executive Committee, for instance through the formation of special Sub-Commissions to study defined aspects in its fields.

3.) **Special Study Groups** may be formed to study specific scientific problems of limited scope which require close cooperation between specialists from different countries.

A Special Study Group is normally assigned to a particular Section.

4.) The setting-up and dissolution of the Commissions, the Special Commissions and the Special Study Groups are decided by the Executive Committee which also specifies whether the Commission, the Special Commission or the Special Study Group is to be placed under the direct authority of the Association or of one of its Sections.

The list of Commissions, Special Commissions and Special Study Groups shall be published in the Geodesist's Handbook after each General Assembly.

5.) The Association may also participate in joint scientific bodies with other Associations of the International Union of Geodesy and Geophysics, or, representing this Union with other Unions. These bodies shall be administered according to specific rules proceeding from their relations with other agencies, but they shall report on their scientific work at each General Assembly of the Association.

The Executive Committee of the Association shall decide whether the relationship with any such common body is to be placed under the responsibility of the Association or of one specific Section. This responsibility includes the appointment of representatives to these common bodies as well as participating in the planning of their future activities.

II- Elections

6.) Elections shall take place in the Council during each Ordinary General Assembly of the Association.

The President in office, after taking advice from members of the Executive Committee, shall appoint a *Nominating Committee* consisting of a Chairman and three other members. The Nominating Committee, after taking advice from the Adhering Bodies of the Member Countries and officers of the Association, shall propose a candidate for each position to be filled by election in the Council. Candidates shall be asked to signify their acceptance of nomination and to prepare a resume, maximum 150 words, outlining their position, research interests and activities relating to the Association. The delegates shall be informed of these nominations and the resumes, early in the General Assembly, and a notice posted allowing for submission, over a period of at least 48 hours, of further nominations. Such nominations shall be in writing, shall be supported by at least two members of the Council, and shall be submitted with resumes as described above to the Secretary General. Delegates shall be informed of these further nominations and resumes and of their supporters.

Elections shall be by secret ballot.

No person may hold more than one of the following offices at the same time: President of the Association, Vice-President, President of a Section and President of a Commission and a Special Commission.

7.) The time interval between the closures of two successive Ordinary General Assemblies of the Association is called here *a period.*

8.) The **President** of the Association is elected for one period. He may not be re-elected to this office, but the Council may appoint him as *Honorary President.*

9.) The **First** and **Second Vice-Presidents** are elected for one period and may not be immediately re-elected to the same office.

10.) Deleted.

11.) The **Secretary General** is elected for one period initially. He may be re-elected for two additional single periods.

12.) The same rules as in Art. 11 apply to **Assistant Secretaries**, other than the Assistant Secretary appointed under Art. 37A.

13.) A member of the Bureau or of the Finance Committee of the Union may not occupy the post of President, of First Vice-President or of Secretary General of the Association.

14.) Should the position of President become vacant in the interval between two Ordinary General Assemblies, his duties devolve to the First Vice-President until the closure of the next Ordinary General Assembly. In the same way the duties of the First Vice-President then devolve on the Second Vice-President.

Should the post of Secretary General become vacant, the President shall arrange without delay for the Executive Committee to elect a replacement by correspondence so as to ensure the continuity of the work of the Central Bureau. This election has effect until the closure of the next Ordinary General Assembly.

15.) The **Presidents of Sections** are elected for one period and may not be immediately re-elected to the same office.

16.) The **Secretaries of Sections** are elected for one period but may be re-elected for one further period.

The President of each Commission which is in a Section shall be a Secretary of that Section. The maximum number of Secretaries in a Section shall be two, except where the number of Commissions in a Section is greater than one, the number of Secretaries shall then equal the number of Commissions plus one.

17.) Should the position of President of Section become vacant between two Ordinary General Assemblies, the Executive Committee shall appoint an interim member to take office until the closure of the next General Assembly. Should other vacancies occur, the Executive Committee may make interim appointments.

18.) The **Presidents of Commissions** and **Special Commissions** are elected by the Council of the Association for one period and may be immediately re-elected for one further period.

19.) The **Chairman of a Special Study Group** is appointed by the Executive Committee for one period only.

20.) A person may be President or Chairman at the same time of no more than one of the bodies referred to in Arts. 18 and 19.

III - General Assemblies

21.) The Association shall hold its own Ordinary General Assemblies in conjunction with the Ordinary General Assemblies of the Union, at the same time and in the same country.

22.) Before any General Assembly, a detailed agenda is prepared by the Bureau of the Association. As far as the scientific work is concerned, the agenda is drawn up by the Executive Committee. This agenda is sent to the member countries and to all the officers of the Association so as to reach them at least two months prior to the Assembly. In principle, only matters on the agenda may be considered during the sessions, unless a decision to do otherwise is passed by a two-thirds majority in the Council or in the Executive Committee.

23.) At each General Assembly, the President of the Association shall present a detailed report on the scientific work of the Association during his tenure. The Secretary General shall present a detailed report on the administrative work and on the finances of the Association for the same period. They both should submit proposals regarding work to be undertaken during the coming period, within the limits of expected resources.

These reports are handed to the delegates attending the General Assembly before the opening of the Assembly.

24.) The scientific meetings generally take place Section by Section, but the study of some questions may require joint meetings of several Sections or Symposia under chairmen appointed by the Executive Committee.

Joint Symposia covering topics interesting two or more Associations within the Union may be arranged.

25.) At each General Assembly, the work of each Section shall be reported by its President assisted by his Secretaries. Similarly, the work of each Commission, Special Commission or Special Study Group shall be reported by its President or Chairman.

26.) The inclusion on the agenda of scientific papers for presentation at sessions of the General Assembly is decided by a committee consisting of one member of the Bureau and the Presidents of Sections.

27.) Individual authors are responsible for the reproduction of their scientific papers. These papers are distributed to the delegates by the Central Bureau prior to the meeting where they are presented. They may be published in the Bulletin Géodésique subject to its editorial policy.

IV- Publications

28.) The Association's journal is the **Bulletin Géodésique**, hereinafter referred to as the journal. The journal is published at regular intervals, through an agreement between the Association and a publishing company, or by other arrangement approved by the Executive Committee. The terms of any agreement for publication of the journal shall be negotiated by the President and ratified by the Executive Committee. There shall be one or more *Editors-in-Chief* for the journal, hereinafter referred to as the *Editor*. The Editor shall be advised and assisted by a *Board of Editors*, hereinafter referred to as the *Board*. The Editor shall be responsible for the scientific content of the journal. All scientific manuscripts shall be subject to a refereeing process and the Editor shall make the final decision on whether a manuscript is accepted for publication. The Editor shall keep the Association informed of the activities and status of operations of the journal.

a) At the time of each General Assembly, the Editor shall, in consultation and agreement with the President of the Association, recommend candidates for membership of the new Board, which is to hold office for the next period. During the Assembly, the current Board shall elect the members of the new Board from those recommended. After taking office, the new Board shall elect one, or more, Editors(s) for the next period. The nomination of the Editor(s) shall be approved by the Executive Committee.

The Editor and the members of the Board, shall each hold office for one period, but shall be eligible to be elected for one further period.

b) After each General Assembly, a special issue of the Bulletin Géodésique shall be published under the name of "***Geodesist's Handbook***". This issue aims at providing detailed information on the Association, its structure and scientific activities, and other relevant technical and administrative information.

29.) After each General Assembly, a collection of the reports presented by the Sections, Commissions and Special Study Groups shall be published in the "**Travaux de l'Association Internationale de Géodésie**". This publication is supplied free of charge to the Officiers of the Association and to the Adhering Body of each Member Country.

30.) The Association also issues **special publications** which contain information on recommended standards in geodesy.

31.) At every General Assembly each Member Country of the Union is invited to supply an adequate number of copies of its National Report on geodetic work done since the previous General Assembly. These **National Reports**, as far as available, are distributed by the Central Bureau of the Association in the same manner as the "Travaux de l'Association Internationale de Géodésie".

V- Administration

32.) The **Council** of the Association shall:

a) examine questions of general scientific policy or administration in the business of the Association and appoint such Committees as may, from time to time, be deemed necessary for this purpose;

b) elect the members of the Bureau and of the Executive Committee, the Assistant Secretaries of the Association, the Secretaries of Sections, the Presidents of Commissions and of Special Commissions;

c) receive reports from the Secretary General and consider for approval the decisions or actions taken by the Bureau and the Executive Committee since the last Council meeting;

d) appoint the three members of the ad hoc committee created for examining the finances of the Association, consider its recommendations and adopt the final budget;

e) consider proposals for changes in the Statutes and By-Laws;

The Council is convened by the President of the Association. It shall normally meet during the Ordinary General Assemblies.

33.) The **Executive Committee** of the Association shall:

a) initiate actions and issue guidelines, as required, to guide the Association towards the achievement of its scientific objectives;

b) fill vacancies occuring between General Assemblies, in accordance with the present Statutes and By-Laws;

c) set up and dissolve Commissions, Special Commissions and Special Study Groups;

d) appoint Chairmen of Special Study Groups, and approve the election of the Editor(s) in Chief of the Bulletin Géodésique;

e) appoint members of the Cassinis Committee;

f) make recommendations to the Council on matters of General policy of the Association and on the implementation of its objectives;

g) on the recommendation of the Bureau, appoint Fellows and Associates of the Association. Past officers of the Association, including those of the Commissions and sub-Commissions, shall be eligible for appointment as Fellows and shall be invited to become Fellows of the Association. Persons elected as officers of the Association or nominated as members of Commissions, Special Commissions of Special Study Group, shall automatically become Associates of the Association. Persons from Member Countries who apply, indicating previous participation in Association activities, or providing a recommendation from their national Adhering Body or a recommendation from an officier or a Fellow of the Association, shall be eligible to become Associates, and shall be recommended by the Bureau.

The Executive Committee is convened by the President of the Association, it shall meet at General Assemblies and its members shall attend the meetings of the Council, with voice but without vote. It shall also meet normally at least once betwen General Assemblies, one year ahead of the General Assembly, in order to prepare the scientific agenda and the time-table during the next General Assembly.

At a meeting of the Executive Committee, no member may be represented by any other person, except a President of a Section who may be represented by a Secretary of his Section. In order that the deliberations of the Executive Committee shall be valid, half at least of its members must be present or represented. The agenda for each meeting of the Executive Committee shall be prepared by the Bureau and sent to the members at least three months prior to the meeting.

34.) The **Bureau** of the Association shall:

a) draw up the agenda of the meetings of the Council and Executive Committee;

b) ensure the adequate administration of the Association. It shall normally meet before each meeting of the Executive Committee.

35.) The **President** of the Association shall:

a) be the representative of the Association in its dealing with National or International Organizations or Institutions;

b) convene and preside over the General Assembly and over all meetings of the Council, Executive Committee and Bureau;

c) submit a report to the General Assembly on the scientific work of the Association during his tenure;

He is a member of the Executive Committee of the Union. In case of his absence, the First Vice-President shall act.

36.) The **Secretary General** shall:

a) serve as secretary of the General Assembly, the Council, the Executive Committee and the Bureau: arrange for meetings of these bodies, prepare and distribute promptly the agenda and the minutes of all their meetings;

b) be the Director of the Central Bureau;

c) manage the affairs of the Association, attend to correspondence, preserve the records;

d) circulate all appropriate information related to the Association;

e) prepare the reports on the Association's activities, especially report to the General Assembly on the administration and the finance of the Association during the current period;

f) perform such other duties as may be assigned to him by the Bureau.

37.) To assist the Secretary General in the performance of his duties to the Association, the Association establishes a permanent agency, the Central Bureau, including a variable number of employees paid out of Association funds.

The Secretary General is also assisted by a small number of Assistant-Secretaries, one of whom is located in the same office as the Secretary General. All these functions are unpaid and only expenses incurred in connection with them are repayable.

a) An additional *Assistant Secretary* to be known as the *Assembly Secretary* may also be appointed by the Council on the recommendation of the Adhering Body of the country in which the next General Assembly takes place. If this procedure is not feasible then the Council may delegate the appointment to the Bureau.

In cooperation with the Central Bureau, this Assistant Secretary has responsibilities for liaison with the organizers working on the preparation of the General Assembly. This Assistant Secretary shall be appointed for one period only.

IV- Activities of Sections, Commissions, Special Commissions and Special Study Groups

38.) The **President of a Section** is responsible for the scientific development within the area of his Section and is the representative of his Section on the Executive Committee of the Association. Working closely with the Steering Committee he shall encourage, guide and coordinate the work of the Commissions, Special Commissions and Special Study Groups within his Section, and in particular keep the officers of his Section as well as the Bureau of the Association informed of the Section's activities, on an annual basis.

It is desirable the the President of a Section, or else one of the Secretaries of the Section, should attend each of the Symposia related to the section.

Before each General Assembly the President of a Section shall receive the reports of the Commissions, Special Commissions and Special Study Groups within his Section and, assisted by the Steering Committee, prepare a report on the activities of the Section to be presented at the General Assembly.

He shall receive suggestions for new Special Study Groups, and suggestions for continuation of existing Special Study Groups under Art. 43, and, after consulting his Section Steering Committee, shall coordinate them and transmit his recommendations to the Executive Committee.

Each **Section Steering Committee** shall meet at least once during each Ordinary General Assembly and on at least one other occasion during the period. At the General Assembly meeting, or on some other appropriate occasion, the Steering Committee shall review the activities of Commissions, Special Commissions and Special Study Groups over the past

period, and for those which will be recommended for continuation, review their programmes for the forthcoming period.

The **Section Secretaries** assist the Section President in his duties.

39.) The **President of a Commission** is responsible for initiating and directing its work and selecting its members, apart from those representatives of Member Countries appointed under Art. 2.

The President of each Commission shall issue a brief description of the work to be performed and a list of members, to be published in the Geodesist's Handbook after each General Assembly.

To assist communication and cooperation within each Commission, members should be informed, on an annual basis, of results achieved and of outstanding problems.

a) The **President of a Special Commission** is responsible for initiating and directing its work and selecting its members. Special Commission membership should be balanced so as to reflect international cooperation in the subject and shall be limited to a member not exceeding 30. The President of each Special Commission shall issue a brief description of the work to be performed and a list of members, to be published in the Geodesist's Handbook after each General Assembly. To assist communication and cooperation within each Special Commission, members should be kept informed, on an annual basis, of results achieved and of outstanding problems.

40.) The **Chairman of a Special Study Group** is responsible for initiating and directing its work and appointing its members. Special Study Group membership should be balanced so as to reflect international cooperation in its subject and shall be limited to a number exceeding 20.

The Chairman of each Special Study Group shall issue a brief description of the work to be performed and a list of members, to be published in the Geodesist's Handbook after each General Assembly.

To assist communication and cooperation within each Special Study Group, members should be kept informed, on an annual basis, of results achieved and of outstanding problems

41.) The President of the Association, the Central Bureau and the President of the relevant Section should receive copies of all official correspondence and of notices to members of Commissions, Special Commissions and Special Study Groups.

42.) The reports of each Commission, Special Commission and Special Study Group should reach the President of each relevant Section at least three months before each General Assembly. These reports and the reports of the Sections are published in the "Travaux de l'Association Internationale de Géodésie".

43.) The period of work of each Special Study Group normally ends at an Ordinary General Assembly. In the exceptional case that a continuation of the work is deemed necessary, the Special Study Group Chairman shall submit in writing a well-grounded proposal, including a suggestion for his successor, to his Section President, at least three months before the General Assembly. The Section President shall then make a recommendation to the Executive Committee.

44.) Commissions, Special Commissions and Special Study Groups not assigned to one Section shall be under the responsibility of the President of the Association.

45.) Commissions, Special Commissions and Special Study Groups are free to hold workings of their members. If they wish to arrange scientific Symposia, these are subject to the usual approval procedure for Symposia of the Association. Symposia should be arranged only if the topic transcends the frame of one Commisson, one Special Commission or one Special Study Group.

VII- Symposia

46.) The Association may organize scientific Symposia to study particular questions of wide interest.

The Executive Committee is responsible for a balanced selection of Symposia, to ensure a representative coverage of subjects and a good geographical distribution and to avoid duplication, overlap and undue frequency.

Symposia sponsored by the Association shall be freely open to all scientists, in accordance with ICSU regulations.

47. Normally applications for Symposia to be held in the period between two Ordinary General Assemblies should be submitted by the Host Organization to the Secretary General before the General Assembly preceding that period. During this General Assembly other applications may be submitted to the Secretary General at least two days before the last meeting of the Council.

The Council, on recommendation of the Executive Committee, shall decide whether the Symposium in question will be sponsored by the Association.

In exceptional cases, the Executive Committee may approve late applications. Such applications must be submitted at least 18 months before the proposed date for the Symposium.

48. The Symposium Organizer must send an official announcement of the Symposium to the Bulletin Géodésique at least one year in advance or immediately after the approval by the Association; the announed date of the Symposium must not be changed later.

49. Within three months after, the Symposium Organizer shall provide a report to be published in the Bulletin Géodésique. This report should indicate whether, where, and when the Proceedings will be published. A Copy of the Symposium Proceedings, or else one copy of each paper presented at the Symposium, shall be sent to the Central Bureau of the Association.

50. Sponsorship by the Association means only official recognition and does not imply financial support.

VIII- International Scientific Cooperation

51. The Association may undertake directly, supervise or cooperate in scientific work of an international or interdisciplinary character. As a matter of principle, the Association should be represented at Congresses, International Meetings, General Assemblies, etc... of scientific organizations whose activities are connected with its own. The President of the Association or its designate will be the representative of the Association at these meetings.

Travelling and accommodation expenses of the Delegate of the Association may be charged, in whole or in part, to the Association. The Delegate shall prepare a report of the meeting, including the discussions relating to geodesy, which may be published, in whole or in part, in the Bulletin Géodésique.

The Association may also represent the Union in inter-Union Commissions or special joint Committees dealing with topics that are related to its own studies.

Elections of Association or Union geodetic representatives to those permanent bodies shall be made by the Executive Committee. These representatives shall be elected for one period and may be re-elected for one further period.

IX- Finance

52. The *funds* of the Association derive from:

a) the contributions of the member countries of the Union of which a proportion, determined by the Council of the Union on recommendation of its Finance Committee, is paid to the Association by the Treasurer of the Union;

b) the sale of publications;

c) any other source (including grants, donations, interest, funds remaining after a symposium, etc...).

53. The Secretary General is responsible to the Bureau of the Association and to the Council for managing the funds in accordance with the Statutes and By-Laws, with the decisions of the Council and with the recommendations of the Finance Committee of the Union.

The Secretary General alone shall responsible for control of the financial operations of the Association; however for each bank account of the Association, there shall be one Assistant Secretary who shall also have access to the account.

54. At each Ordinary General Assembly of the Association the budget proposal for the ensuing period shall be presented by the Secretary General and submitted for approval to the Council.

The budget as approved by the Council shall be implemented by the Secretary General.

During the next Ordinary General Assembly, the Council shall examine all expenditures to ensure that they were in accordance with the proposals previously approved. The Council shall appoint an *ad hoc* committee for carrying out this examination in detail.

In addition, these accounts shall be audited by a qualified accountant and shall then be reported to the Treasurer of the Union, as prescribed in Art. 20 of By-Laws of the Union.

ASSOCIATION INTERNATIONALE DE SISMOLOGIE ET DE PHYSIQUE DE L'INTÉRIEUR DE LA TERRE

STATUTS ET RÈGLEMENT INTÉRIEUR

I - STATUTS

I - Objectifs de l'Association

1) L'Association Internationale de Sismologie et de Physique de l'Intérieur de la Terre a pour buts:

a) de promouvoir l'étude des problèmes relatifs aux tremblements de terre, à la propagation des ondes sismiques et à la structure, aux propriétés, et à l'évolution interne de la Terre;

b) de provoquer et coordonner les recherches qui dépendent de la coopération entre pays différents, et d'organiser leur discussion scientifique;

c) de faciliter les recherches spéciales sur la sismologie fondamentale et appliquée, comme la comparaison des appareils utilisés dans les différents pays, les recherches par explosions, et généralement tous les sujets dans lesquels la sismologie est impliquée.

II - Membres de l'Association

2) Tout pays ayant adhéré à l'Union Géodésique et Géophysique Internationale est Membre de l'Association et a le droit de lui envoyer des représentants, le mot "pays" ayant le même sens que dans les Statuts de l'Union.

III - Comités Nationaux

3) Chaque Comité National de l'Union doit comprendre une Section ou Sous-Comité pour la Sismologie et la Physique de l'Intérieur de la Terre. Le rôle de ce Comité et de sa Section ou Sous-Comité est de faciliter et coordonner dans son pays l'étude des questions relatives à la Sismologie et à la Physique de l'Intérieur de la Terre, conformément aux buts de l'Association. Le Comité et sa Section aura pouvoir de proposer à l'Association pour discussion les questions tombant dans son domaine de compétence. Le Comité National, sur la recommandation de sa Section, nomme le ou les Délégués qui le représenteront aux Assemblées Générales de l'Association. L'un de ces Délégués est désigné comme Délégué principal du pays et exerce le droit de vote de ce pays sauf pour les questions purement scientifiques (voir article 18).

La correspondance officielle envoyée par l'Association Internationale de Sismologie et de Physique de l'Intérieur de la Terre à un Pays Adhérent est adressée à la Section de Sismologie ou à défaut au Comité National de Géodésie et Géophysique.

IV - Administration de l'Association

4) L'activité de l'Association est dirigée par l'Assemblée Générale des Délégués des Pays Membres de l'Association.

5) L'Assemblée Générale élit un Président, un premier et un second Vice-Président, un Secrétaire Général, un Trésorier et 4 autres personnes. Il est désirable que ces 4 personnes soit chacune Président d'une Commission. Ces membres élus, et le Président sortant, constituent le Comité Exécutif de l'Association.

La même personne peut, avec l'approbation du Comité Exécutif, cumuler les fonctions de Secrétaire Général et de Trésorier.

Le Président, les Vice-Présidents, le Secrétaire Général et le Trésorier, constituent le Bureau de l'Association.

6) Les élections ont lieu à chaque Assemblée Générale Ordinaire tenue à l'occasion d'une Assemblée Générale de l'Union Géodésique et Géophysique Internationale. Le Président ne peut pas être reélu à la même fonction, et une fonction ne peut être occupée par la même personne pendant plus de 12 ans consécutifs.

7) La passation des pouvoirs intervient à la fin de l'Assemblée Générale au cours de laquelle ont lieu les élections. L'intervalle entre deux élections consécutives est appelé une période.

8) Dans chaque pays le Comité National, ou à défaut l'Organisation Adhérente, nomme un correspondant qui a pour tâche d'établir la liaison entre l'Association et la Section du pays considéré.

9) Le Comité Exécutif peut désigner des Membres à telles Commissions ou Groupes de Travail que besoin est, de fixer leurs attributions.

Les questions urgentes survenant dans l'intervalle des Assemblées Générales sont soumises par le Bureau au Comité Exécutif.

Le Comité Exécutif peut désigner un Secrétaire Adjoint qui est Membre ex-officio du Comité Exécutif avec voix consultative seulement.

Si une vacance survient parmi les responsables élus, le Bureau désigne provisoirement un remplaçant et une élection aura lieu pour cette fonction à l'Assemblée Générale suivante de l'Association.

V - Secrétariat

10) Un Secrétariat placé sous la direction du Secrétaire Général assure la correspondance et la conservation des archives, organise les Assemblées Générales et les autres Assemblées, et prépare et distribue les Comptes-Rendus des Assemblées.

VI - Finances

11) Les ressources de l'Association sont:

a) L'allocation de l'Union

b) la vente de publications, les souscriptions, la publicité, etc.

c) les dons.

12) Le Trésorier administre et dépense ces fonds sous la direction du Comité Exécutif. Cette gérance implique une délégation permanente de signature sur tous les comptes bancaires ouverts au nom de l'Association dans différents pays.

Par précaution, le droit de signer en qualité d'agent autorisé pour tous les comptes ouverts au nom de l'Association est délégué à au moins un autre Membre du Bureau de l'Association, mais le Trésorier reste seul responsable à l'égard de l'Association de toutes les opérations de banque.

VII - Assemblées Générales de l'Association

13) Des Assemblées Générales Ordinaires se tiennent en même temps que les Assemblées Générales de l'Union Géodésique et Géophysique Internationale, et normalement au moins une fois entre chacune de ces Assemblées. Des réunions administratives ont lieu lors de toutes les Assemblées Générales, mais des élections n'ont lieu qu'à celles coïncidant avec les Assemblées Générales de l'Union.

Le Bureau de l'Association peut, avec l'approbation du Comité Exécutif, convoquer une Assemblée Générale Extraordinaire. Il sera tenu de le faire à la demande du tiers des Membres votants du Comité Exécutif.

14) Les Membres d'un Comité Exécutif National qui ne sont pas Délégués peuvent assister aux réunions de l'Association et prendre part aux discussions, mais n'auront pas droit de vote.

Le Bureau de l'Association peut inviter des représentants d'organismes scientifiques et des savants non délégués officiellement par leurs Comités Nationaux

respectifs, mais seulement avec l'approbation de ces Comités. Ces invités peuvent prendre part aux discussions, sans avoir droit de vote.

15) L'ordre du jour des questions à traiter lors d'une Assemblée est préparé par le Bureau et envoyé aux Organisations Adhérentes en même temps que la notification de cette Assemblée. Une questions ne figurant pas à l'ordre du jour ne pourra être discutée sans l'accord d'au moins la moitié des voix des pays représentés à l'Assemblée Générale.

16) Dans l'intervalle des Assemblées Générales et avec l'accord du Bureau de l'Union, l'Association peut, seule ou conjointement avec d'autres Associations, tenir des réunions supplémentaires. Mais, dans tous les cas, l'Association tient une Assemblée Générale en même temps que l'Union.

VIII - Budget

17) Le Comité Exécutif prépare pour chaque période, et soumet à l'Assemblée Générale, un projet de budget concernant les dépenses du secrétariat.

Un Comité élu par l'Assemblée Générale, examine les comptes de la période précédente, et le projet de budget de la période suivante. Il donne décharge au Trésorier des comptes préparés par le Trésorier pour la période précédente et soumis à l'Assemblée Générale.

IX - Droit de Vote

18) Dans une Assemblée Générale:

Les résolutions concernant les questions purement scientifiques sont adoptées à la majorité des voix de tous les Délégués présents. Pour toutes les autres questions à l'ordre du jour, le vote a lieu par Pays Membres, chacun disposant d'une voix. Un pays non représenté peut envoyer son vote par écrit au Secrétariat Général. Ces votes n'entrent en ligne de compte que s'ils sont reçus avant que le résultat du scrutin soit connu.

En cas de doute sur la nature d'une question, c'est le Président de séance qui décide.

En cas de partage égal des voix, la voix du Président de séance est prépondérante.

L'élection du Bureau et du Comité Exécutif est de nature administrative.

X - Modification des Statuts

19) Les Statuts peuvent être modifiés par l'une des procédures suivantes:

a) A toute réunion administrative, par l'approbation des 2/3 des Pays Membres.

b) Par l'approbation de la majorité des Pays Membres en cas de vote par correspondance autorisé par le Comité Exécutif, à condition que la révision soit adoptée par les 2/3 des suffrages exprimés.

c) Par un vote à la majorité des 2/3 des Pays Membres représentés individuellement à une réunion administrative lors d'une Assemblée Générale Ordinaire, plus ceux qui ont envoyé leur vote par écrit au Secrétaire Général, à condition que la modification proposée ait été lue à une séance plénière de l'Assemblée Générale précédente ou inscrite à l'ordre du jour adressé à l'avance à tous les Pays Membres.

20) Dans un vote sur la révision des Statuts, un Délégué ne peut représenter qu'un seul pays.

21) Le texte anglais servira exclusivement pour l'interprétation à donner aux présents Statuts.

XI - Commission

22)

a) L'Association peut établir des Commissions pour étudier les questions scientifiques et pour stimuler et coordonner les recherches sur ces sujets, ou les recherches relatives à une région particulière.

b) L'Association peut aussi établir des Commissions en commun avec d'autres Organisations.

23) Les responsables des Commissions ne peuvent conserver leur mandat au-delà de deux périodes.

II - Règlement Intérieur

Le règlement ci-après est établi pour servir de guide permanent dans l'administration de l'Association. Sa révision tombe sous le coup de l'article 21 des Statuts.

1) *Comité des Résolutions.* A la première séance administrative, le Président nomme un Comité des Résolutions composé d'un responsable de l'Association et de deux autres personnes. Toutes les résolutions présentées à la dernière séance administrative doivent être transmises par écrit au Comité des Résolutions au moins 4 jours avant cette séance. Ce Comité aura à formuler les résolutions conformément à la terminologie en usage à l'Association et à l'Union. Il affichera toutes les résolutions, avec ses recommandations sur chacune d'elles, au moins un jour avant la séance administrative finale.

2) *Comité des Nominations.* Au plus tard le jour de l'ouverture de chaque Assemblée Générale Ordinaire de l'Association au cours de laquelle une élection doit avoir lieu, le Président de l'Association, avec l'approbation du Comité Exécutif, compose un Comité des Nominations pour présenter devant la Réunion Administrative de l'Association une liste provisoire de responsables pour les 4 années suivantes, y compris les 4 Membres du Comité Exécutif élus en plus du Bureau. La composition du Comité des Nominations doit être annoncée à la première séance administrative de l'Association. Ce Comité a à charge de rechercher les personnes les plus capables pour diriger le travail de l'Association, en prenant en considération leurs capacités administratives, l'ampleur de leurs activités scientifiques et leur représentativité nationale. Le Comité des Nominations prend l'avis de tous les anciens Présidents de l'Association présents à l'Assemblée. A la séance administrative, des candidats supplémentaires pour chaque fonction peuvent être proposés par l'assistance.

Lorsqu'un seul nom est présenté pour une fonction, l'élection peut être faite par acclamation. S'il y a plusieurs candidats, elle a lieu à scrutin écrit, une voix étant attribuée au Délégué de chaque Pays Membre ou à son remplaçant officiel.

3) *Réunions du Bureau et du Comité Exécutif.* Le Bureau de l'Association se réunit au moins une fois par an. Le Comité Exécutif se réunit aussi souvent que nécessaire et au moins une fois à chaque Assemblée Ordinaire.

4) *Conduite des Assemblées.* Sauf si les Statuts le prévoient autrement, les réunions administratives sont menées conformément aux règles de Robert, dont un exemplaire sera fourni à chaque responsable de l'Association.

INTERNATIONAL ASSOCIATION OF SEISMOLOGY AND PHYSICS OF THE EARTH'S INTERIOR

STATUTES AND BY-LAWS

I - STATUTES

(Adopted by the General Assembly of the Association, Grenoble, 1975, and amended by the General Assembly, London, Canada, 1981.)

I - Objectives of the Association

1) The purpose of the International Association of Seismology and Physics of the Earth's Interior is:

a) To promote the study of problems relating to earthquakes, to the propagation of seismic waves, and to the internal structure, properties and processes of the Earth;

b) To initiate and co-ordinate the conduct of researches which depend on co-operation between different countries, and to provide for their scientific discussion;

c) To facilitate particular researches on scientific and applied seismology, such as the comparison of instruments used in different countries, researches on blasting and generally all matters to which seismology is related.

II - Members of the Association

2) Each country having adhered to the Union is a member of and has the right to send representatives to the Association. The word "country" has the same sense as in the Statutes of the Union.

III - National Committees

3) Each National Committee for the IUGG should include a Section, or Sub-Committee, of Seismology and Physics of the Earth's Interior. The functions of this Committee and of its Section or Sub-Committee are to facilitate and co-ordinate in their respective countries the study of the different questions relating to Seismology and Physics of the Earth's Interior in accordance with the objects of the Association. The Committee and the Section or Sub-Committee shall be empowered to propose to the Association for discussion questions falling within the competence of the Association. The National Committee on the recommendation of the Section nominates the delegate or the delegates who shall represent it at the General Meeting of the Association. One of these delegates shall be designated as the principal delegate of the country and shall cast the vote of that country in all questions except the purely scientific ones (see Article 18). Official communications sent by the International Association of Seismology and Physics of the Earth's Interior to an Adhering Country shall be addressed to the Seismological Section or in default to the National Committee of Geodesy and Geophysics.

IV - Administration of the Association

4) The work of the Association shall be directed by the General Meeting of the delegates of the Member countries of the Association.

5) The General Meeting of the Association shall elect the following: a President, a First and Second Vice-President, a Secretary General, a Treasurer and four additional persons. It is desirable that each of these four be Chairman of a Commission. These, plus the immediate Past-President shall constitute the voting members of the Executive Committee of the Association.

A single person may, with the approval of the Executive Committee, be elected both Secretary General and Treasurer.

The President, the Vice-Presidents, the Secretary General and the Treasurer shall constitute the Bureau of the Association.

6) Elections shall be held at each Ordinary General Meeting held in conjunction with a General Assembly of the International Union of Geodesy and Geophysics. The President may not be reelected to the same office, and no person may hold any one office for more than twelve consecutive years.

7) The transfer of duties takes place at the close of the General Meeting at which the election occurs. The interval between successive elections is called a period.

8) The National Committee, or in default the Adhering Organization, names in each country a correspondent, whose duty is to provide liaison between the Association and the Section in each country.

9) The Executive Committee may appoint members to such Committees and Working Groups as may be needed and may approve their terms of reference.

Urgent matters arising in the interval between General Assemblies shall be referred by the Bureau to the Executive Committee.

The Executive Committee may appoint an Associate Secretary who will be ex-officio a member of the Executive Committee, but without vote.

Should a vacancy occur among the elected officerships, the Bureau shall fill the position provisionally and an election shall be held for this office at the next General Meeting of the Association.

V - Secretariat

10) A Secretariat placed under the direction of the Secretary General shall conduct the correspondence, preserve the administrative archives, arrange the General and other meetings, and prepare and distribute the Comptes-Rendus of the Assemblies.

VI - Finance

11) The resources of the Association are derived from:

a) The allocation by the Union;

b) The sales of publications, subscriptions, advertisements, etc.;

c) Grants.

12) The Treasurer shall administer and disburse these resources under the direction of the Executive Committee. The administration of resources shall include the permanent delegation of authority to manage any bank accounts which have been opened in the name of the Association in different countries.

As a precaution, the right to sign as an authorized agent for any account opened in the name of the Association, shall be extended to at least one other Member of the Bureau of the Association. But the Treasurer shall alone retain responsibility toward the Association for all banking operations.

VII - General Meetings of the Association

13) Ordinary General Meetings shall be held in conjunction with General Assemblies of the International Union of Geodesy and Geophysics and normally at least once between each such meeting. Business sessions shall be held at all General Meetings, but elections shall normally be held only at General Meetings held in conjunction with General Assemblies of the Union. The Bureau of the Association may, with the approval of the Executive Committee, summon an extraordinary General Meeting. It must do so at the request of one-third of the votes of the members of the Executive Committee.

14) Members of a National Committee who are not delegates may attend the meetings of the Association and take part in the discussion, but shall have no power of voting.

The Bureau of the Association may invite representatives of scientific organizations and also scientists not officially delegated by the National Committees of their respective countries, but only after having obtained the approval of these Committees. Such invited guests may take part in the discussion, but shall have no power of voting.

15) The agenda of business to be transacted at a meeting are prepared by the Bureau and sent to the Adhering Organizations together with the notices of the meeting.

No question which has not been placed on the agenda shall be discussed without the consent of at least one-half of the votes of the countries represented at the General Meeting.

16) In the intervals between the General Meetings and by agreement with the Bureau of the Union, the Association may, either separately or jointly with other Associations, hold additional meetings. But in any case the Association shall hold a General Meeting at the same time as the Union itself.

VIII - Budget

17) The Executive Committee shall prepare for each period and submit to the General Meeting an estimate of the budget relative to the expenses of the Secretariat.

A Committee, nominated by the General Assembly shall examine the accounts for the preceding years and the estimate for the next period. It shall give discharge to the Treasurer for the accounts prepared by the Treasurer for the preceding period and submitted to the General Meeting.

IX - Voting Power

18) In a General Meeting, resolutions concerning purely scientific questions shall be decided by a majority of the votes cast by all the delegates present.

In all other questions which appear on the agenda, the voting shall be by Member Countries, each Member Country having one vote; a country not represented may forward its vote to the Secretary

General in writing. Such votes shall be counted only if received before the result of the ballot is ascertained.

In case of doubt as to the category to which a question belongs, the President shall decide. When there is an equal division of votes, the President shall have a deciding vote.

The election of the Bureau and of the Executive Committee is counted as an administrative question.

X - Validity of Statutes

19) These statutes may be revised by any of the following means:

a) At any business meeting, by the approval of two-thirds of the member countries.

b) By the approval of a majority of the member countries using a mail ballot authorized by the Executive Committee, provided that the revision is favoured by two-thirds of those countries which vote.

c) By a two-thirds majority vote of the Member Countries represented in person at a business meeting of an Ordinary General Meeting, plus those who have forwarded their vote to the Secretary General in writing, provided that the proposed modification was read at a plenary session of the preceding General Meeting or was included in the agenda mailed in advance to all Member Countries.

20) In voting on revisions of the Statutes, a delegate may represent only one country.

21) The English text shall be used exclusively in interpreting these Statutes.

XI - Commissions

22) a) The Association may establish commissions to study scientific topics and to stimulate and coordinate research on these topics or research related to a specific region.

b) The Association may also establish joint Commissions with other Organizations.

23) Officers of Commissions shall not hold the same office for more than two periods.

II - BY-LAWS

(Adopted by the General Assembly of the Association, Grenoble, 1975, and amended by the General Assembly, London, Canada, 1981.)

The following By-Laws are established in order to provide for continuing guidance in conducting the affairs of the Association. Their revision comes under the purview of Article 19 of the Statutes.

1) *Resolutions Committee.* At the first business meeting, the President shall appoint a Resolutions Committee consisting of one officer of the Association and two other persons. All resolutions to be presented at the last general business meeting must be transmitted in writing to the Resolutions Committee at least four days before the said meeting. It is the responsibility of the Resolutions Committee to word the resolutions consistently with the terminology of the Association and of the Union. The Committee shall post all Resolutions, and its recommendations on each of them at least one day before the final business meeting.

2) *Nominating Committee.* Not later than the opening day of each Ordinary General Meeting of the Association at which an election is to be held, the President of the Association, with the approval of the Executive Committee, should appoint a Nominating Committee to bring before the Business Meeting of the Association a slate of officers for the ensuing four years including the four elected members of the Executive Committee besides the officers. The names of this Committee should be announced at the first Business Session of the Association. This Committee should be charged with finding the persons best able and willing to direct the work of the Association, keeping in mind the need for persons of executive ability, comprehensive scientific interests and broad national representation. The Nominating Committee should consult with all former Presidents of the Association

present at the meeting. At the business meeting, additional nominations for each office may be made from the floor.

Where there is only one nominee for an office, the election may be conducted by acclamation. If there are additional nominations, the elections should be by written ballot, one ballot passed out to the delegate of each Member Country or to an official alternate.

3) *Meetings of the Bureau and of the Executive Committee.* The Bureau of the Association should meet at least every year. The Executive Committee should meet as often as necessary and at least once every Ordinary General Assembly.

Payment of the travel expenses of members to these meetings is a high-priority Association expense.

4) *Conduct of Meetings.* Except if otherwise provided in the Statutes, business meetings shall be conducted according to Robert's Rules of Order. A copy thereof shall be provided to each officer of the Association.

ASSOCIATION INTERNATIONALE DE VOLCANOLOGIE ET DE CHIMIE DE L'INTÉRIEUR DE LA TERRE

STATUTS ET RÈGLEMENT INTÉRIEUR

I - STATUTS

I - Buts

1. Les buts de l'Association Internationale de Volcanologie et de Chimie de l'Intérieur de la Terre (ci-après désignée: l'Association) sont:

(1) de promouvoir l'étude des problèmes en relation avec les volcans et les processus volcaniques, anciens et actuels, ainsi qu'avec la chimie de l'intérieur de la Terre.

(2) d'encourager, stimuler et coordonner les recherches et de promouvoir une collaboration internationale dans le domaine de ces études,

(3) d'organiser des réunions et des conférences, et de publier les résultats des recherches scientifiques sur la volcanologie ainsi que sur la chimie de l'intérieur de la Terre,

(4) d'encourager les volcanologues à éveiller l'attention des autorités compétences sur l'importance d'une surveillance adéquate à l'égard des volcans actifs, ou potentiellement nocifs, et sur l'évaluation du risque volcanique.

II - Membres de l'Association

2. L'Association est une Association constituante de l'Union Géodésique et Géophysique Internationale (ci-après désignée: l'Union); elle est soumise aux Statuts et Règlement de l'Union ainsi qu'à ses propres Statuts.

3. Les Pays Membres de l'Union seront considérés comme membres de l'Association et peuvent, par l'intermédiaire de leur Organisme Adhérent désigner un Correspondant National pour les représenter au sein de l'Association.

4. Des personnes professionnellement impliquées dans ou associées à des études de volcanologie ou de la chimie de l'intérieur de la Terre, peuvent devenir Affiliés à l'Association. Les Affiliés paient une cotisation annuelle.

III - Administration

5. L'autorité de l'Association est dévolue à l'Assemblée Générale qui est constituée: (1) des Affiliés de Pays Membres qui ont payé leur cotisation annuelle à l'Union, et (2) des Correspondants Nationaux des Pays Membres de l'Union. Tous les membres de l'Assemblée Générale sont éligibles à des positions

électives. Tous les Affiliés et Correspondants Nationaux reçoivent les publication et autres documents jugés appropriés par décision du Comité Exécutif. Seuls les Correspondants Nationaux des Pays Membres ont le droit de vote sur les questions de finances et sur les problèmes de l'Union.

6. Les Assemblées Générales se tiendront normalement à l'occasion des Assemblées Générales de l'Union. Elles peuvent aussi avoir lieu dans la période entre deux Assemblées Générales de l'Union et à la discrétion du Comité Exécutif de l'Association.

7. Entre les Assemblées Générales, l'administration de l'Association sera assurée par le Bureau (constitué de son Président, de deux Vice-Présidents, de son Secrétaire Général et de son Secrétaire Adjoint) de l'Association.

8. Le Comité Exécutif de l'Association comprendra les cinq membres du Bureau et quatre autres membres. Ces neuf membres seront élus par vote par correspondance, par les Affiliés et Correspondants Nationaux en exercice. Le Président sortant et le Rédacteur-en-Chef du *Bulletin de Volcanologie* seront membres de droit du Comité Exécutif. Pas plus de deux personnes d'un même pays peuvent être élues. Aucun membre du Comité Exécutif ne pourra être élu pour plus de deux périodes consécutives.

9. En cas de vacance au Comité Exécutif au cours de la période comprise entre deux votes par correspondance, le Comité Exécutif aura le droit de pourvoir au remplacement du poste vacant. Le Comité Exécutif désignera le Rédacteur-en-Chef du *Bulletin de Volcanologie* et des autres publications de l'Association. Le Comité Exécutif aura la prérogative de créer et de dissoudre des Commissions et des Groupes de Travail de l'Association.

IV - Elections

10. Les Affiliés des Pays Membres ayant payés leur cotisation pour l'année en cours et les Correspondants Nationaux recevront des bulletins de vote pour les sièges à pourvoir à l'Association, ainsi que pour toute proposition de changement des Statuts et du Règlement Intérieur.

11. Les bulletins de vote devront être distribués au moins trois mois avant une Assemblée Générale de l'Union et retournés au plus tard un mois avant celle-ci.

12. Tout Affilié ou Correspondant National peut, par écrit, proposer tout autre Affilié ou Correspondant National en exercice à un poste à pourvoir à l'Association à condition que: (1) cette nomination soit appuyée par trois autres Affiliés ou Correspondants Nationaux en exercice, tous de pays autres que celui de la personne proposée; (2) la personne proposée, le proposant et les personnes appuyant la nomination soient tous de Pays Membres de l'Union. Toute nomination doit être reçue au plus tard six mois avant l'Assemblée Générale de l'Union où elle sera considérée.

13. Toutes les nominations seront examinées par un Comité des Nominations qui établira une liste comportant au moins deux, mais pas plus de trois candidats au même poste du Comité Exécutif. Pas plus de deux candidats du même pays ne pourront être proposés par le Comité des Nominations à l'ensemble des postes à pourvoir. Le Comité des Nominations sera créé par le Comité Exécutif au plus tard neuf mois avant l'Assemblée Générale de l'Union en question. Il comprendra au moins cinq Affiliés ou Correspondants Nationaux en exercice, l'un d'entre eux étant désigné par le Comité Exécutif comme étant celui qui recevra les votes par correspondance. Le Comité Exécutif sortant a la latitude de désigner lui-même des candidats à des postes pour lesquels une seule ou aucune nomination n'a été proposée par les Affiliés et Correspondants Nationaux.

14. Les votants devront classer les candidats dans l'ordre de leur choix. Lorsqu'il y a deux candidats à un poste, celui recueillant le plus grand nombre de premières places sera élu. Dans le cas de trois candidats et si aucun n'obtient la majorité du nombre de premières places, le candidat ayant le plus petit nombre de secondes places sera éliminé. Des deux candidats restants, celui ayant le plus grand nombre de secondes places sera élu. Au cas où il y aurait égalité pour ce critère, le nombre de troisièmes places sera utilisé.

V - Modifications et Interprétation des Statuts

15. Toute modification à ces Statuts ne pourra être adoptée qu'après un vote à la majorité des deux tiers au moins par correspondance et par les membres de l'Assemblée Générale. La majorité des deux tiers

est déterminée par le rapport des voix affirmatives avec le total des voix (affirmatives et négatives, plus les abstentions signifiées), à condition que le nombre total des membres ayant voté (par l'affirmative, la négative ou l'abstention signifiée) ne soit pas inférieur au tiers du nombre total d'Affiliés et de Correspondants Nationaux formant l'Assemblée Générale.

16. Le texte anglais des présents Statuts fera foi.

17. Si ces Statuts se révèlent incompatibles avec ceux de l'Union, la décision de celle-ci sera prioritaire.

II - RÈGLEMENT INTÉRIEUR

I - Membres

1. Où il convient, chaque pays devrait établir un Sous-Comité de son Comité National pour l'Union. Les objectifs de ces Sous-Comités de Volcanologie et de Chimie de l'Intérieur de la Terre sont:

(1) de favoriser les buts de l'Association dans leur pays;

(2) de nommer, au niveau du Comité National, un Correspondant National qui aura pouvoir de voter pour le Sous-Comité, et qui pourra être désigné comme le Délégué principal du pays aux Assemblées Générales;

(3) de proposer les sujets à débattre aux Assemblées Générales de l'Association; ces sujets seront communiqués au Secrétaire Général de l'Association au moins trois mois avant l'Assemblée Générale en question;

(4) d'assurer la correspondance relative aux questions qui intéressent l'Association, ainsi que la circulation de toute information appropriée.

II - Rôle des Officiels de l'Association

2. Le rôle du Comité Exécutif est d'exercer un droit de regard sur les affaires de l'Association. Il devrait se réunir au moins deux fois pendant chaque Assemblée Générale. Ce rôle comprend: l'examen des propositions de modifications des Statuts et du Règlement Intérieur; la détermination du montant de la cotisation annuelle pour les Affiliés; les nominations aux postes devenus vacants dans la période située entre deux votes par correspondance ; l'aide à la préparation des programmes et la prise de dispositions requises en vue des Assemblées Générales et autres réunions; la désignation d'un Comité des Nominations pour l'établissement de la liste des candidats à élire; la désignation du Rédacteur-en-Chef et des Rédacteurs-Adjoints du *Bulletin de Volcanologie* et autres publications; la création des Commissions et Groupes de Travail: et d'une façon générale, la défense des intérêts de l'Association.

3. Le rôle du Bureau est d'assurer l'administration de l'Association entre les Assemblées Générales ainsi que d'assurer la responsabilité de la promotion active des objectifs et des intérêts de l'Association, et de l'efficacité des Commissions et Groupes de Travail. Le Bureau est responsable de la création de Sous-Comités pour certains aspects spécifiques des activités de l'Association.

4. Le rôle du Président de l'Association est de présider les Assemblées Générales de l'Association et d'assurer, en accord avec le Secrétaire Général, la gestion courante de l'Association. Le Président et le Secrétaire Général ont pouvoir de signer les documents officiels de l'Association. Le Président préside le Sous-Comité des récompenses.

5. Le rôle des Vice-Présidents est de présider les Assemblées Générales en l'absence du Président. Au cas où le siège du Président deviendrait vacant entre les Assemblées Générales, le Comité Exécutif désignera l'un des Vice-Présidents pour remplir le rôle de Président jusqu'à l'Assemblée Générale suivante. En tant que membres du Bureau, ils doivent promouvoir activement les objectifs et intérêts de l'Association et s'assurer de l'efficacité des Commissions et Groupes de Travail.

6. Le rôle du Secrétaire Général de l'Association est:

(1) d'assurer toute correspondance relative aux affaires de l'Association;

(2) de rassembler et de préserver les archives de l'Association;

(3) de gérer les fonds de l'Association, de préparer à la fin de chaque année précédant une Assemblée Générale les comptes de l'Association et de veiller à ce qu'ils soient correctement vérifiés et adressés au Trésorier de l'Union;

(4) en accord avec le Président et les membres du Comité Exécutif, de préparer le programme et de prendre toutes dispositions en vue de l'Assemblée Générale, ainsi que de collaborer avec les autres Associations de l'Union pour l'organisation des séances communes;

(5) d'assurer la publication et la distribution des comptes-rendus annuels des travaux de l'Association;

(6) de préparer le budget pour la période suivante de quatre années.

7. Le rôle du Secrétaire Adjoint est d'aider le Secrétaire Général, de tenir à jour la liste d'adresses des membres de l'Association et de gérer les demandes d'affiliation. Au cas où le poste de Secrétaire Général deviendrait vacant entre deux Assemblées Générales, le Secrétaire-Adjoint serait normalement désigné comme Secrétaire Général jusqu'à l'Assemblée Générale suivante.

8. Le Rédacteur-en-Chef du *Bulletin de Volcanologie* gérera la réception des articles proposés et leur envoi aux Rédacteurs-Adjoints pour examen, acceptation ou autres. Le Rédacteur-en-Chef et les Rédacteurs-Adjoints seront responsables du maintien d'un niveau scientifique élevé et de la qualité de présentation du *Bulletin de Volcanologie*. Le mandat du Rédacteur-en-Chef ne devra pas excéder huit ans. Le Rédacteur-en-Chef a pouvoir de signer au nom de l'Association tout document qui se rapporte au *Bulletin de Volcanologie* ou autres publications. Le Rédacteur-en-Chef et le Comité Exécutif désigneront ensemble les Rédacteurs-Adjoints dont le mandat ne pourra excéder huit ans.

III - Commissions, Groupes de Travail et Sous-Comités

9. Le Comité Exécutif peut créer toute Commission destinée à promouvoir internationalement des recherches dans tout domaine de la Volcanologie et de la Chimie de l'Intérieur de la Terre. Il désignera un scientifique responsable pour diriger chaque Commission. Cette personnalité devra proposer des objectifs, un programme et des membres de la Commission, au Comité Exécutif. Le mandat d'un responsable de Commission n'excédera pas quatre ans.

10. Le Comité Exécutif peut créer des Groupes de Travail dédiés à l'accomplissement rapide de tâches scientifiques particulières. L'activité d'un tel Groupe inclura la préparation et la présentation, par tout ensemble de personnes intéressées, des objectifs, du programme de la composition d'une future Commission, pour être examinée par le Comité Exécutif.

11. Le Bureau peut créer des Sous-Comités dédiés à l'accomplissement des tâches administratives. Parmi eux existera un Sous-Comité des Récompenses dont la responsabilité, sous la direction du Président, sera de recommander des scientifiques pour l'attribution de la Médaille Thorarinsson et de la Médaille Wager, récompenses qui sont remises au moment des Assemblées de l'Association tenues entre deux Assemblées Générales de l'UGGI.

IV- Modifications et Interprétation du Règlement Intérieur

12. Ce Règlement Intérieur ne peut être modifié que par un vote par correspondance à la majorité simple, par les Affiliés et les Correspondants Nationaux. La majorité simple est déterminée par le rapport des voix affirmatives avec le total des voix (affirmatives et négatives, plus les abstentions signifiées), à condition que le nombre total de membres ayant voté (pour l'affirmative, la négative ou l'abstention signifiée) ne soit pas inférieur au quart du nombre total d'Affiliés et de Correspondants Nationaux de l'Association. Tout Affilié ou Correspondant National peut, par écrit, proposer une ou plusieurs modifications au Règlement Intérieur, à condition que cette proposition soit appuyée (par écrit) par trois autres Affiliés ou Correspondants Nationaux en exercice. Le Comité Exécutif sera maître de décider s'il doit donner suite à cette proposition par un vote par correspondance.

INTERNATIONAL ASSOCIATION OF VOLCANOLOGY AND CHEMISTRY OF THE EARTH'S INTERIOR

STATUTES AND BY-LAWS

I - STATUTES

I - Objectives

1. The objectives of the International Association of Volcanology and Chemistry of the Earth's Interior (hereafter referred to as the Association) are:

(1) to promote the study of volcanoes and volcanic processes, past and present, and of the chemistry of the Earth's interior;

(2) to encourage, initiate, and co-ordinate research and to promote international co-operation in these studies;

(3) to arrange for the discussion and publication of the results of scientific research on volcanology and on the chemistry of the Earth's interior; (4)

to encourage volcanologists to alert appropriate authorities to the importance of adequate surveillance of active and potentially active volcanoes and of volcanic risk assessment.

II - Membership

2. The Association is a constituent Association of the International Union of Geodesy and Geophysics (hereafter referred to as the Union), and is subject to the Statutes and By-Laws of the Union as well as to these Statutes.

3. Any Member Country of the Union shall be regarded as a Member of the Association and may, through its Adhering Body, appoint a National Correspondent to represent it in the Association.

4. Individuals professionally engaged in, or associated with, volcanology and studies of the chemistry of the Earth's interior, can apply to become Affiliates of the Association. Affiliates pay an annual subscription fee.

III - Administration

5. The authority of the Association shall be vested in the General Assembly which is formed by (1) Affiliates from Member Countries who have paid the annual subscription fee, and (2) National Correspondents of Member Countries of the Union. All the members of the General Assembly are eligible to hold office. All Affiliates and National Correspondents will receive publications and other materials which by decision of the Executive Committee are considered appropriate. Only National Correspondents from Member Countries have the right to vote on financial and Union matters.

6. General Assemblies of the Association normally shall be held in conjunction with General Assemblies of the Union. They can be held also between successive General Assemblies of the Union at the discretion of the Association's Executive Committee.

7. The business of the Association between General Assemblies shall be carried on by the Bureau (President, two Vice-Presidents, Secretary-General, and Deputy Secretary) of the Association.

8. The Executive Committee of the Association shall consist of the five members of the Bureau and four other members. All nine members shall be elected by postal vote of the current Affiliates and National Correspondents. The Past President and the Executive Editor of the *Bulletin of Volcanology* shall be ex officio members of the Executive Committee. No more than two officers from the same country can be elected. No member of the Executive Committee may be elected for more than two successive periods.

9. The Executive Committee shall have the power to fill any vacancy that arises on the Executive Committee during the interval between successive periods of postal voting. The Executive Committee

shall have the power to appoint the Executive Editor of the *Bulletin of Volcanology* and other publications of the Association. The Executive Committee shall have the power to create and disband Commissions and Task Groups of the Association.

IV - Voting

10. Affiliates from Member Countries who have paid their dues for the current year and National Correspondents shall receive ballots for new office-bearers and for any proposed changes to the Association's Statutes and By-Laws.

11. Ballots will be distributed at least three months before, and must be returned no later than one month before, IUGG General Assemblies.

12. Any Affiliate or National Correspondent may nominate in writing any other current Affiliate or National Correspondent as an office-bearer of the Association. provided (1) the nomination is seconded by three other current Affiliates or National Correspondents each from countries other than that of the nominee and (2) the nominee, nominator, and seconders are all from a country belonging to the Union. All nominations must be received no later than six months before the General Assemblies of the Union.

13. All nominations shall be considered by a Nominating Committee which will produce a short list of at least two, but no more than three, candidates for each of the positions on the new Executive Committee. No more than two candidates from the same country can be proposed by the Nominating Committee for all of the positions. The Nominating Committee will be appointed by the Executive Committee no later than nine months before the General Assemblies of the Union. It will consist of no less than five current Affiliates or National Correspondents, one of whom will be nominated by the Executive Committee as a Receiving Officer for postal votes. The outgoing Executive Committee has the power to appoint candidates of its own where only one, or no, candidates are nominated by Affiliates and National Correspondents.

14. Voters shall be required to rank candidates in order of their preference. The candidate with the largest number of first-place votes will be elected in cases where there are only two candidates. In cases where there are three candidates and none has a majority of first-place votes, then the candidate with the fewest first-place votes will be eliminated. The one of the two remaining candidates having the higher number of second-place votes will be elected. The third-place votes will be used in cases where the second-place votes are equal.

V - Alteration and Interpretation of Statutes

15. These Statutes shall be changed only by a majority of at least two thirds of postal votes by members of the General Assembly. Two-thirds absolute majority is determined by the proportion of affirmative votes to the sum of votes (affirmative, negative, abstention) provided that the total number of members of the General Assembly voting (affirmative, negative, abstention) is not less than one third of the total number of Affiliates and National Correspondents forming the General Assembly.

16. The English text of the present Statutes shall be regarded as the authoritative version.

17. If these Statutes are found to be in conflict with those of the Union, the latter shall have priority.

II - BY-LAWS

I - Membership

1. Individual countries, where appropriate, should establish Sub-Committees of their National Committee for the Union. The functions of each of the Sub-Committees for Volcanology and Chemistry of the Earth's Interior shall be as follows:

(1) to further the aims of the Association within their own country;

(2) to nominate through the National Committee a National Correspondent who will have the power to vote on behalf of the Sub-Committee and who may be designated

as the Chief Delegate for that country at Union General Assemblies;

(3) to submit topics for discussion at the General Assemblies of the Association -subjects so submitted should be notified to the Secretary General of the Association at least three months before the General Assembly;

(4) to facilitate and co-ordinate, as appropriate and necessary, the dissemination of correspondence and other information relating to the affairs of the Association.

II - Duties of Officers of the Association

2. The function of the Executive Committee is to exercise general oversight with respect to the affairs of the Association. It should meet at least twice during each General Assembly. Its duties include the following: to consider proposals for changes to the Statutes and By-Laws; to determine the annual subscription fee for Affiliates; to fill office-bearing vacancies arising between successive periods of postal voting; to assist in preparing agenda and making arrangements for General Assemblies and other meetings; to appoint a Nominating Committee for the short-listing of candidates for election as new office-bearers; to appoint the Executive Editor and Associate Editors of the *Bulletin of Volcanology* and other publications; to appoint Commissions and Task Groups; and generally to promote the interests of the Association.

3. The function of the Bureau is to carry on the business of the Association between General Assemblies and to take on the particular responsibility of proactively fostering the objectives and interests of the Association and the effectiveness of the Commissions and Task Groups. The Bureau is responsible also for establishing Sub-Committees to deal with specific aspects of the work of the Association.

4. The duties of the President are to preside at General Assemblies of the Association and, in consultation with the Secretary General, to regulate the business of the Association. The President and Secretary General have the power to sign documents on behalf of the Association. The President will chair the Awards Sub-Committee.

5. The duties of the Vice-Presidents are to preside at General Assemblies in the absence of the President. In the event of the position of President becoming vacant between General Assemblies, the Executive Committee shall appoint one of the Vice-Presidents to act as President until the next General Assembly. As members of the Bureau, they must foster proactively the objectives and interests of the Association, and the effectiveness of the Commissions and Task Groups.

6. The duties of the Secretary General of the Association are (1) to carry on all correspondence relating to the affairs of the Association; (2) to maintain and preserve the records of the Association; (3) to administer the funds of the Association, to prepare at the end of the calendar year preceding a General Assembly the accounts of the Association, and to arrange that they shall be properly audited and sent to the Treasurer of the Union; (4) in consultation with the President and members of the Executive Committee, to prepare the agenda and make arrangements for the next General Assembly, and to cooperate with the other Associations of the Union in arranging joint sessions; (5) to ensure that the annual reports of the Association are published and distributed; (6) to prepare a budget for the ensuing four-year term.

7. The duties of the Deputy Secretary are to assist the Secretary General, to maintain a mailing list of members of the Association, and to receive and process Affiliate applications. The Deputy Secretary normally would be appointed Secretary General in the event of that position becoming vacant between General Assemblies.

8. The Executive Editor of the *Bulletin of Volcanology* shall administer the process of receipt of manuscripts and their distribution to the Associate Editors for review and acceptance (or otherwise). The Executive Editor and Associate Editors shall be responsible for maintaining high standards of content and presentation of the *Bulletin of Volcanology*. The tenure of the Executive Editor normally would not exceed eight years. The Executive Editor is empowered to sign documents on behalf of the Association that are pertinent to the *Bulletin of Volcanology* and any other Association-sponsored publications. The Executive Editor and the Executive Committee jointly will appoint Associate Editors

who will serve for periods not exceeding eight years.

III - Commissions, Task Groups, and Sub-Committees

9. The Executive Committee may establish any Commission devoted to the international promotion of research in any speciality of Volcanology and Chemistry of the Earth's Interior. It will appoint a scientist to lead each Commission. This leader will present proposals for the objectives, program, and membership of the Commission for approval by the Executive Committee. Leaders normally will serve for periods not exceeding four years.

10. The Executive Committee may establish Task Groups devoted to the short-term completion of specific scientific tasks. This will include the preparation, by any interested group, of the objectives, program, and proposed membership of a future Commission, for consideration by the Executive Committee.

11. The Bureau may establish Sub-Committees devoted to the completion of specific administrative tasks. These will include the Awards Sub-Committee whose responsibility, under the chairmanship of the President, is to prepare recommendations for the award of the Thorarinsson Medal and Wager Medal at the time of the Association's General Assemblies held between the IUGG General Assemblies.

IV - Alteration and Interpretation of By-Laws

12. These By-Laws shall be changed only by a simple majority of postal votes by current Affiliates and National Correspondents. Simple majority is determined by the proportion of affirmative votes to the sum of votes (affirmative, negative, abstention), provided that the total number of members voting (affirmative, negative, abstention) is not less than one-quarter of the total number of current Affiliates and National Correspondents of the Association. Any Affiliate or National Correspondent may propose in writing alteration, or alterations, to these By-Laws, provided the proposal is seconded (in writing) by three other current Affiliates or National Delegates. The Executive Committee shall have the power to decide whether the proposal will be distributed to members as a postal vote.

ASSOCIATION INTERNATIONALE DE GÉOMAGNÉTISME ET D'AÉRONOMIE

STATUTS ET RÈGLEMENT INTÉRIEUR

I - STATUTS

I - Buts, Structure et Composition de l'Association

1. Les buts de l'Association Internationale de Géomagnétisme et d'Aéronomie (AIGA), ci-après désignée l'Association sont:

a) promouvoir les études de magnétisme et d'aéronomie relatives à la Terre et aux autres corps du système solaire et celles du milieu interplanétaire et de son interaction avec ces corps, lorsque ces études ont un intérêt international.

b) encourager les recherches faites indépendamment, dans ces divers domaines par des pays, des institutions ou des personnes et faciliter leur coordination internationale.

c) permettre, sur le plan international, la discussion et la publication des résultats des recherches précédentes.

d) promouvoir une normalisation convenable des programmes d'observation, des dispositifs d'acquisition de données ainsi que de leurs analyses et publications.

2. Pour atteindre ses buts, l'Association peut établir un nombre quelconque d'organismes, aussi bien à l'intérieur de l'Association qu'en commun avec d'autres Associations de l'Union Géodésique et Géophysique Internationale, ci-après désignée l'Union, ou avec des sections d'autres organismes du Conseil International des Unions Scientifiques (CIUS).

3. Les pays qui adhèrent à l'Union sont membres de l'Association et peuvent participer à ses activités.

4. Chaque Pays Membre est représenté par un organisme unique (appelé Organisme National de l'AIGA), établi par l'organisme de ce pays qui a adhéré à l'Union.

II - Administration

5. Le fonctionnement de l'Association est dirigé par la Conférence des Délégués.

La Conférence des Délégués se compose des Délégués des Pays Membres, dont l'accréditation a été communiquée au Secrétaire Général avant le début de l'Assemblée par les Organismes Nationaux respectifs de l'Association. L'un des Délégués de chaque Pays Membre est désigné par son Organisme National comme le Chef de Délégation pour voter au nom de son pays sur les questions administratives et financières ainsi qu'il est stipulé aux Articles 14 et 15 des présents Statuts.

Un Délégué ne peut représenter qu'un seul Pays Membre. Un membre du Comité Exécutif (voir Article 7 des Statuts) ne peut être Chef de Délégation, sauf s'il est le seul représentant du pays en question.

La Conférence des Délégués est convoquée durant chaque Assemblée de l'Association. Une Assemblée Générale ordinaire de l'Association se tient normalement en même temps que chaque Assemblée Générale ordinaire de l'Union. L'intervalle entre la fin d'une Assemblée Générale ordinaire et la fin de la suivante est désigné, dans ces statuts, par le terme "période".

6. La responsabilité de la direction des affaires de l'Association entre les réunions de la Conférence des Délégués est confiée au Comité Exécutif de l'Association, élu par la Conférence des Délégués. Les décisions du Comité Exécutif doivent être présentées à la Conférence des Délégués. Toute décision ou recommandation ne recevant pas l'agrément de celle-ci peut être renvoyée au Comité Exécutif pour nouvelle étude.

7. Le Comité Exécutif comprend le Président, deux Vice-Présidents, le Secrétaire Général, cinq autres Membres, et le Président sortant, en tant que membre de droit.

A l'exception du Président sortant, tous les membres du Comité Exécutif sont élus par la Conférence des Délégués selon la procédure prévue pour les questions d'ordre administratif à l'Article 14 des Statuts.

Le Président est élu pour une période, et ne peut être réélu à la même fonction. Les Vice-Présidents sont élus pour une période, et peuvent être réélus une fois. Un Vice-Président sortant peut être élu Président. Le Secrétaire Général est élu pour deux périodes: il peut être réélu plusieurs fois pour une période. Les cinq autres Membres sont élus pour une période et peuvent être réélus plusieurs fois pour une période; ils ne peuvent rester en fonction pendant plus de trois périodes consécutives. Le Président est membre de droit pour une seule période.

En cas de vacance en son sein, le Comité Exécutif a pouvoir de désigner quelqu'un pour remplir la vacance jusqu'à la fin de la période. L'éligibilité ultérieure d'une personne ainsi désignée n'en sera pas affectée. Si la vacance est celle du Président, le Comité Exécutif désignera l'un des Vice-Présidents pour exercer les fonctions de Président jusqu'à la fin de la période.

A l'exception de l'élection du Secrétaire Général, nul ne sera éligible à une fonction quelconque au sein du Comité Exécutif s'il a déjà servi dans ce Comité pendant quatre périodes.

8. Le Comité Exécutif doit administrer l'Association conformément aux présents Statuts et au Règlement Intérieur ainsi qu'aux décisions de la Conférence des Délégués.

Le Comité Exécutif se réunit au début et à la fin d'une Assemblée et au moins une fois entre les Assemblées Générales ordinaires.

9. Le rôle des organismes intérieurs à l'Association (cf. Article 2 des Statuts) est de servir les buts scientifiques de l'Association en prenant en charge la coordination des recherches scientifiques, en organisant des réunions scientifiques, en promou-

vant l'échange d'informations et de données entre chercheurs et en conseillant le Comité Exécutif en ce qui concerne la définition d'une politique générale en vue d'orienter les travaux scientifiques de l'Association.

10. Le rôle des organismes qui sont institués en liaison avec d'autres Associations de l'Union ou des membres d'autres organismes du CIUS (cf. Article 2 des Statuts) est d'assurer la coordination des programmes ou des réunions scientifiques qui concernent des sujets d'intérêt mutuel.

III - Finances

11. Le Secrétaire Général prépare, pour chaque période, un projet de budget des recettes et des dépenses pendant cette période. Au cours de la session de l'Assemblée Générale qui précède immédiatement cette période, le Secrétaire Général présente ce projet au Comité Exécutif, et après approbation de la Conférence des Délégués, peut engager les dépenses prévues au budget.

12. Au moins six mois avant l'ouverture d'une Assemblée Générale, le Comité Exécutif désigne un Comité des Finances pour examiner les comptes et présenter à la Conférence des Délégués un rapport sur les résultats de cette vérification. Un membre du Comité Exécutif ne peut être en même temps membre du Comité des Finances.

IV - Droit de Vote

13. Lorsqu'un vote porte sur une question d'ordre exclusivement scientifique, chaque Délégué dûment accrédité et présent à une réunion de la Conférence des Délégués, dispose d'une voix.

14. Pour les questions d'ordre administratif, le vote a lieu par Pays Membre, chaque Pays Membre disposant d'une voix en la personne du Chef de Délégation (ou de son représentant, conformément au Règlement Intérieur).

15. Pour les questions d'ordre financier, le vote a lieu par Pays Membre, chacun d'eux disposant d'un nombre de voix égal au numéro de la catégorie d'appartenance à l'Union. Les voix sont exprimées par les Chefs de Délégation de chaque Pays Membre (ou par leurs représentants, conformément au Règlement Intérieur).

16. Les questions qui sont en partie d'ordre scientifique et en partie d'ordre administratif et qui ne mettent pas en jeu de questions financières, sont considérées comme administratives.

17. Avant un vote, le Président décide si la question à débattre est d'ordre financier, administratif ou scientifique. La décision du Président ne peut être contestée que par le Chef de Délégation d'un Pays Membre. Dans cette éventualité, la décision du Président peut être modifiée par les Chefs de Délégation, à la majorité des deux tiers des présents.

18. Les votes sur des questions d'ordre administratif ou financier peuvent se faire par correspondance (conformément au Règlement Intérieur).

19. Pour la validité des délibérations de la Conférence des Délégués, la moitié au moins des Chefs de Délégation accrédités doivent être présents (ou représentés conformément au Règlement Intérieur).

Les décisions de la Conférence des Délégués sont prises à la majorité simple, sauf dans les cas spécifiés par les présents Statuts. S'il y a égalité de voix, la décision appartient au Président. La majorité simple ou la majorité des deux tiers sont calculées par le rapport des votes affirmatifs à la somme de votes affirmatifs et négatifs.

V - Généralités

20. Ces Statuts, de même que toute modification ultérieure, prennent effet à compter de la clôture de l'Assemblée Générale à laquelle ils ont été adoptés, sauf décision contraire de la Conférence des Délégués.

21. Ces Statuts ne peuvent être modifiés qu'avec l'approbation d'une majorité des deux tiers des Pays Membres qui ont accrédité des Délégués à l'Assemblée, conformément aux Articles 5 et 14 des Statuts.

22. Seuls les Pays Membres peuvent proposer une modification de ces Statuts. Toute proposition doit parvenir au Secrétaire Général au moins six mois avant la date annoncée pour l'Assemblée Générale à laquelle elle sera examinée. Le Secrétaire Général devra notifier les changements proposés à tous les Pays Membres au moins quatre mois avant la date annoncée pour l'Assemblée Générale.

23. La Conférence des Délégués est habilitée à adopter un Règlement Intérieur, dans le cadre des

Statuts de l'Association. Ce Règlement Intérieur est adopté et peut être modifié par un vote à la majorité simple des Pays Membres qui ont accrédité des Délégués à l'Assemblée, conformément aux Articles 5 et 14 des Statuts. Le Règlement Intérieur, ou toute autre modification ultérieure de celui-ci, prend effet à compter de la clôture de l'Assemblée Générale au cours de laquelle il a été adopté, sauf décision contraire de la Conférence des Délégués.

24. Les présents Statuts ont été rédigés dans les langues officielles de l'Union. Le texte anglais fait foi en cas de problème d'interprétation.

II - RÈGLEMENT INTÉRIEUR

I - Structure

1. L'Association est composée de Divisions et d'Organismes Inter-Divisions (Commissions ou Groupes de Travail). Ce sont:

Division I: Champs magnétiques internes.
Division II: Phénomènes aéronomiques.
Division III: Phénomènes magnétosphériques.
Division IV: Vent solaire et champ magnétique interplanétaire.
Division V: Observatoires, instruments, indices et données.
Commission Inter-Divisions: Recherche antarctique.
Commission Inter-Divisions: Histoire.
Commission Inter-Divisions: Moyenne atmosphère
Commission Inter-Divisions: Variations magnétiques externes ou internes.
Commission Inter-Divisions: Pays en voie de développement.

2. Chaque Division ou Organisme Inter-Division soumet son rôle, sa propre structure et son mode de fonctionnement à l'approbation du Comité Exécutif. Le rôle et l'efficacité de chaque Division et Organisme Inter-Divisions sont réexaminés par le Comité Exécutif à chaque Assemblée Générale ordinaire.

3. Les responsables des Divisions et des Organismes Inter-Divisions sont nommés par le Comité Exécutif pour une période, sous réserve de ratification par la Conférence des Délégués. Les vacances survenant au cours d'une période sont pourvues par le Comité Exécutif.

Pour que leur nomination devienne effective, les responsables de Divisions et d'Organismes Inter-Divisions doivent adresser au Président une lettre d'acceptation exprimant leur volonté de servir dans les fonctions auxquelles ils sont appelés.

4. Les responsables des Divisions ou des Organismes Inter-Divisions sont habilités à désigner, pour chaque période, des rapporteurs et des responsables de groupes de travail et des responsables d'autres sous-divisions possibles.

5. Etant bien entendu que les principaux critères pour les désignations visées aux Articles 3 et 4 de ce Règlement Intérieur sont la compétence scientifique et administrative des candidats, le Comité Exécutif et les responsables de Divisions et d'Organismes Inter-Divisions veillent à ce que, dans toute la mesure du possible, ces désignations tiennent compte d'une représentation géographique adéquate.

6. Le Comité Exécutif peut créer des Organismes Communs avec d'autres Associations de l'Union ou avec des sections d'autres Organismes du CIUS en vue de traiter de sujets d'intérêt commun: il exerce la responsabilité de l'Association dans la désignation, en fonction des besoins, de leurs responsables, de leurs membres ou des représentants de l'Association.

Dans ses relations avec des Organismes n'appartenant pas à l'Union, le Comité Exécutif ne peut engager l'Union, ou agir au nom de l'Union, sans l'accord préalable du Comité Exécutif de l'Union.

II - Administration

7. Le Président peut à tout moment, avec l'approbation du Comité Exécutif, convoquer une Assemblée Générale extraordinaire.

Le Président est tenu de convoquer une telle Assemblée si elle est demandée par la moitié des Pays Membres.

Une Assemblée Générale extraordinaire a les mêmes pouvoirs et est soumise aux mêmes règles qu'une Assemblée Générale ordinaire.

Entre les Assemblées Générales ordinaires de l'Association, des Assemblées Scientifiques peuvent être tenues, conformément au Règlement Intérieur de l'Union.

8. Le Secrétaire Général notifie aux Pays Membres la date et le lieu de réunion de toute Assemblée au moins neuf mois à l'avance.

9. L'ordre du jour provisoire des réunions de la Conférence des Délégués est préparé par le Secrétaire Général et communiqué aux Organismes Nationaux au moins trois mois avant l'ouverture de l'Assemblée. Y figurent toutes les questions qui ont été soumises par les Organismes Nationaux pour être discutées par la Conférence des Délégués, ainsi que celles qui ont été proposées par le Comité Exécutif. Toute question qui n'aurait pas été ainsi notifiée ne peut être examinée qu'avec l'assentiment de la Conférence des Délégués.

10. Les réunions de la Conférence des Délégués sont publiques. Tout non-délégué peut participer à une discussion, pourvu que le Président l'y ait autorisé. Le Président peut, de sa propre initiative ou à la demande d'un Organisme National de l'Association, inviter des représentants d'organismes scientifiques ou des personnalités à assister à une réunion de la Conférence des Délégués avec voix consultative.

11. Un Pays Membre qui n'est pas représenté à une réunion de la Conférence des Délégués peut voter par correspondance sur toute question du type indiqué aux Articles 14 et 15 des Statuts, à l'exception de l'élection du Comité Exécutif, pourvu que la question ait été clairement définie dans l'ordre du jour définitif distribué à l'avance aux Pays Membres, que la substance de la question n'ait pas été changée et que le vote du Pays soit parvenu au Secrétaire Général avant la réunion.

Avant un vote, le Président décide si la procédure de vote par correspondance s'applique. La décision du Président peut être remise en cause ainsi qu'il est décrit dans l'Article 17 des Statuts.

12. Le Chef de Délégation d'un Pays Membre peut désigner un autre Délégué de ce pays pour le représenter à tout ou partie d'une réunion de la Conférence des Délégués. Si le Chef de Délégation est dans l'impossibilité de faire cette désignation, les Délégués dûment accrédités de ce pays peuvent désigner un des leurs comme représentant du Chef de Délégation. Dans les deux cas, le Secrétaire Général en sera informé avant la réunion de la Conférence des Délégués à laquelle le représentant du Chef de Délégation aura à exercer son mandat.

13. Au moins six mois avant l'ouverture d'une Assemblée Générale ordinaire, le Président, après consultation du Comité Exécutif, désigne un Comité des Nominations, composé d'un Président et de quatre Membres. Les membres du Comité Exécutif ne peuvent pas faire partie de ce Comité.

Le Comité des Nominations est chargé de présenter à la Conférence des Délégués au moins un candidat pour chaque poste à pourvoir au Comité Exécutif et cela au moins quatre jours avant l'élection. En dehors de ces propositions du Comité des Nominations un Chef de Délégation peut présenter d'autres candidatures en écrivant au Président du Comité des Nominations au moins deux jours avant l'élection. L'ensemble des toutes ces candidatures doit être rendu public au moins un jour avant l'élection.

En général, la composition du Comité Exécutif devrait refléter un équilibre convenable entre régions et entre disciplines.

L'élection des membres du Comité Exécutif est faite à bulletins secrets. Le Président choisit deux scrutateurs parmi les Délégués présents qui ne sont ni membres du Comité Exécutif, ni membres du Comité des Nominations, ni candidats aux élections.

14. Le Comité Exécutif est convoqué par le Président.

Lors d'une réunion du Comité Exécutif, aucun de ses membres ne peut se faire représenter par une autre personne. Pour la validité des délibérations du Comité Exécutif, la moitié au moins des membres doivent être présents. Toutes les décisions du Comité sont prises à la majorité simple du nombre total des membres présents. S'il y a égalité des voix, la décision appartient au Président.

Lorsque l'importance et l'urgence d'une décision le justifient, un vote par correspondance peut être organisé par le Secrétaire Général à la demande du Président. Les mêmes règles de validité et de majorité s'appliquent.

Le Président peut, de sa propre initiative ou à la requête d'un autre Membre du Comité Exécutif ou d'une Organisme National de l'Association, inviter des représentants d'organismes scientifiques ou des personnalités à assister à une réunion du Comité Exécutif avec voix consultative.

15. Les propositions relatives à l'ordre du jour des réunions du Comité Exécutif peuvent être présentées par les membres de ce Comité, par les responsables de Division ou d'Organismes Inter-Divisions ou par les Organismes Nationaux de l'Association; elles doivent parvenir au Secrétaire Général trois mois au moins avant la réunion. L'ordre du jour définitif, après approbation du Président doit être envoyé aux Membres du Comité Exécutif un mois au moins avant la réunion. Une question non inscrite à l'ordre du jour ne peut être discutée à une réunion du Comité Exécutif, sauf si une requête en ce sens a reçu l'approbation du Comité Exécutif.

16. Outre les fonctions définies aux Articles 6 et 8 des Statuts de l'Association et aux Articles 2, 3 et 6 du présent Règlement Intérieur et dans la limite des directives générales et particulières de la Conférence des Délégués, le Comité Exécutif est habilité:

a) à agir en tant que comité d'organisation pour toutes les Assemblées, Colloques et Réunions de l'Association, ou à déléguer cette responsabilité à d'autres personnes en faisant les désignations nécessaires.

b) à confier à des commissions spéciales ou à certaines personnalités la préparation de rapports sur des sujets de la compétence de l'Association.

c) à inviter ou à désigner des personnalités ou des institutions de pays non-membres de l'Association, à être ses correspondants locaux.

17. Les attributions du Président de l'Association sont:

a) de représenter l'Association au Comité Exécutif de l'Union.

b) de représenter l'Association dans des relations avec les organismes nationaux correspondants, les autres Associations de l'Union et les autres organismes du CIUS.

c) de représenter l'Association aux réunions, conférences ou cérémonies où une représentation officielle est requise ou souhaitable.

d) de convoquer et de présider la Conférence des Délégués et les réunions du Comité Exécutif.

e) et de soumettre à la Conférence ordinaire des Délégués un rapport sur le travail scientifique de l'Association.

18. Les attributions des Vice-Présidents, l'un ou l'autre selon les dispositions prises par le Comité Exécutif, sont, en cas d'empêchement du Président, de présider les Conférences des Délégués ou du Comité Exécutif et de représenter le Président aux réunions du Comité Exécutif de l'Union, conformément à l'Article 11, paragraphe 2, du Règlement Intérieur de l'Union.

Le Président peut désigner l'un des Vice-Présidents pour agir en son nom en toute autre fonction ou lors de réunions ou conférences pour lesquelles une représentation officielle de l'Association est requise ou souhaitable.

19. Les attributions du Secrétaire Général sont:

a) d'assurer le Secrétariat de l'Association, d'organiser les Assemblées conformément aux directives du Comité Exécutif, d'organiser les réunions du Comité Exécutif, de préparer et de distribuer rapidement l'ordre du jour et les comptes-rendus des réunions de la Conférence des Délégués et du Comité Exécutif.

b) de gérer les affaires administratives et scientifiques de l'Association, de s'occuper de la correspondance, de tenir à jour les archives et d'en assurer la conservation.

c) de tenir informés les membres du Comité Exécutif, entre les réunions de ce dernier, de toute affaire importante concernant l'Association.

d) d'assister le Président au cours des réunions du Comité Exécutif de l'Union.

e) de recevoir et de gérer les fonds qui peuvent être alloués à l'Association par l'Union ou qui peuvent provenir de toute origine, de dépenser ces fonds conformément aux décisions de la

Conférence des Délégués ou aux instructions du Comité Exécutif, de tenir le compte de toutes les recettes et dépenses et de soumettre ce compte, certifié par un comptable qualifié, à la vérification de la Commission des Finances désignée selon l'Article 12 des Statuts de l'Association.

f) de préparer et publier le programme et les comptes-rendus de l'Assemblée Générale.

g) de publier un bulletin interne à l'Association (tel que IAGA News) contenant les informations d'intérêt général pour l'Association.

h) de préparer, pour chaque Assemblée, le liste des Délégués et Chefs de Délégation.

i) et d'accomplir toute autre tâche qui peut lui être confiée par le Président ou par le Comité Exécutif.

III - Finances

20. Lors de la prévision des dépenses par le Secrétaire Général et au moment de son approbation par le Comité Exécutif, comme mentionné à l'Article 11 des Statuts de l'Association, les fonds attendus sont affectés, par ordre a), b), c) de priorité décroissante, aux besoins suivants:

a) Fonctionnement du Secrétariat de l'Association, y compris la préparation administrative des Assemblées et des réunions du Comité Exécutif, la publication des IAGA News et des Comptes-Rendus, et les dépenses de voyage liées à la représentation de l'Association aux réunions du Comité Exécutif de l'Union.

Réunions du Comité Exécutif durant les Assemblées Générales, y compris les frais de voyage des Membres du Comité Exécutif qui ne peuvent obtenir un autre soutien financier. Dépenses administratives mineures demandées par les responsables des Organismes communs, des Divisions et des Organismes Inter-Divisions qui ont indiqué, par écrit, qu'ils n'ont pu obtenir le soutien nécessaire de l'Organisme National de l'Association, s'il existe dans leur pays, ou de l'institution à laquelle ils appartiennent.

b) Réunion du Comité Exécutif qui ont lieu entre les Assemblées, y compris les frais de voyage des membres du Comité Exécutif.

Contribution partielle aux frais de voyage, pour des réunions officielles soit administratives, soit scientifiques et patronnées par l'Association, qu'il s'agisse de responsables de Division, d'Organisme Inter-Division et d'organisme commun

ou qu'il s'agisse de conférenciers, d'organisateurs ou de membres d'un comité des programmes, dont le Comité Exécutif juge la participation essentielle au succès de la réunion et qui ont indiqué par écrit qu'ils n'ont pu obtenir le soutien nécessaire de l'Organisme National de l'Association, s'il existe dans leur pays, ou de l'institution à laquelle ils appartiennent.

Frais de voyage du Président pour remplir ses fonctions de représentations de l'Association.

Aide, si nécessaire, aux publications régulières du Service International des Indices Géomagnétiques, dans lesquelles l'Association a une responsabilité fondamentale.

c) Publications particulières, dépenses administratives particulières ou tout autre besoin non mentionné en a) ou b) et conformes aux buts de l'Association.

INTERNATIONAL ASSOCIATION OF GEOMAGNETISM AND AERONOMY

STATUTES AND BY-LAWS

I - STATUTES

I - Objectives, Structure and Membership of the Association

1. The objectives of the International Association of Geomagnetism and Aeronomy (henceforth IAGA) are:

a) to promote studies of magnetism and aeronomy of the Earth and other bodies of the solar system, and of the interplanetary medium and its interaction with these bodies, where such studies have international interest;

b) to encourage research in the above subjects by individual countries, institutions or persons and to facilitate its international coordination;

c) to provide an opportunity, on an international basis, for discussion and for publication of the results of the researches indicated above;

d) to promote appropriate standardizations of observational programs, data acquisition systems, data analysis and publication.

2. To achieve its objectives, the Association may establish any number of Component Bodies both within the Association and jointly with other Associations of IUGG or components of other ICSU Bodies.

3. The countries which adhere to the IUGG are members of the IAGA and may participate in its activities.

4. Each Member Country shall be represented by a single body (henceforth referred to as IAGA National Body), established in that country by the body that adheres to the IUGG.

II - Administration

5. The work of the Association shall be directed by the Conference of Delegates.

The Conference of Delegates shall consist of the Delegates of the Member Countries, such accreditation having been communicated to the Secretary General prior to the start of the Assembly by the respective IAGA National Bodies. Among the Delegates from each Member Country, one shall be identified by the respective IAGA National Body as Chief Delegate for the purpose of casting that country's votes on administrative and financial matters as stipulated in Articles 14 and 15 of these Statutes.

A Delegate may represent only one Member Country. A member of the Executive Committee (see Article 7) may not be Chief Delegate, except in the case where that member is the only one person in attendance from the country in question.

A Conference of Delegates shall be convened during each Assembly of IAGA. An ordinary General Assembly of IAGA shall normally be held in connection with each Ordinary General Assembly of IUGG.

The interval elapsing between the end of one Ordinary General Assembly and the end of the next one will, for the purposes of the Statutes, be termed one period.

6. Responsibility for the direction of IAGA affairs between meetings of the Conference of Delegates shall be vested in the Executive Committee of the Association elected by the Conference of Delegates. Decisions of the Executive Committee must be reported to the Conference of Delegates. Any decision or recommendation failing to receive the concurrence of the Conference of Delegates may be remitted to the Executive Committee for further study.

7. The Executive Committee shall consist of the President, two Vice-Presidents, the Secretary General, five other Members, and the retiring President, ex-officio.

Except for the retiring President all members of the Executive Committee shall be elected by the Conference of Delegates as an administrative matter as stipulated in Article 14 of the Statutes.

The President shall be elected for one period, and may not be re-elected to the same office. The Vice-Presidents shall be elected for one period and may be re-elected once. A retiring Vice-President may be elected President. The Secretary General shall be elected for eight years and may be re-elected for successive four-year terms. The five additional Members shall be elected for one period and may be re-elected for successive single periods; they may not hold office for more than three consecutive periods. The retiring President is a member ex-officio for only one period. With the exception of the election of the Secretary General, no person shall be eligible for election to any position on the IAGA Executive Committee who has served already on the Committee for four periods.

In the event of any vacancy occurring in the membership of the Executive Committee during one period, the Executive Committee shall have the power to fill the vacancy by appointment, until the end of the period. The eligibility for election of a person so appointed shall not be affected by such an appointment. If the vacancy is that of the Presidency, the Executive Committee shall appoint one of the two Vice-Presidents to act as President until the end of the period.

Notwithstanding the terms of Statute 7, the Secretary General shall be elected at the General Assembly in 1995 for a term of six years in the case of a fresh appointment or for two years in the case of re-election. In the event there is no Scientific Assembly during any one period, the Executive Committee shall co-opt a Secretary General to take up the duties from the date of retiral of the current Secretary General and this action shall be subjected to ratification by the next Conference of Delegates.

8. The duties of the Executive Committee shall be to administer the affairs of the Association in accordance with these Statutes and By-Laws and with the decisions of the Conference of Delegates. The Executive Committee shall meet at the beginning and end of an Assembly and at least once more between Ordinary General Assemblies.

9. The duties of the Component Bodies within IAGA (see Article 2 of the Statutes) shall be to further the scientific objectives of the IAGA through:

a) effective coordination of appropriate scientific researches;

b) organizing scientific meetings;

c) promoting the exchange of information and data; and

d) advising the Executive Committee on the formulation of general policies to guide the scientific work of the Association.

10. The duties of the Bodies that are established jointly with other Associations of IUGG or components of other ICSU bodies (see Article 2 of the Statutes) shall be to deal with, and coordinate, those scientific programs and/or meetings that cover topics of mutual interest.

III - Finance

11. The Secretary General shall prepare, for each period, a budget estimate of receipts and expenditures during that period. The Secretary General shall lay this before the Executive Committee during the General Assembly immediately preceding that period and, having received the approval of the Conference of Delegates, may proceed with the disbursement of funds in accordance with that approved budget.

12. At least six months before the opening of an Ordinary Assembly, a Finance Committee shall be appointed by the Executive Committee to examine the accounts and to report the results of their examination to the Conference of Delegates. No Executive Committee member may at the same time be a member of the Finance Committee.

IV - Voting

13. When a vote is taken on a question which is by nature exclusively scientific, each duly accredited Delegate present at a meeting of the Conference of Delegates shall have one vote.

14. On questions of an administrative nature the voting shall be by Member Countries, each Member Country having one vote cast by its Chief Delegate (or that person's representative in accordance with the By-Laws).

15. On questions of a financial nature, the voting shall be by Member Countries, each Member Country having a number of votes equal to the number of its category of membership in IUGG. Such votes shall be cast by the Chief Delegate of each Member Country (or that person's representative in accordance with the By-Laws).

16. Matters which are partly scientific and partly administrative in character and not involving matters of finance shall be classified as administrative matters.

17. Before a vote, the President shall decide whether the matter under consideration is scientific, administrative or financial in character.

The President's ruling can be challenged only by the Chief Delegate of a Member Country. In the event of such a challenge, the President's ruling can be changed by a two thirds majority of the Chief Delegates present.

18. Voting on matters of an administrative or financial nature may be conducted by correspondence (in accordance with the By-Laws).

19. For the validity of the deliberations of the Conference of Delegates, half at least of the accredited Chief Delegates must be present (or represented in accordance with the By-Laws).

Decisions of the Conference of Delegates shall be taken by a simple majority except as otherwise specified in the present Statutes. If a tie should occur, the decision shall rest with the President. Simple or two thirds majority shall be determined by the proportion of affirmative votes to the sum of the affirmative and negative votes.

V - General

20. These Statutes or any further modifications thereof shall come into force at the close of the General Assembly at which they are adopted, or as otherwise decided by the Conference of Delegates.

21. These Statutes may not be modified except with the approval of at least a two thirds majority of Member Countries who have accredited Delegates to the Assembly, in accordance with Articles 5 and 14 of the Statutes.

22. Only Member Countries may propose a change of these Statutes. Any such proposal must reach the Secretary General at least six months before the announced date of the General Assembly at which they are to be considered. The Secretary General shall notify all Member Countries of any proposed change, at least four months before the announced date of the General Assembly.

23. The Conference of Delegates shall have the power to adopt By-Laws within the framework of the Statutes of the Association. These By-Laws are adopted or may be modified by a simple majority of Member Countries who have accredited Delegates to the Assembly, in accordance with Articles 5 and 14 of the Statutes. By-Laws or any further modification thereof, shall come into force at the close of the General Assembly at which they are approved unless otherwise decided by the Conference of Delegates.

24. The present Statutes have been prepared in the official languages of the IUGG. The English text shall be authoritative if there is a question of interpretation.

II - BY-LAWS

I - Composition

1. The Components of IAGA shall be called Divisions and Interdivisional Commissions as follows:

Division 1: Internal Magnetic Fields
Division II: Aeronomic Phenomena
Division III: Magnetospheric Phenomena
Division IV: Solar Wind and Interplanetary Magnetic Field
Division V: Observatories, Instruments, Surveys and Analyses
Interdivisional Commission: History
Interdivisional Commission: Developing Countries

2. Each Division or Interdivisional Body shall propose to the Executive Committee its own role, structure and modus operandi, which must be approved by the Executive Committee. The role and the effectiveness of each Division and Interdivisional Body shall be reviewed by the Executive Committee at each Ordinary General Assembly.

3. The leaders for each Division and Interdivisional Commission and Interdivisional Working Group shall be appointed by the Executive Committee for one period, subject to ratification by the Conference of Delegates. Vacancies occurring in the interim shall be filled by the Executive Committee.

In order that their appointments shall become effective, Division and Interdivisional Body leaders must express in writing to the President their willingness to serve in the functions specified.

4. The leaders of Divisions and Interdivisional Bodies are empowered to appoint for each period reporters, working group leaders, and the leaders of other possible subdivisions.

5. While it is recognized that the prime criteria for the appointments in Articles 3 and 4 of these By-Laws should be the scientific and administrative competence of the candidates, Executive Committee and Division and Interdivisional Body leaders shall see that, wherever possible, these appointments are made with due respect to adequate geographical representation.

6. The Executive Committee may create Joint Bodies with other IUGG Associations and components of other ICSU Bodies to deal with topics of mutual interest and carries out the responsibilities of IAGA in the appointment of the appropriate leaders, members of IAGA representatives, as is required.

In its dealings with non-IUGG Bodies, the Executive Committee shall not commit the name of the IUGG, or act on behalf of the IUGG, unless prior approval has been secured from the IUGG Executive Committee.

II - Administration

7. The President may at any time, with the approval of the Executive Committee, call an Extraordinary General Assembly.

The President shall be obliged to call such an Assembly at the request of not less than one-half of the Member Countries.

An Extraordinary General Assembly shall have the same powers and be subjected to the same rules as an Ordinary General Assembly.

Between Ordinary General Assemblies of IAGA, Scientific Assemblies may be held in accordance with IUGG By-Laws.

8. Notice of the date and of the place of the meeting of any Assembly shall be sent by the Secretary General to the Member Countries at least nine months before that Assembly.

9. The provisional agenda of the meetings of the Conference of Delegates shall be prepared by the Secretary General and circulated to IAGA National Bodies at least three months before the opening of an Assembly. The provisional agenda shall include all items which have been submitted by IAGA National Bodies for discussion at the Conference of Delegates, together with questions placed on the provisional agenda by the Executive Committee. Any item of which notice has not thus been given may only be discussed with the consent of the Conference of Delegates.

10. The meeting of the Conference of Delegates shall be open to the public. Any non-delegate may be heard in a discussion provided that person has been previously recognized by the President. The President may, on his own initiative or at the request of a National Body, invite representatives of scientific bodies or individuals to attend a meeting of the Conference of Delegates in an advisory capacity.

11. A Member Country which is not represented at a meeting of the Conference of Delegates may vote by correspondence on any specific question of the type indicated in Articles 14 and 15 of the Statutes, with the exception of the election in the Executive Committee, provided that the question has been clearly defined in the final agenda distributed in advance to the Member Countries, provided that the substance of the question has not been changed and provided that the said vote has been received by the Secretary General prior to the meeting.

Before a vote, the President shall decide whether the procedure of voting by correspondence applies.

The President's ruling may be challenged as prescribed in Statute 17.

12. A Chief Delegate of a Member Country may designate another delegate from the country to be his representative at all or part of a meeting of the Conference of Delegates or, if he is unable to do this, the duly accredited Delegates from that Member Country may designate one of their members to be such a representative of the Chief Delegate. In either case, the Secretary General shall be informed prior to the meeting of the Conference of Delegates at which the representative of the Chief Delegate is to act.

13. At least six months before the opening of an Ordinary General Assembly, the President in consultation with the Executive Committee shall appoint a Nominating Committee, consisting of a Chairman and four members. Members of the Executive Committee may not be appointed to the Nominating Committee.

The Nominating Committee is required to present to the Conference of Delegates at least one candidate for each position of the Executive Committee, at least four days prior to the election.

Besides the proposals of the Nominating Committee, a Chief Delegate may make other nominations in writing to the Chairman of the Nominating Committee, at least two days prior to the election. The combined list of candidates must be made public at least one day prior to the election.

In general, the composition of the Executive Committee should reflect an adequate geographical and disciplinary balance.

The election of officers shall be by secret ballot. The President shall select two scrutineers from among the Delegates present. The scrutineers shall not be members of the Executive Committee nor of the Nominating Committee nor candidates for elections.

14. The Executive Committee shall be convened by the President. At a meeting of the Executive Committee, no member can be represented by another person. For the validity of the deliberations of the Executive Committee, at least half of its members must be present. All decisions of the Executive Committee shall be taken by simple majority of the total number of voting members present. In the case of a tie, the decision shall rest with the President.

When the importance and the urgency of a decision warrant it, a vote by correspondence may be organized by the Secretary General at the request of the President. It is subject to the same rules for validity and majority.

The President may, on his own initiative or at the request of another member of the Executive Committee or of an IAGA National Body, invite representatives of scientific bodies or individuals to attend an Executive Committee meeting in an advisory capacity.

15. Proposals concerning the agenda for meetings of the Executive Committee may be submitted by members of that Committee, by Division or Interdivisional Body leaders, or by IAGA National Bodies; they shall be in the hands of the Secretary General at least three months before the meeting. The final agenda after its approval by the President shall be distributed to the members of the Executive Committee at least one month prior to the meeting. Questions that have not been placed on the agenda may not be discussed at a meeting of the Executive Committee, unless a request to that effect has been approved by the Executive Committee.

16. In addition to the duties specified in Articles 6 and 8 of the IAGA Statutes and Articles 2, 3 and 6 of these By-Laws, and subject to general or special directives of the Conference of Delegates, the Executive Committee shall have the power to:

a) act as the organizing committee for all IAGA Assemblies, Symposia and Meetings, or delegate such responsibility to other persons by making the necessary appointments.

b) entrust to special Commissions or to particular individuals the preparation of reports on subjects within the province of the Association;

c) invite or appoint persons or institutions belonging to countries which are not members of the Association, to be local correspondents to the Association.

17. The duties of the President of the IAGA are:

a) to represent IAGA in the IUGG Executive Committee;

b) to represent IAGA in its dealings with IAGA National Bodies, the other IUGG Associations and other ICSU Bodies;

c) to represent or to appoint a person to represent IAGA at meetings, conferences or celebrations where formal representation is requested or desirable;

d) to convene the Conference of Delegates and the meetings of the Executive Committee and to preside over their meetings; and

e) to submit a report to the Ordinary Conference of Delegates at each General Assembly on the scientific work of the Association.

18. The duties of the Vice-President, one or the other as shall be determined by the Executive Committee, are to preside at Conferences of Delegates or Executive Committee meetings in case of imperiment to the President, and to represent the President in such an event at IUGG Executive Committee Meetings, as specified in Article 11, paragraph 2, of the IUGG By-Laws. The President may designate one of the Vice-Presidents to act on his behalf in any other function, meeting or conference in which formal representation of IAGA is requested or desirable.

19. The duties of the Secretary General are:

a) to serve as Secretary of the IAGA, to organize the Assemblies according to the instructions of the Executive Committee, to arrange for the meetings of the Executive Committee, to prepare and distribute promptly the agenda and the minutes of the meetings of the Conference of Delegates and of the Executive Committee;

b) to manage the administrative and scientific affairs of the Association, to attend to correspondence, to main and preserve the records;

c) to inform members of the Executive Committee, during the interval between its meetings, about any important affair concerning the Association;

d) to advise the President during the meetings of the IUGG Executive Committee;

e) to receive and keep charge of such funds as may be allocated by the IUGG to the Association, or as may be received from any other source, to disburse such funds in accordance with the decisions of the Conference of Delegates or with the instructions of the Executive Committee, to keep the account of all receipts and disbursements and to submit such account, audited by a qualified accountant, for examination by the Finance Committee appointed according to Article 12 of the IAGA Statutes;

f) to prepare and publish the program and transactions of the General Assembly;

g) to publish an internal Association Bulletin (such as IAGA News) containing all information of general interest to the Association;

h) to prepare for each Assembly the list of the Delegates and Chief Delegates; and

i) to perform such other duties as may be assigned by the President or by the Executive Committee.

III - Finances

20. In the estimation of expenditures by the Secretary General and approval thereof by the Executive Committee, mentioned in Article 11 of the IAGA Statutes, provision shall be made to allocate the expected funds to the following items listed in order a), b), c) of decreasing priority:

a) Operation of the Secretariat of the Association, including the administrative arrangements in preparation for Assemblies and Executive Committee meetings, the publication of IAGA News and IAGA

Transactions, and the travel expenses incurred in the representation of IAGA at IUGG Executive Committee meetings. Meetings of the Executive Committee during Assemblies, including travel expenses for the Executive Committee members who cannot otherwise obtain support. Minor administrative expenses requested by those leaders of Joint Bodies, Divisions and Interdivisional Bodies who have expressed

in writing that they were unable to obtain the necessary support from the IAGA National Body, if any, of their country, and from their home institution.

b) Meetings of the Executive Committee that are to take place between Assemblies, including travel, expenses for the Executive Committee members. Partial travel expenses to official administrative or IAGA-sponsored scientific meetings for those leaders of Divisions, Interdivisional Bodies and Joint Bodies, and those invited speakers, conveners, or program committee members, whose participation is judged by the Executive Committee to be essential for the success of the meeting and who have expressed in writing that they were unable to obtain the necessary support from their home institutions. Travel expenses for the President to attend functions as the representative of IAGA. Assistance as necessary with the regular publication of the international series of Geomagnetic Indices for which IAGA has primary responsibility.

c) Special publications, special administrative expenses, or any other item not mentioned in a) and b) above which is in accordance with the objectives of the Association.

ASSOCIATION INTERNATIONALE DE MÉTÉOROLOGIE ET DES SCIENCES DE L'ATMOSPHÉRE

STATUTS

I - Objectifs de l'Association

1. Les objectifs de l'Association Internationale de Météorologie et des Sciences de l'Atmosphère, ci-après désignée l'Association, sont:

1.1. de promouvoir l'étude de la physique, de la dynamique, de la composition et de l'évolution de l'atmosphère de la Terre, y compris l'exploitation à cette fin des données sur les atmosphères des autres planètes;

1.2. d'initier, faciliter et coordonner, dans ce domaine, celles des recherches qui requièrent une coopération internationale;

1.3. de stimuler la discussion et de fournir des moyens pour des publications ad'hoc.

II - Membres de l'Association

2. L'Association Internationale de Météorologie et des Sciences de l'Atmosphère est une des Associations constituantes de l'Union Géodésique et Géophysique Internationale, ci-après désignée l'Union. Tous les pays qui adhérent à l'Union sont membres de l'Association et sont habilités à désigner des Délégués aux Assemblées Générales de l'Association.

2.1. Les Pays Adhérents peuvent participer à l'Association à travers un certain nombre de mécanismes, par exemple directement à travers leur Comité National de l'Union, par la désignation d'un Correspondant National pour l'Association, ou bien encore par la nomination d'un Comité National pour l'Association.

III - Organes de l'Association

3. L'Association Internationale de Météorologie et des Sciences de l'Atmosphère comprend:

1) le Bureau
2) le Secrétariat
3) le Comité Exécutif
4) l'Assemblée Générale des Délégués
5) des Commissions Scientifiques ad'hoc,
6) des Comités Scientifiques mixtes (communs avec d'autres Associations)

3.1. Les membres du Bureau et du Comité Exécutif sont choisis parmi les membres des Pays Adhérents sur la base de critères de

compétence, expérience et couverture géographique.

IV - Calendrier de l'Association

4. L'Association se réunit en Assemblée Générale Ordinaire au moment et au lieu de l'Assemblée Générale Ordinaire de l'Union.

4.1. L'Association organise des Assemblées Générales, composées des Délégués Nationaux des Pays Adhérents, pour conduire les affaires de l'Association. Des Assemblées Scientifiques sont convoquées pour faciliter l'échange d'informations scientifiques.

Des Assemblées Générales sont normalement organisées à l'occasion des Assemblées Scientifiques.

4.2. Le Bureau a la responsabilité de fixer le plan de travail pendant l'Assemblée Générale. En général, une Séance Plénière d'ouverture doit être programmée; pendant cette séance, le Président peut annoncer l'ordre du jour, désigner des comités ad'hoc fonctionnant pendant l'Assemblée Générale

(tels qu'un Comité des Finances, un Comité des Nominations); il peut susciter tous les rapports qui lui paraissent appropriés pour cette première Séance Plénière. Une Séance Plénière de clôture est en général organisée vers la fin de l'Assemblée Générale; il y est fait le rapport financier, entendu les rapports des Commissions, adopté les résolutions ou recommandations, présenté les nominations du Bureau et des membres du Comité Exécutif, tenu les élections, et traité de questions diverses.

4.3. Des Assemblées Générales Extraordinaires peuvent aussi être convoquées.

4.4. Pour préciser la durée des mandats des membres du Bureau et des membres du Comité Exécutif, du Bureau des Commissions, on entend par *période*, dans ces Statuts, l'intervalle de temps entre la Séance Plénière de clôture d'une Assemblée Générale Ordinaire et la fin de la Séance Plénière de clôture de l'Association de la prochaine Assemblée Générale Ordinaire.

V - Le Bureau

5. Le Bureau de l'Association dirige et coordonne toutes les activités scientifiques et autres de l'Association et fonctionne continûment, comme requis, dans l'intervalle entre les Assemblées Générales Ordinaires. Il est composé d'un Président, deux Vice-Présidents, et un Secrétaire Général (qui sera aussi le Trésorier), élus par l'Assemblée Générale.

6. Le Président est élu à la Séance Plénière clôturant l'Assemblée Générale; la durée de son mandat est d'une période. Ils sont rééligibles pour la période suivante, mais seulement pour une période additionnelle.

7. Les Vice-Présidents sont élus à la Séance Plénière clôturant l'Assemblée Générale. La durée de leur mandat est d'une période. Ils sont rééligibles pour la période suivante, mais seulement pour une période additionnelle.

8. Le Secrétaire Général est élu à l'Assemblée Plénière clôturant l'Assemblée Générale. La durée de son mandat est de deux périodes. Un Secrétaire Général sortant est éligible pour la période suivante, mais seulement pour une période suivant un mandat initial de deux périodes.

9. Si le poste de Président devient vacant entre deux Assemblées Générales Ordinaires, le Doyen des Vice-Présidents devient Président. Dans le cas où les deux Vice-Présidents auraient la même ancienneté, c'est-à-dire auraient été élus pour la première fois à la même Assemblée Générale, le Comité Exécutif déciderait lequel des Vice-Présidents deviendrait Président.

10. Si le poste de Secrétaire Général devient vacant dans les mêmes circonstances, le Président désigne un Secrétaire Général pour occuper le poste jusqu'à la prochaine Assemblée Générale Ordinaire ou Extraordinaire.

Dans le cas d'élection à une Assemblée Générale Extraordinaire, la durée initiale du mandat sera en conséquence quelque peu plus courte que deux périodes entières.

VI - Secrétariat

11. Le Secrétaire Général expédie les affaires courantes de l'Association en accord avec le Président. Il est responsable de: 1) la correspondance administrative et scientifique; 2) la gestion des ressources à la disposition de l'Association; 3) la préparation, l'impression et la diffusion des publications; 4) l'organisation, pendant l'Assemblée Générale, des Assemblées Scientifiques et des Assemblées Extraordinaires; 5) l'exécution des décisions prises par l'Association à l'Assemblée Générale.

La gestion des ressources est comprise comme incluant le droit d'ouvrir un compte en banque au nom de l'Association, le droit de souscrire un emprunt, d'acheter des valeurs mobilières et de réaliser ces valeurs, en tout ou partie, au profit de l'Association.

12. Le Comité Exécutif peut, à sa discrétion, désigner un Secrétaire Général Adjoint résidant normalement dans la même région que le Secrétaire Général, qui:

1) se familiarise avec les opérations de routine du Secrétariat;

2) a la signature (avec le Président et le Secrétaire Général) des chèques sur les comptes bancaires de l'Association, sur instructions du Président ou du Secrétaire Général;

3) assiste le Secrétaire Général, comme il convient.

VII - Comité Exécutif

13. Le Comité Exécutif comprend, en plus des Membres du Bureau, cinq membres élus originaires de cinq pays différents. Ces membres sont élus à la Séance Plénière clôturant l'Assemblée Générale; la durée de leur mandat est de une période. Ils ne sont pas immédiatement rééligibles pour une période supplémentaire.

14. Le Comité Exécutif comprend aussi, ex-officio, les Présidents des Commissions et le Président sortant de l'Association.

Le Président d'une Commission peut déléguer au Secrétaire de cette Commission le droit de participer à une réunion du Comité Exécutif, si le Président en est empêché.

15. Si une vacance se produit dans la Présidence d'une Commission, le Secrétaire de cette Commission la représente alors au Comité Exécutif jusqu'au moment où la Commission élit un nouveau Président.

16. Le Comité Exécutif doit être consulté par le Bureau, par correspondance, pour toute nouvelle question importante, administrative ou scientifique, qui se pose entre deux Assemblées Générales.

17. Des réunions du Comité Exécutif peuvent être provoquées par le Bureau dans l'intervalle entre deux Assemblées Générales Ordinaires.

18. Toutes les décisions du Comité Exécutif sont prises à la majorité absolue des votants. En cas de partage des voix, la voix du Président est prépondérante.

VIII - Assemblées Générales de l'Association

19. L'Assemblée Générale de l'Association comprend les Délégués désignés par les Comités Nationaux des Pays Adhérents. Ces désignations doivent être officiellement portées à la connaissance du Bureau avant la première Séance Plénière de l'Assemblée Générale. Les Comités Nationaux doivent désigner le Délégué qui, en cas de vote par pays, détient le droit de vote pour son pays.

20. Comme indiqué à l'Article 4.1. l'Association se réunit en Assemblée Générale Ordinaire, au moment de l'Assemblée Générale Ordinaire de l'Union.

21. Si le besoin s'en fait sentir, l'Association peut aussi se réunir en Assemblée Générale Extraordinaire dans l'intervalle entre deux Assemblées Générales Ordinaires de l'Union.

21.1. Le Président de l'Association peut, avec l'assentiment du Comité Exécutif, provoquer une Assemblée Générale Extraordinaire de l'Association qui aura les mêmes pouvoirs et sera soumise aux mêmes règles que les Assemblées Générales Ordinaires.

21.2. Une Assemblée Générale Extraordinaire peut aussi être convoquée

par le Président à la demande d'au moins la moitié des Pays Adhérents.

21.3. Si la date et le lieu d'une telle Assemblée Générale Extraordinaire n'ont pas été arrêtés au cours de la précédente Assemblée Générale Ordinaire ou Extraordinaire, cette date et ce lieu doivent être déterminés par le Comité Exécutif de l'Association et doivent être communiqués aux Pays Adhérents au moins six mois à l'avance. La date et le lieu doivent être de même communiqués en temps utile au Bureau de l'Union et à ceux des autres Associations de l'Union.

22. Les Assemblées Générales Ordinaires et Extraordinaires sont publiques. Tous les scientifiques intéressés peuvent participer aux discussions et peuvent prendre la parole, s'ils sont reconnus par le Président ou celui qui préside, que ces scientifiques soient des Délégués formellement accrédités ou non, qu'ils soient originaires de Pays Adhérents ou non. Cependant, les votes sont conduits suivant les procédures mentionnées à l'Article 23 ci-dessous.

23. Aux Assemblées Générales, les Délégués présents ont individuellement le droit de vote sur les questions d'intérêt scientifique.

23.1. Dans les élections mentionnées aux Articles 6, 7, 8 et 13, le vote est fait par pays et chaque pays a une voix.

23.2. Pour les questions administratives, sans implications financières, le vote au sein de l'Association se fait par pays et chaque pays a une voix, à condition toutefois que le pays ait payé sa cotisation jusqu'à la fin de l'année précédant le vote.

23.3. Pour les questions financières, le vote dans l'Association sera fait par pays, sous réserve que la condition mentionnée à l'Article 23.2 soit satisfaite. Le nombre de voix assignées à chaque pays sera le nombre de sa catégorie de Membre de l'Union.

23.4. En cas de doute concernant le classement d'une question, et dans tous les cas d'égalité de votes sur une question, la décision restera au Président ou à celui qui est chargé de le remplacer.

23.5. Lorsqu'un Chef de Délégation ne peut être présent pour voter, il peut désigner un membre de sa délégation, ou un Délégué d'un autre pays pour voter au nom du pays du Chef de Délégation ci-dessus mentionné.

23.6. Aucun Délégué ne représente plus de un pays.

23.7. Un Pays Adhérent non représenté par un Délégué peut voter par correspondance sur une question bien définie de l'Ordre du Jour. Celui-ci doit avoir été distribué à l'avance. Le vote par correspondance doit être reçu par le Bureau avant la Séance Plénière dans laquelle le vote aura lieu.

23.8. La décision sur toutes les questions soumises au vote est obtenue à la majorité absolue des Délégués ou des pays votants, votes par correspondance compris. En cas de partage des voix, la voix du Président ou du Président de séance est prépondérante.

24. L'Ordre du Jour d'une Séance Plénière d'une Assemblée Générale de l'Association est déterminé par le Bureau qui a invité auparavant les Comités Nationaux des Pays Membres à lui soumettre des propositions. Cet Ordre du Jour doit être arrêté et communiqué aux Comités Nationaux au moins quatre mois avant la séance d'ouverture de l'Assemblée Générale.

24.1. Les questions non prévues à l'Ordre du Jour ne peuvent pas être prises en considération pendant la Séance Plénière qu'avec l'accord préalable d'au moins la moitié des pays représentés ou des Délégués présents à l'Assemblée Générale, suivant que la question est administrative (question financière incluse) ou scientifique.

25. Aux Assemblées Générales Ordinaires, le Secrétaire Général présente un rapport comprenant en particulier: 1) un état des recettes et dépenses de l'Association pour la période allant du 1er Janvier avant la précédente Assemblée Générale Ordinaire, au 31 Décembre avant l'Assemblée Générale en cours (l'année budgétaire ou exercice budgétaire va du 1er Janvier au 31 Décembre); 2) une estimation approximative des dépenses pour les exercices à venir jusqu'à la prochaine Assemblée Générale Ordinaire.

IX - Assemblées Scientifiques

26. L'Association peut, sur décision prise à une Assemblée Générale Ordinaire ou Extraordinaire, tenir des Assemblées Scientifiques à des moments autres que ceux des Assemblées Générales. Ces Assemblées Scientifiques peuvent être organisées par l'Association seule, ou elles peuvent être tenues conjointement avec d'autres Associations de l'Union, ou avec d'autres Unions ou Comités du Conseil International des Unions Scientifiques. Les plans de telles Assemblées Scientifiques doivent être communiqués au Bureau de l'Union et à ceux des autres Associations en temps utile.

X - Gestion Financière

27. Une Commission des Finances, désignée par le Président et approuvée par l'Assemblée Générale à la première Séance Plénière vérifie les comptes pour les années précédentes et examine le budget prévisionnel, comptes et budget prévisionnels ayant été préparés par le Secrétaire Général. La Commission approuve l'état des comptes que le Secrétaire Général a préparé, avant de soumettre le rapport financier à l'Assemblée Générale lors de sa Session Plénière de clôture.

Les comptes sont vérifiés par un expert comptable qualifié.

28. L'Association tire ses ressources de la part des cotisations des Pays Adhérents qui lui est accordée par l'Union. A cette ressource principale, peuvent occasionnellement s'ajouter d'autres recettes provenant de la vente de publications, des intérêts des fonds déposés en banque, des contributions apportées par des Organisations intéressées à supporter des symposiums ou autres réunions, etc...

29. Les recettes sont affectées en premier lieu au paiement des dépenses de Secrétariat, nommément:

a) tous les coûts des publications;

b) l'équipement de bureau, les dépenses de correspondance et d'expédition;

c) les paiements des frais de voyages du Président et du Secrétaire Général à l'occasion des Assemblées Générales;

d) si nécessaire, le loyer du Secrétariat, les frais d'achat et de maintenance de l'équipement, ainsi que les dépenses annexes.

29.1. Des frais de voyages peuvent être payés par le Secrétaire Général, mais seulement:

a) en relation avec des réunions d'affaires spécifiques de l'Association;

b) quand les personnes concernées représentent l'Association et non pas un Pays Membre, ou une autre organisation,

c) quand les personnes concernées ne peuvent pas obtenir des allocations adéquates de leurs propres sources nationales. De tels paiements peuvent couvrir les frais de voyages et une contribution raisonnable aux autres dépenses contractées pendant la participation à de telles réunions.

29.2. L'excédent des recettes est consacré à des bourses pour des activités scientifiques; ces bourses peuvent être accordées, par exemple, à des Commissions ou des Comités mixtes (dans ce cas, sous réserve du Statut 44) pour tenir des symposiums ou des réunions scientifiques ad'hoc; elles peuvent être accordées à des participants aux Assemblées Scientifiques ou aux Assemblées Générales de l'Association.

XI - Commissions

30. Des Commissions peuvent être formées par l'Assemblée Générale pour l'étude de questions particulières.

30.1. Les attributions des Commissions doivent être revues tous les quatre ans par le Comité Exécutif. Celui-ci doit faire des recommandations appropriées à la Séance Plénière de chaque Assemblée Générale Ordinaire, qui décide de la poursuite du développement ou du travail des Commissions, ou éventuellement de leur dissolution.

31. Les Membres des Commissions sont des scientifiques connus, intéressés par la question.

31.1. La Commission peut élire de nouveaux Membres à la majorité absolue

des Membres participant à l'élection. Les Membres peuvent provenir de Pays Adhérents ou de Pays non-Adhérents à l'Union.

Une certaine représentation géographique doit être prise en considération dans la composition des Commissions. La durée des mandats des Membres des Commissions est normalement de deux périodes entières. Les résultats des élections des Membres doivent être communiqués à l'Assemblée Générale.

32. Chaque Commission élit un Président et un Secrétaire Général parmi ses Membres: la durée de leur mandat est normalement d'une période, sauf circonstances exceptionnelles (cf. Article 37) qui pourraient changer la longueur des mandats du Bureau et des Membres. Le Président et le Secrétaire Général sont rééligibles.

32.1. Compte tenu du fait que chaque Président de Commission est aussi, ex-officio, Membre du Comité Exécutif, les Présidents des Commissions devraient être généralement réélus pour seulement une période supplémentaire, afin que la durée de leur mandat soit en accord avec celle des Membres élus du Comité Exécutif.

33. Quand une nouvelle Commission est constituée, le premier Président est désigné par le Comité Exécutif. Le Président de la Commission invite les scientifiques appropriés à être Membres.

34. Les Commissions doivent, en général, tenir les élections des Membres du Bureau au moment des Assemblées Générales Ordinaires de l'Association. Ces élections doivent avoir lieu avant la Séance Plénière de clôture de l'Assemblée Générale, de telle sorte que les résultats puissent être rapportés à l'Assemblée Générale en même temps que les autres questions traitées par les Commissions. L'Assemblée Générale a le droit de faire des commentaires sur le travail et les résultats des élections des Commissions, et de présenter des suggestions que les Commissions peuvent prendre en considération lors des réunions administratives et des élections ultérieures.

35. Les Commissions peuvent se réunir sur convocation de leur Président, en dehors des périodes des réunions des Assemblées Générales, à condition que le Bureau de l'Association ait été auparavant saisi. De telles réunions peuvent être organisées conjointement entre des Commissions intéressées, ou conjointement avec des Unions ou Comités appropriés du Conseil International des Unions Scientifiques, ou avec d'autres Organisations concernées (par exemple l'Organisation Météorologique Mondiale).

36. Le Président d'une Commission peut demander au Bureau d'approuver une élection par correspondance, ou une élection extraordinaire tenue au moment d'une réunion de la Commission, en dehors de la période d'une Assemblée Générale Ordinaire, comme il est prévu à l'Article 35 ci-dessus, si le Président de la Commission pense qu'une élection satisfaisante ne peut être organisée lors de l'Assemblée Générale Ordinaire.

36.1. Si un vote par correspondance est utilisé, celui-ci doit avoir lieu peu avant l'Assemblée Générale Ordinaire, afin que les résultats puissent en être rapportés à cette Assemblée.

36.2. Une élection extraordinaire lors d'une réunion de Commission, en dehors des temps d'une Assemblée Générale Ordinaire, devrait avoir lieu de préférence l'année avant ou l'année suivant l'Assemblée en question.

36.3. Pour des élections hors des Assemblées Générales, les mandats durent jusqu'à l'Assemblée Générale pour laquelle leur durée sera la plus voisine d'une période entière.

36.4. Les résultats de telles élections extraordinaires sont communiqués au Bureau et à l'Assemblée Générale Ordinaire qui les suit.

37. Une Commission peut, à la discrétion de son Président, désigner des sous-Commissions, Comités ou Groupes de Travail, pour entreprendre des études spéciales ou attirer l'attention de spécialistes sur une partie du domaine général de sa compétence. Les membres de tels sous-groupes n'ont pas besoin d'être Membres de la Commission. Ils doivent être désignés par le Président de la Commission, après consultation de ses Membres. Les conclusions ou recommandations de tels sous-groupes doivent être approuvées par la Commission mère avant leur promulgation.

38. Toutes les décisions des Commissions sont prises à la majorité absolue des voix des Membres participant au vote (vote individuel). En cas de partage des voix pour ou contre, la voix du Président est prépondérante.

XII - Comités Mixtes

39. Des Comité Mixtes entre l'Association de Météorologie et des Sciences de l'Atmosphère et d'autres Associations peuvent être constitués, sur des questions d'intérêt mutuel pour les Associations concernées. Dans le cadre de l'Association, l'accord formel sera donné par une Assemblée Générale, quoiqu'un accord de principe puisse être obtenu à une date antérieure du Comité Exécutif.

40. Les Membres des Comités Mixtes doivent être des scientifiques compétents désignés par leurs Associations respectives, chacune d'entre elles devant nommer normalement le même nombre de Membres.

41. Les Comités Mixtes peuvent proposer de nouveaux Membres, dont la nomination devra être ratifiée par leurs Associations respectives à l'occasion de leur Assemblée Générale. La durée du mandat de ces Membres est d'une période. Ces Membres sont rééligibles.

42. Chaque Comité Mixte élit un Président et un Secrétaire qui ne doivent pas être désignés tous deux par la même Association, et dont la durée du mandat est d'une période. Ce Président et ce Secrétaire sont rééligibles.

43. Les Comités Mixtes formulent leur programme de travail et organisent leurs réunions, autant que possible, pendant les sessions de l'Assemblée Générale de l'Union. Les actes des Comités associés sont publiés dans les minutes des Associations concernées.

> 43.1. Les Comités Mixtes peuvent se réunir sur convocation de leur Président, en dehors des périodes des réunions des Assemblées Générales, à condition d'en avoir saisi au préalable le Bureau de leurs Associations respectives. Ils peuvent se réunir aux mêmes dates que les Commissions ou Comités Mixtes correspondants, constitués par d'autres Associations de l'Union ou par d'autres Unions, afin d'étudier et de résoudre ensemble des problèmes qui intéressent plus d'une Association de l'Union ou plus d'une Union.

44. Les demandes de subsides en provenance d'une Commission Mixte doivent être présentées et supportées par les Associations concernées.

45. Chaque Comité Mixte peut s'adresser à titre consultatif à des experts non Membres du Comité associé.

46. Toutes les décisions des Comités Mixtes sont prises à la majorité absolue des voix des Membres participant au vote (votes individuels). Dans le cas de partage des voix pour ou contre, la voix du Président est prépondérante.

XIII - Dissolution de l'Association

47. Si l'Association devait être jamais dissoute, ses avoirs financiers retourneraient à l'Union et seraient employés à la poursuite des activités scientifiques et d'éducation, telles que l'organisation de réunions scientifiques et de symposiums, la diffusion de l'information scientifique, et la coordination des activités de recherche internationales.

XIV - Modification des Statuts de l'Association

48. Toute modification des Statuts ci-dessus doit être décidée par l'Assemblée Générale, qui fixe la date de son entrée en vigueur.

XV - Langues Officielles de l'Association

49. L'Association respecte les langues officielles reconnues par l'Union, nommément le français et l'anglais. Les résumés et les rapports peuvent être soumis pour publication dans l'une quelconque de ces langues.

50. Pour l'interprétation des Statuts, le texte anglais et le texte français sont considérés comme faisant autorité.

INTERNATIONAL ASSOCIATION OF METEOROLOGY AND ATMOSPHERIC SCIENCES

STATUTES

I - Objectives of the Association

1. The objectives of the International Association of Meteorology and Atmospheric Sciences are:

1.1. to promote the study of all problems on the Sciences of the atmosphere;

1.2. to initiate, facilitate, and coordinate, in this field, those researches which require international cooperation;

1.3. to stimulate discussion and provide for publication of the results of researches.

II - Membership of the Association

2. The International Association of Meteorology and Atmospheric Sciences is one of the constituent Associations of the International Union of Geodesy and Geophysics. All countries which adhere to the Union are Members of the Association (IAMAS) and are qualified to appoint delegates to the Association's General Assemblies.

2.1. Member countries may participate in the Association through a number of mechanisms, e.g., directly through their National Committee for the Union, or they may appoint a National Correspondent for the Association or they may appoint a National Committee for the Association.

III - Organs of the Association

3. The International Association of Meteorology and Atmospheric Sciences comprises:

1) the Bureau
2) the Secretariat
3) the Executive Committee
4) the General Assembly of Delegates
5) the Special Scientific Commission
6) the Joint Scientific Committees

3.1. The members of the Bureau and of the Executive Committee shall be chosen, as far as possible, from those who are from Adhering Countries on the basis of competence, experience, and geographical coverage.

IV - Time Schedule of the Association

4. The Association shall meet in Ordinary General Assembly at the time and place of the Ordinary General Assembly of the Union.

4.1. The Association arranges General Assemblies, composed of National Delegates of the Adhering Countries, to conduct the business of the Association. Scientific Assemblies are arranged for the exchange of scientific information.

General Assemblies are normally arranged on the occasion of Scientific Assemblies.

4.2. The Bureau shall have the responsibility for deciding on the schedule of business during the General Assembly. In general, however, an opening Plenary Session should be scheduled during which the President may announce business matters, appoint appropriate committees to function during the General Assembly (such as the Finance Committee and a Nominating Committee), and may call for such reports as may be appropriate at this first Plenary. A second Plenary should in general be arranged towards the close of the General Assembly, during which the financial reports shall be made, reports of the Commissions heard, resolutions or recommendations adopted, nominations for Officers and Members of the Executive Committee presented, elections held, and other appropriate business conducted.

4.3. Extraordinary and Scientific Assemblies may also be called, as outlined in appropriate Articles below.

4.4. For the purposes of discussions in these Statutes of the terms of offices of the Bureau and members of the Executive Committee, and Commission officers, etc., a *period* is defined as the interval elapsing between the final Plenary Session of one Ordinary General Assembly and the termination of the final Association Plenary Session of the succeeding General Assembly.

V - The Bureau

5. The Bureau of the Association shall direct and coordinate all scientific and related activities of the Association, and shall function on a continuing basis, as required, in the interval between Ordinary General Assemblies. It shall consist of a President, two Vice-Presidents, and a Secretary General (who is also a Treasurer), elected by the General Assembly.

6. The President shall be elected at the final Plenary Session of the General Assembly; his term of office shall be for one period following his election, and he shall not be eligible for immediate re-election.

7. The Vice-Presidents shall be elected at the end of an Ordinary Session of the General Assembly. Their terms of office shall be for one period. They shall be eligible for immediate re-election but only for one additional period.

8. The Secretary shall be elected at the final Plenary Session of the General Assembly. His term of office shall be for two periods. A retiring Secretary General shall be eligible for immediate re-election, but only for one additional period.

9. If the office of the President becomes vacant between two Ordinary General Assemblies, the senior Vice-President shall become President. In the event that the two Vice-Presidents are equal in seniority (i.e., each having been elected for the first time at the same General Assembly), the Executive Committee shall decide which Vice-President shall become President.

10. If the office of the Secretary General becomes vacant under the same circumstances, a Secretary General shall be nominated by the President to occupy the office until the next Ordinary or Extra-Ordinary General Assembly. In the event of election at an Extraordinary General Assembly, the initial term of the office will consequently be somewhat shorter than two full periods.

VI - Secretariat

11. The Secretary General shall expedite the current business of the Association in agreement with the President. He shall be responsible for: 1) the administrative and scientific correspondence; 2) the management of the resources at the disposal of the Association; 3) the preparation, printing, and distribution of the publications; 4) the arrangements for the General Assembly, Extraordinary, and Scientific Assemblies; 5) the execution of the decisions of the Association at the General Assembly.

The management of resources shall be understood to include the right to open a banking account in the name of the Association, to authorize the borrowing or the purchase of moveable properties and to dispose of them, in whole or in part, to the benefit of the Association.

12. The Executive Committee may, at its discretion, appoint an Assistant Secretary General, normally resident in the same general area as that of the Secretary General, who shall:

1) become familiar with the routine operations of the Secretariat;

2) have signing authority (together with the President and Secretary General) for cheques on Association bank account, to be used on instruction from the President or Secretary General;

3) assist the Secretary General as appropriate.

VII - Executive Committee

13. The Executive Committee shall be composed, in addition to the Members of the Bureau, of five elected members from five different countries. They shall be elected at the final Plenary Session of the General Assembly, and their term of office shall be for two periods. They shall not be eligible for immediate re-election.

14. The Executive Committee shall also include, ex-officio, the Presidents of the Commissions and the retiring President of the Association. The President of a Commission may delegate to the Secretary of that Commission the right to participate in a

meeting of the Executive Committee if the President cannot do so.

15. If a vacancy occurs among the elected Members of the Executive Committee, a replacement shall be chosen by the General Assembly in the course of the next appropriate Plenary Session, for a period which shall expire at the time when the Member so replaced would have terminated his office.

16 The Executive Committee shall be consulted by the Bureau, by correspondence, on every new question of importance, administrative or scientific, which arises between two General Assemblies.

17. Meetings of the Executive Committee may be convened by the Bureau in the interval between two General Assemblies.

18. All decisions of the Executive Committee shall be taken at simple majority vote of those voting. If the votes are equally divided, that of the President shall decide.

VIII - General Assemblies

19. The General Assembly of the Association shall be composed of Delegates appointed by the National Committees of the Adhering Countries. These appointments shall be brought to the notice of the Bureau officially before the opening of the first Plenary Session of the General Assembly. The National Committees shall designate the Delegate who, in case of voting by countries, shall hold the right to vote for his country.

20. As given in the Article 4.1, the Association shall meet in Ordinary General Assembly at the time of the Ordinary General Assembly of the Union.

21. If the need should arise, the Association may also meet in Extraordinary General Assembly during the interval between two Ordinary General Assemblies of the Union.

21.1. The President of the Association, with the concurrence of the Executive Committee, may convene an Extraordinary General Assembly of the Association, which shall have the same powers and be subject to the same rules as the Ordinary General Assemblies.

21.2. An Extraordinary General Assembly must also be convened by the President upon the request of at least half of the Adhering Countries.

21.3. If the date and place of such an Extraordinary General Assembly have not been agreed upon during the preceding Extraordinary or Ordinary General Assembly, that shall be determined by the Executive Committee of the Association and communicated to the Adhering Countries at least six months in advance. The date and time shall likewise be communicated in good time to the Bureau of the Union and to those of the other Associations of the Union.

22. The Ordinary and Extraordinary General Assemblies shall be open to the public. All interested scientists may participate in the discussions, and may take the floor if recognized by the President or Presiding Officer, whether those scientists be formally accredited Delegates or not, or whether they are from Adhering Countries or not. However, voting shall be conducted according to the procedures outlined in Article 23 below.

23. At the General Assemblies, the Delegates present shall have individually the right to vote on questions of scientific interest.

23.1. In the elections mentioned in Articles 6, 7, 8 and 13, the vote shall be by country and each country shall have one vote.

23.2. On administrative matters, without financial implications, voting within the Association shall be by country and each country shall have one vote, always subject to the condition that the country shall have paid its subscription up to the end of the year preceding the voting.

23.3. On financial questions, voting within the Association shall likewise be by country, provided that the above-mentioned condition is satisfied. The number of votes assigned to each country shall be one greater than the number of its category of membership in the Union.

23.4. In case of doubt as to which class a question belongs, and in all cases of equality of votes on a question, the decision shall rest with the President or Presiding Officer.

23.5. In the event that a Chief Delegate cannot be present for voting, he may designate a Delegate from another country, to cast the votes on behalf of the country of the aforementioned Chief Delegate.

23.6. No Delegate shall represent more than two countries.

23.7. An Adhering Country not represented by a Delegate may forward by post its vote on any specific question of the agenda, that has been distributed in advance. The postal ballot must be received by the Bureau in advance of the Plenary Session in which the voting takes place.

23.8. The decision on all voting matters shall be by simple majority of those Delegates or those countries present, including postal ballots, counting for the purpose of determining a majority only those votes cast for or against a particular matter. In case of a tie vote, that of the President or Presiding Officer shall decide.

24. The agenda of a Plenary Session of a General Assembly of the Association shall be determined by the Bureau, which shall have previously invited the National Committees of the Adhering Countries to submit proposals. This agenda shall be agreed upon and communicated to the Committees at least four months before the opening of the General Assembly.

24.1. Questions not contained in the agenda may be considered during the sessions only with the previous agreement of at least half of the countries represented, or of the Delegates present at the General Assembly, accordingly, as the question is administrative (including financial) or scientific.

25. At Ordinary Sessions of the General Assembly the Secretary General shall present a report comprising in particular:

1) a statement of receipts and expenditure of the Association for the period from 1st. January, prior to the preceding Ordinary General Assembly, to 31st. December, prior to the current General Assembly (the financial year being from 1st. January to 31st. December).

2) an approximate estimate of expenses for the financial years up to that of the next Ordinary General Assembly.

IX - Scientific Assemblies

26. The Association may, upon decision taken at an Ordinary or Extraordinary General Assembly, conduct Scientific Assemblies at times other than the General Assemblies. These Scientific Assemblies may be arranged by the Association alone, or they may be held jointly with other Associations of the Union, or with other bodies of the International Council of Scientific Unions. Plans for such Scientific Assemblies shall be communicated to the Bureau of the Union and to those of the other Associations in good time.

X - Financial Arrangements

27. A Finance Committee, nominated by the President and approved by the General Assembly at its first Plenary Session, shall verify the accounts for the preceding years and examine the provisional estimates, both of which having been prepared by the Secretary General. The Committee shall approve the financial statements which the Secretary General prepares prior to the submission of these reports, by the Secretary General, to the General Assembly at the Final Plenary Session.

The accounts shall have been audited by a qualified accountant.

28. The Association shall draw its resources from that part of the subscriptions of the Adhering Countries which is allotted to it by the Union. To this main income may occasionally be added other receipts from the sale of publications, interest on bank accounts, contributions made by other interested organizations to support symposia or other meetings, etc.

29. The income shall be assigned in the first place for the payment of the expenses of the Secretariat, namely:

a) all costs of publications;

b) office equipment, expenses of correspondence, shipping;

c) payments to the President and the Secretary General for traveling expenses at the time of the General Assemblies;

d) if necessary, the rents of the Secretariat, costs of purchase and maintenance of equipment, and incidental expenses.

29.1. Traveling expenses may be paid by the Secretary General, but only:

a) in connection with meetings on specific Association business, and

b) when those concerned represent the Association and not Adhering Countries or other organizations, and

c) in cases where those concerned cannot draw proper allocations from their own national sources. Such payments may cover traveling costs and a reasonable contribution to other expenses while attending such meetings.

29.2. The balance of receipts shall be devoted to grants for scientific activity, e.g., to Commissions and to Joint Committees (in this case subject to the provisions of Statute 44) for conduct of symposia or special scientific meetings, and to participants as far as possible, to Association General or Scientific Assemblies, who cannot obtain adequate travel allocations from other sources. In general, it will be expected that such participants will obtain partial support from the Association's funds, the balance coming from national or other sources.

XI - Commissions

30. Commissions for the study of particular questions may be constituted by the General Assembly.

30.1. The objectives of the Commissions will be reviewed every four years by the Executive Committee. This will make appropriate recommendations at a Plenary Session of each Ordinary General Assembly, which decides in the continuation of the research and works of the Commission or on its termination.

31. The Members of these Commissions shall be recognized and interested scientists.

31.1. The Commission may elect new Members by a simple majority vote of the Members voting in the election. The Members may be from Adhering or non-Adhering Countries. Due regard should be paid to geographical representation in the composition of the Commissions. The terms of Commission Members shall normally be for two full periods. The results of membership elections shall be reported to the General Assembly.

32. Each Commission shall elect a President and a Secretary from among their membership; their terms of office shall normally be for one period, but (see Article 37 below) for special circumstances that could change the actual length of the terms of office of Officers and Members. They shall be eligible for re-election.

32.1. In view of the fact that each Commission President will also be, ex-officio, a Member of the Executive Committee, the Presidents of Commissions should generally be re-elected for only one additional period, in order that their terms of office shall be consonant with those of the elected Members of the Executive Committee.

33. When a new Commission is constituted, the first President will be appointed by the Executive Committee. The Commission President shall invite appropriate scientists to be Members. These appointments shall be voted upon by the Commission at its first meeting.

34. The Commission should, in general, conduct their elections of Officers and Members at the times of the Ordinary General Assemblies of the Association. These elections should be held prior to the final Plenary Session of the General Assembly so that the results, along with other business conducted by the Commissions, may be reported to the General Assembly. The General Assembly shall have the right to comment on the work and elections of the Commission, in an advisory capacity only, which the Commissions may wish to consider at subsequent business sessions and elections.

35. The Commissions may meet when convened by their President outside the meetings of the General Assemblies, on condition that the Bureau of the

Association is advised beforehand. Such symposia may be arranged jointly between interested Commissions, or jointly with other appropriate bodies of the International Council of Scientific Unions, or with other relevant organizations (e.g., the World Meteorological Organization).

36. The President of a Commission may request the Bureau to sanction an election by postal ballot, or by holding an extraordinary election at the time of a Commission meeting held outside the time of an Ordinary General Assembly, as in Article 35 above, if the Commission President feels that a satisfactory election cannot be held at an Ordinary General Assembly.

36.1. A postal ballot should be held prior to the Ordinary General Assembly so that the results could be reported to that Assembly.

36.2. An extraordinary election at a Commission meeting outside the time of the Ordinary General Assembly should preferably be held in the year prior to or following the Assembly in question.

36.3. For elections held outside the General Assemblies, the terms of office shall last until that General Assembly which would result in the closest approximation to a full term.

36.4. The results of such extraordinary elections shall be reported to the Bureau and to the following Ordinary General Assembly.

37. A Commission may, at the discretion of its President, appoint Sub-Commissions, Committees, or Working Groups, to undertake special studies or to devote specialist attention to a part of the general area of concern. The Members of such sub-bodies need not be Members of the Commission. They should be appointed by the President of the Commission, after due consultation with Members of the Commission. Findings or recommendations of such sub-bodies must be approved by the parent Commission before promulgation.

38. All decisions of Commissions shall be taken by a simple majority of votes of the Members voting (individual votes). In case of equal votes for and against, that of the President shall decide.

XII - Joint Committees

39. Joint Committees between the Association and other Associations on scientific questions of mutual interest may be constituted by the Associations concerned. In the case of IAMAS, formal approval shall be given by a General Assembly, although approval in principle may be granted at an earlier date by the Executive Committee.

40. The Members of the Joint Committee shall be appropriate scientists nominated by the respective Associations, each of which shall normally nominate the same number of Members.

41. The Joint Committees may propose new Members whose nomination must be ratified by the respective Association at the occasion of their General Assembly. The term of office of Members shall be for one period. They shall be eligible for re-appointment.

42. Each Joint Committee shall elect a President and Secretary who shall not both have been appointed by the same Association, and whose term of office shall be for one period. They shall be eligible for re-election.

43. The Joint Committees shall formulate their program of work and shall organize their meetings, insofar as possible, during the course of the sessions of the General Assembly of the Union. The proceedings of the Joint Committees shall be published in the minutes of the Associations concerned.

43.1. The Joint Committees may meet when convened by their President outside the meetings of the General Assemblies, on condition that the Bureaus of the respective Associations are advised beforehand. They may meet at the same time as related Commissions or Joint Committees constituted by other Associations of the Union or by other Unions, in order to study and resolve together problems which interest more than one Association of the Union or more than one Union.

44. Requests from a Joint Committee for subsidies must be presented and supported by the Associations concerned.

45. Every Joint Committee may refer in a consultative capacity to experts who are not Members of the Joint Committee.

46. All decisions of Joint Committees shall be taken by a simple majority of votes of the Members present (individual votes). In case of equal votes for and against, that of the President shall decide.

XIII - Dissolution of the Association

47. If the Association should ever be dissolved, its financial assets will revert to the Union to be used for the continuation of scientific and educational activities, such as the organization of scientific meetings and symposia, the dissemination of scientific information, and the coordination of international research activities.

XIV - Changes in the Statutes of the Association

48. Changes of these Statutes shall be decided by the General Assembly, which shall also decide on the date when such changes shall take effect.

XV - Official Languages of the Association

49. The Association shall observe the official languages recognized by the Union, namely French and English. Abstracts or reports may be submitted in either of these languages for publication.

50. For the interpretation of the Statutes, the English text and the French text shall both be considered authoritative.

ASSOCIATION INTERNATIONALE DES SCIENCES HYDROLOGIQUES

STATUTS ET RÈGLEMENT INTÉRIEUR

I - STATUTS

BUTS

1. Les buts de l'Association.

1.1. Promouvoir l'étude de l'hydrologie en tant que partie intégrante des sciences de la Terre et des ressources en eau;

- Etudier le cycle hydrologique sur la Terre et les eaux des continents; les eaux superficielles et souterraines, les neiges et les glaces, de même que les processus physiques, chimiques et biologiques les concernant, leurs rapports avec le climat et avec d'autres facteurs physiques et géographiques de même que les interrelations existant entre elles;

- Etudier l'érosion et la sédimentation et leurs relations avec le cycle de l'eau;

- Examiner les aspects hydrologiques de l'utilisation et de la gestion des eaux ainsi que les modifications affectant les ressources en eau sous l'influence des activités de l'homme;

- Fournir une base scientifique solide à l'utilisation optimale des systèmes de ressources en eau, comprenant le transfert de connaissances concernant la planification, l'ingénierie, la gestion et les aspects économiques de l'hydrologie appliquée.

1.2. D'offrir toutes facilités pour la discussion, la comparaison et la publication des résultats de la recherche.

1.3. De provoquer, de faciliter et de coordonner les recherches et études concernant des problèmes hydrologiques qui nécessitent une coopération intemationale.

2. L'Association est un des corps constituants de l'Union Géodésique et Géophysique Internationale. Elle est régie par les Articles des Statuts et du Règlement Intérieur de l'Union applicables aux diverses Associations, ainsi que par les présents Statuts.

3. Tout Pays Adhérent à l'Union est aussi adhérent à l'Association et est appelé à envoyer des Délégués et à participer par tout autre moyen à ses travaux. Toutes les réunions scientifiques de l'Association et de ses composantes sont ouvertes à ces Délégues.

4. L'Association exerce ses activités dans le cadre du Conseil Intemational des Unions Scientifiques et de l'Union Géodésique et Géophysique Internationale, en coopération avec les Nations Unies et ses agences spécialisées et par contacts directs avec les autres Organisations Internationales.

5. L'Association comporte: la Session Plénière, le Bureau de l'Association, les Commissions et les Comités Scientifiques, les Groupes d'Experts et les Groupes de Travail et "The International Association of Hydrological Sciences Limited". L'Association maintient le contact avec les divers pays adhérents par l'intermédiaire de leurs Comités Nationaux (souvent Sous-Comités ou Sections des Comités Nationaux de l'UGGI) ou par celle de correspondants nationaux.

Commissions Scientifiques: Unités constitutives de l'Association ayant des responsabilités scientifiques bien définies dans des domaines hydrologiques spécifiques (par exemple eaux superficielles, eaux souterraines, neiges et glaces). Les divisions sont à leur tour des unités constitutives pour les Commissions.

Comités Scientifiques: Unités constitutives de l'Association, instituées à titre provisoire (ad'hoc) ou permanent, ayant des responsabilités scientifiques bien définies communes, au sens large, à des sujets hydrologiques spécifiques (par exemple telédétection ou telétransmissions). Les divisions sont à leur tour des unités constitutives pour les Comités.

Groupes d'Experts ou Groupes de Travail: Unités constitutives de l'Association créées à titre transitoire (ad'hoc), en vue de soumettre un rapport sur des problèmes spécifiques, qu'ils soient scientifiques ou administratifs.

Comités Nationaux: Les Comités Nationaux sont les organes administratifs permettant de maintenir le contact avec les différents pays. Les représentants nationaux ont le même rôle.

"The International Association of Hydrological Sciences Limited": Son statut juridique est celui d'une "Charity" déclarée au Royaume-Uni dont l'objet exposé dans le sommaire et les articles de ses Statuts est identique à celui de la présente Association et qui se situe dans le cadre du CIUS et de l'UGGI.

Session Plénière

6. Une Session Plénière de l'Association doit être convoquée en accord avec le Règlement Intérieur de l'Union. Au moins une Session Plénière doit être tenue lors d'une Assemblée Générale de l'UGGI ou d'une Assemblée Scientifique de l'Association. Chaque Pays Adhérent peut être représenté par un ou plusieurs Délégués lors d'une Session Plénière.

6.1. La Session Plénière détient l'autorité suprême en matière de questions à caractère scientifique.

6.2. La Session Plénière doit considérer la situation des sciences hydrologiques au moment de la réunion, les tendances de leur développement et les questions relatives à l'organisation des Symposiums sur d'importants problèmes hydrologiques, en tenant compte des programmes appropriés des autres Organisations Intemationales.

6.3. Chaque participant présent lors d'une Session Plénière dispose d'une voix pour les questions scientifiques.

7. L'autorité suprême de l'Association pour toutes les questions administratives ou financières est conférée à la Session Administrative Plénière de l'Association.

7.1. La Session Administrative Plénière se compose du Président, du Président-élu ou du Président sortant, des Vice-Présidents, du Secrétaire Général, du Trésorier, de l'Editeur, du Président ou d'un autre représentant désigné de chaque Commission et Comité Scientifiques en activité au moment de la Session, du Président de "The IASH Limited" et d'un délégué de chaque Pays Adhérent, mandaté par ce pays pour voter en son nom lors de la Session Administrative Plénière.

Pour qu'il y ait quorum, il est nécessaire que le Président (ou le Vice-Président faisant fonction de Président), le Secrétaire Général ou son suppléant et les Délégués dotés du

droit de vote d'au moins dix pays soient présents.

7.2. Le vote en Session Administrative Plénière a lieu par pays, chaque pays disposant d'une voix à la condition qu'il soit en règle de ses cotisations à la fin de l'année précédant le vote. Le vote peut aussi se faire par correspondance mais si le vote a été fait par correspondance le pays ne peut alors voter à nouveau lors de la Session Plénière. Seuls les titulaires de postes de responsabilité de l'Association et de ses Commissions et Comités Scientifiques autorisés à voter par leur pays peuvent participer au vote.

7.3. La session administrative plénière réunie durant l'Assemblée Générale de l'UGGI, élit pour l'Association, selon le Règlement Intérieur, le Président-Élu, les Vice-Présidents (dont le nombre ne peut dépasser trois), le Secrétaire Général, le Trésorier et tout autre titulaire de poste de responsabilité électif qui pourrait paraître nécessaire.

L'élection doit avoir lieu dès que possible après le début de l'Assemblée Générale de l'UGGI, selon les articles 7.1, 7.2 et 7.6.

La période de fonction de tout titulaire de poste de responsabilité de l'Association, à l'exception du Président, couvre l'intervalle séparant les élections de deux Assemblées Générales successives de l'UGGI.

Le Président-Élu devient Président et le Président devient Président sortant deux ans après les élections organisées lors de l'Assemblée Générale de l'UGGI.

Si une assemblée scientifique a lieu durant la seconde année suivant les élections, le Président-Élu devient Président au début de l'assemblée scientifique.

La durée de la fonction de Président sortant va du moment où le nouveau Président occupe son poste jusqu'à la nouvelle élection d'un Président-Élu. A n'importe quel moment le Bureau doit comporter soit un Président et un Président-Élu soit un Président et un Président sortant.

Le Président et les Vice-Présidents ne peuvent pas être élus pour deux mandats successifs au même poste.

Le Secrétaire Général et le Trésorier sont rééligibles, le nombre de mandats supplémentaires étant limité à deux.

L'Éditeur doit être désigné par le Bureau et son mandat peut être prolongé sans aucune limitation de durée.

Le Président-Élu assume la charge de Président si cette charge devient vacante. S'il n'y a pas de Président-Élu, le Bureau doit désigner l'un des Vice-Présidents comme Président.

Si les charges de Secrétaire Général, de Trésorier ou d'Éditeur deviennent vacantes entre deux Assemblées Générales de l'UGGI, des responsables de remplacement doivent être désignés par le Président pour remplir leurs fonctions jusqu'à la fin du mandat.

7.4. La session administrative plénière a le pouvoir de créer et de dissoudre les Commissions et Comités Scientifiques. Leurs attributions doivent être incluses dans le Règlement Intérieur de l'Association.

La session administrative plénière réunie lors de l'Assemblée de l'UGGI doit être informée de l'élection du Président-Élu, des Vice-Présidents (dont le nombre est limité à trois) et du Secrétaire par la session administrative plénière de chaque Commission et Comité Scientifique.

La charge de Président-Élu de chaque Commission et Comité Scientifique doit être attribuée selon la même procédure que celle décrite à l'article 7.3 pour l'Association.

Les Présidents des Commissions et Comités Scientifiques ne peuvent pas être réélus pour deux mandats consécutifs à la même charge. Les Vice-Présidents et le Secrétaire sont rééligibles mais seulement pour un mandat supplémentaire.

Les Commissions et Comités Scientifiques ont le pouvoir de combler les vacances qui peuvent survenir entre les élections.

Cet article autorise également la création de Comités Régionaux qui peuvent être créés à l'initiative de plusieurs Comités ou Représentants Nationaux. Les membres de leur Bureau doivent être élus par ces Comités ou Représentants Nationaux.

7.5. La session administrative plénière peut élire un Président Honoraire qui exerce ses fonctions à vie jusqu'à ce qu'il ou elle démissionne de son poste. Le Président Honoraire peut participer en tant que Membre sans droit de vote à n'importe quelle réunion de l'Association incluant celle du Bureau et peut être sollicité par le Bureau pour entreprendre des tâches spécifiques destinées à appuyer les buts de l'Association.

7.6. Pour toutes les questions impliquant des problèmes financiers, le vote en session administrative plénière doit avoir lieu comme il est indiqué à l'article 7.2 sauf que, sur la demande de deux Délégués ayant capacité de vote, le nombre de voix pour chaque pays doit être égal à la valeur du numéro de sa catégorie de Membre, tel que cela est défini dans les Statuts de l'Union, augmenté d'une unité.

7.7. Un Pays Adhérent, non représenté à une session administrative plénière, peut voter par correspondance sur tout point de l'ordre du jour, incluant l'élection des Membres du Bureau de l'Association.

7.8. Le Bureau peut autoriser le vote par correspondance sur des questions administratives entre les sessions plénières de l'Association.

Le Bureau

8. Le Bureau de l'Association se compose du Président, du Président-Élu ou du Président sortant, des Vice-Présidents, du Secrétaire Général, du Trésorier, de l'Éditeur et des Présidents des Commissions et Comités Scientifiques en activité et du Président de "The International Association of Hydrological Sciences Limited". Le Président sortant reste Membre du Bureau durant la période allant de la fin de sa fonction à l'élection du nouveau Président-Élu. Le Président doit convoquer le Bureau au moins une fois par an pour conduire les affaires de l'Association.

Président, Secrétaire Géneral, Trésorier et Éditeur

9. Le Président est l'agent exécutif de l'Association et il dirige les affaires selon les décisions de la Session Plénière de l'Association. Le Président doit être assisté des Vice-Présidents.

10. Le Secrétaire Général, en accord avec le Président, gère les affaires de l'Association, s'occupe de la correspondance, conserve les documents officiels et les archives administratives. Le Bureau peut autoriser le Secrétaire Général à employer du personnel administratif et du personnel de secrétariat pour l'assister dans l'exécution de ses obligations vis à vis de l'Association. Le Secrétaire Général doit aussi prendre toute disposition nécessaire à assurer que les objectifs de l'Association sont réalisés en conformité avec les lois régissant l'administration, la fiscalité, les contrats et actes juridiques ou leur équivalent dans tout pays où l'Association est en activité, ceci incluant la désignation d'un individu ou d'une personne morale, si nécessaire, pour protéger et représenter l'Association dans ces domaines et son indemnisation par l'Association eu égard au coût d'une telle action...

11. Le Trésorier, ou le responsable de l'Association faisant fonction de Trésorier, doit rassembler les fonds de l'Association et les répartir en accord avec les décisions de la Session Plénière de l'Association et du Bureau. Il doit conserver les relevés de toutes les transactions financières de l'Association et soumettre des rapports annuels s'y référant au Bureau, ainsi que cela est exigé par les Statuts et le Règlement Intérieur de l'UGGI. En accord avec le Secrétaire Général, il doit prendre toutes dispositions utiles pour assurer les souscriptions, la vente et la mise en réserve des publications de l'Association.

11.1. Les fonds de l'Association doivent être placés sur les comptes de l'Association. Ils doivent être à la disposition du Trésorier et du Secrétaire Général si cela est jugé nécessaire et ainsi qu'il est spécifié à l'Article 11, mais des dispositions doivent être prises pour permettre au Président de transférer les

fonds ou une partie de ceux-ci à un Trésorier suppléant désigné selon l'Article 7.3.

12. L'Editeur mettra au point, en vue de leur publication par l'Association, les textes des documents originaux, des revues sur un sujet scientifique et d'autres matériaux, sous une forme qui soit en accord avec les décisions de la Session Plénière et du Bureau.

Commissions et Comités

13. Les dispositions suivantes s'appliquent aux Commissions et Comités Scientifiques créés en vertu de l'Article 7.4.

13.1 Les Commissions et Comités Scientifiques doivent se tenir au courant des derniers progrès de la recherche dans les domaines de l'hydrologie qui les concernent et dégager les tendances de la recherche sur les problèmes les plus urgents en hydrologie dont l'intérêt est commun à plusieurs pays. Les Commissions et Comités Scientifiques doivent étudier les questions votées par leur Session Plénière.

13.2. Les Commissions et Comités Scientifiques doivent participer activement à la préparation de symposiums sur des problèmes scientifiques appropriés.

13.3. (a) Les Commissions Scientifiques seront désignées sous le nom de "Commission Intemationale de. .. " (b) Les Comités Scientifiques seront désignés sous le nom de "Comité intemational de..."

13.4. Les Comités Régionaux (Articles 5 et 7.4) doivent étudier des sujets hydrologiques présentant un intérêt particulier pour une région spécifique et peuvent diriger des réunions régionales sur de tels sujets. Les réunions régionales doivent être ouvertes à tous les Pays Adhérents et les Commissions et Comités Scientifiques peuvent désigner un représentant pour assister en leur nom à ces réunions.

13.5. Le Comité National (ou le représentant national) pour l'AISH de chaque Pays Adhérent peut désigner un représentant pour chaque Commission Scientifique, Comité Scientifique et Comité Régional auquel il désire s'affilier. De tels représentants peuvent voter sur toutes questions administratives et scientifiques étudiées par la Commission Scientifique, le Comité Scientifique ou le Comité Régional, et peuvent correspondre directement avec les titulaires de postes de responsabilité de cette Commission ou de ce Comité à propos de toutes questions intéressant cette Commission ou ce Comité. Tous les participants présents à une réunion d'une Commission ou d'un Comité peuvent voter sur des matières scientifiques.

13.6. Chaque Commission ou Comité Scientifique ainsi que chaque Comité Régional peut proposer à l'approbation de la Session Administrative Plénière de l'Association une série de réglementations pour sa propre organisation et son administration.

Groupes d'experts, Groupes de Travail et Rapporteurs

14. La Session Plénière ou le Bureau peuvent créer des Groupes d'Experts et des Groupes de Travail pour entreprendre:

(a) la réalisation d'un programme scientifique ad'hoc; ou,

(b) une tâche temporaire de coopération de nature régionale, ou,

(c) des tâches organisationnelles ou administratives spécifiques. Le Président et les membres de tels groupes doivent être nommés par le Président auquel ils rendent compte de leurs activités. De tels groupes ne doivent exister que dans l'intervalle de temps entre deux Assemblées Générales successives de l'UGGI. Les Commissions et Comités Scientifiques peuvent créer des divisions et des Groupes de Travail ad'hoc destinés à rapporter sur des problèmes spécifiques.

"The IAHS Limited"

15. "The International Association of Hydrological Sciences Limited".

15.1. "The International Association of Hydrological Sciences Limited" doit s'occuper des questions exposées dans le sommaire et les articles de ses Statuts de société (dont une copie doit être conservée par le Secrétaire Général). Son Statut juridique est celui d'une "Charity" déclarée au Royaume-Uni.

15.2. La participation à la société est réservée à des membres de l'Association. La sociéte s'occupera du programme de publication de l'AISH incluant les arrangements concernant le "Journal des Sciences Hydrologiques".

15.3. "The International Association of Hydrological Sciences Limited" doit comprendre parmi ses membres le Secrétaire Général ainsi que les personnes que nommera le Président. Le Président de la Société doit rendre compte de ses activités au Président de l'Association. En raison des exigences de la loi anglaise, au moins la moitié des membres de la société, qui doivent en être administrateurs, doivent résider dans le Royaume-Uni.

15.4. Pour assurer la continuité de gestion de la Société, le Président aura totale latitude en ce qui concerne la nomination du Président de la Société et des membres.

Règlement Interieur - Amendements

16. Dans le cadre des présents Statuts, la Session Administrative Plénière de l'Association a le pouvoir d'adopter ou d'amender le Règlement Intérieur à la majorité simple.

17. Les propositions formulées par les Pays Adhérents en vue de la modification d'un Article quelconque des Statuts doivent parvenir au Secrétaire Général au moins six mois avant la date de la réunion au cours de laquelle elles seront considérées par la Session Administrative Plénière de l'Association. Le Secrétaire Général doit au moins quatre mois avant la date fixée, notifier à tous les Pays Adhérents toutes les propositions de modifications qu'il aura alors reçues.

18. Les Articles de ces Statuts ne peuvent être modifiés qu'à la majorité des deux tiers des voix exprimées lors d'une réunion de la Session Administrative Pléniere de l'Association par les Délégués ayant droit de vote, présents à cette réunion ou votant par correspondance, à la condition que le nombre total de voix favorables ne soit pas inférieur à la moitié du nombre de membres de la Session Administrative Plénière de l'Association ayant la capacité de vote.

19. Les Statuts sont rédigés en anglais et en français, et le texte anglais fera autorité. Les problèmes d'interprétation qui peuvent intervenir entre les deux textes devront être réglés par le Président.

II - RÈGLEMENT INTÉRIEUR

1. Les Commissions et Comités Scientifiques suivants ont été créés, conformément à l'Article 7.4 des Statuts.

- Commission Internationale des Eaux de Surface,
- Commission Internationale des Eaux Souterraines,
- Commission Internationale d'Erosion Continentale,
- Commission Internationale des Neiges et Glaces,
- Commission Internationale de la Qualité des Eaux,
- Commission Internationale des Systèmes de Ressources en Eau,
- Comité International de Télédétection et Télétransmission,
- Comité International des Relations Sol-Plante-Atmosphère,
- Comité International des Traceurs.

Chaque Commission et Comité devra définir ses attributions qui, une fois approuvées par la Session Administrative Plénière de l'Association, seront jointes aux amendements.

Toutes les Commissions s'intéresseront aux processus naturels et aux modifications apportées à ces

processus par l'action de l'homme. Tous les Comités s'intéresseront aux processus naturels, aux technologies et applications qui recouvrent le champ d'intérêt de deux Commissions au moins. Les relations avec l'environnement seront examinées dans chaque cas où il conviendra de le faire.

1.1. Chaque fois qu'il sera fait mention de Commissions et Comités Scientifiques dans le Règlement Intérieur il faudra comprendre "Commissions Internationales et Comités Internationaux".

2. Les divers Commissions et Comités Scientifiques ont pour tâche de préparer des rapports scientifiques faisant le point sur l'état de la recherche dans les domaines de l'hydrologie qui leur sont propres; ils noteront les résultats obtenus et les tendances actuelles en insistant sur les points significatifs concernant l'approche des problèmes. Les rapports seront fournis en anglais ou en français et comporteront un sommaire dans l'autre langue officielle. Le rapport doit parvenir au Secrétaire Géneral au moins quatre mois avant la Session Plénière de l'Association, pour distribution aux responsables de l'Association, y compris ceux des différents Commissions et Comités Scientifiques, ainsi qu'aux Comités Nationaux, et pour publication dans les rapports de la Session Plénière de l'Association. Le Président de l'Association inclut ces rapports scientifiques dans sa communication à la Session Plénière de l'Association, de même que ses recommandations concernant le développement de la recherche.

3. Les Commissions et Comités Scientifiques se réunissent lors des Assemblées Générales de l'UGGI et lors des Assemblées Scientifiques de l'Association, à moins que le Bureau ne les ait autorisés à se réunir dans d'autres circonstances. Une Commission ou un Comité Scientifique peut aussi prévoir d'autres réunions suivant le règlement qu'ils peuvent adopter, conformément à l'article 13.6 des Statuts.

4. Les Commissions et Comités Scientifiques peuvent inviter des conseillers provenant de pays non adhérents à participer à leurs travaux. Ces conseillers ne peuvent pas voter.

5. Chaque Commission ou Comité Scientifique doit faire figurer dans l'en-tête de ses imprimés et autres formes de documents son appartenance à l'Association Internationale des Sciences Hydrologiques.

Sélection des Candidatures et Elections aux Postes de Direction de l'Association

6. Le Bureau doit établir au moins dix mois avant l'Assemblée Générale de l'UGGI un Comité de Sélection des candidatures d'au moins trois membres, chargé de recevoir et d'étudier les suggestions et de sélectionner des candidatures pour le poste de Président-élu, pour les trois postes de Vice-Président ainsi que pour les postes de Secrétaire Général et de Trésorier.

Au moins neuf mois avant l'Assemblée Générale de l'UGGI le Secrétaire Général doit informer les Comités Nationaux de la composition du Comité de Sélection des candidatures et leur demander d'adresser leurs propositions à son Président au plus tard six mois avant l'Assemblée Générale de telle sorte qu'elles soient recevables. Sur la base des propositions des Comités Nationaux, du Bureau de l'AISH et des Commissions et Comités Scientifiques, le Comité de Sélection préparera une liste de candidats où il s'efforcera de réaliser un équilibre géographique et professionnel satisfaisant.

Chaque candidature à un poste de direction doit être accompagnée d'une notice illustrant la compétence du candidat pour le poste de direction auquel il est présenté. Une déclaration signée prouvant la volonté du candidat d'assumer cette fonction doit également être fournie. Une candidature ne sera recevable qu'accompagnée de la notice et de la déclaration.

Un individu peut être candidat à plus d'un poste de direction, à l'exception d'un candidat au poste de Président-élu qui ne peut prétendre à aucun autre poste au sein de l'Association.

La liste soumise au vote comprendra les noms des candidats sélectionnés par le Comité de Sélection des candidatures et mentionnera les noms de tous les autres candidats proposés.

Le vote aura lieu en Session Administrative Plénière de l'Association ou par correspondance selon l'Article 7.2 des Statuts.

6.1. Chaque Commission Scientifique et chaque Comité Scientifique doit établir un groupe de sélection des candidatures d'au moins trois membres au moins dix mois avant une Assemblée Générale de l'UGGI pour sélectionner les candidatures aux

postes de responsabilité des Commissions et Comités. Neuf mois au moins avant une Assemblée Générale de l'UGGI le Secrétaire Général doit informer tous les Comités Nationaux de la composition de ces groupes et leur demander d'adresser des propositions de candidatures au Président du Comité de Sélection des candidatures six mois au moins avant l'Assemblée Générale. Le Président du Comité de Sélection des candidatures fournira à chaque groupe de sélection des candidatures la liste des propositions concernant chaque Commission et Comité Scientifique. Sur la base des propositions fournies par les Comités Nationaux et les divers Commissions et Comités scientifiques, chaque groupe de sélection des candidatures devra alors préparer une liste de candidats pour les postes de responsabilités des Commissions et Comités Scientifiques. La constitution de ces listes sera faite en concertation avec le Président du Comité de Sélection des candidatures.

Les propositions pour les postes de responsabilité des Commissions et Comités se feront selon la même procédure que celle concernant les postes de responsabilité du Bureau (Article 6) à l'exception du fait que les candidats au poste de Président-élu peuvent être candidats à plus d'un poste de responsabilité.

Le vote sur ces listes sera réalisé dans le cadre des Sessions Administratives Plénières des Commissions et Comités Scientifiques ou par correspondance selon l'Article 7.2 des Statuts. Les résultats seront communiqués au Président du Comité de Sélection des candidatures qui dressera la liste d'attribution des postes de responsabilité des Commissions et Comités Scientifiques qui sera proclamée en Session Administrative Plénière de l'Association.

6.2. La liste des candidats aux postes de responsabilité de l'Association, des Commissions et des Comités devrait en principe comprendre plus d'un candidat par poste à pourvoir.

Le Président du Comité de Sélection des candidatures devra diffuser la liste des candidatures au moins trois mois avant l'Assemblée Générale de l'UGGI.

La liste soumise au vote comprendra les noms des candidats selectionnés par le Comité de Sélection des candidatures et mentionnera les noms de tous les autres candidats proposés.

6.3. Les votes sur les listes concernant tant l'Association que les Commissions et les Comités Scientifiques auront lieu au scrutin secret. Pour être élu un candidat doit obtenir la majorité simple. Pour les postes non pourvus au premier tour de scrutin, un second tour de scrutin sera organisé pour départager les deux candidats ayant obtenu le plus de suffrages au premier tour. En cas d'égalité au second tour le Président tranchera.

Comités Nationaux

7. Les Comités Nationaux doivent diffuser les informations concernant l'Association dans leur pays et solliciter des articles pour les Symposiums et pour le "Journal des Sciences Hydrologiques".

8. Les Comités Nationaux sont invités à présenter au Bureau et aux Sessions Plénières leur point de vue sur la recherche hydrologique et sur les ressources en eau comme sur les affaires relatives à la gestion de l'Association, en tant que contribution aux discussions concernant les futures activités de l'Association.

9. Lorsqu'un Comité National de l'AISH n'a pas nommé ou désigné une ou plusieurs personnes pour voter en son nom, dans les conditions spécifiées dans les Statuts, soit lors d'une Session Plénière, soit lors d'une réunion d'une Commission Scientifique, d'un Comité Scientifique ou d'un autre Comité, les délégués présents sont invités à choisir l'un des leurs pour remplir cette fonction.

10. L'Association devrait encourager la création de Comités Nationaux ou de correspondants hydrologiques dans tous les pays qui adhèrent à l'Union. Lorsque de tels Comités n'existent pas, *de facto ou de jure*, les delégués qui ont assisté aux Assemblées Générales et aux Symposiums de l'AISH sont invités

à présenter une demande au Comité National de l'UGGI pour former un groupe national en vue de discuter tout problème devant l'AISH ou ses Commissions et Comités Scientifiques et de désigner une délégation à l'Assemblée Générale.

11. Les Comités Nationaux doivent désigner un délégué aux Sessions Plénières de l'Association et pour chaque Commission et Comité Scientifique. Les noms de ces délégués doivent etre communiqués au Secrétaire du Groupe intéressé au moins un jour avant toute Session Administrative.

Ordre du Jour, Symposiums et Publications

12. Le Bureau de l'Association doit préparer l'ordre du jour des Sessions Plénières de l'Association.

13. Les propositions concernant l'ordre du jour de la Session Plénière de l'Association doivent parvenir au Secrétaire Général au moins trois mois avant la date de la réunion. Cependant, une question qui n'a pas été spécifiée à l'ordre du jour peut être débattue si une proposition à cet effet a été approuvée par les deux tiers des votes des délégués à la Session Plénière.

14. Une Assemblée Scientifique peut être tenue une fois durant la période de quatre ans séparant deux Assemblées Générales de l'UGGI.

Directives pour l'organisation des Symposiums

15. Un Symposium pour lequel l'Association a la responsabilité principale (il est désigné sous le nom de Symposium AISH dans ce Règlement Intérieur), devrait être accepté par le Bureau et satisfaire les conditions suivantes:

(i) Son sujet joue un rôle important dans le développement de l'hydrologie.

(ii) Il est proposé par un Comité National ou par un responsable de l'Association ou de ses Commissions ou Comités Scientifiques.

(iii) Un Pays Membre se déclare prêt à le recevoir et présente des possibilités évidentes d'assister l'Association pour accueillir la réunion dans de bonnes conditions.

15.1. Les Symposiums de l'AISH doivent être annoncés (avec résumé du sujet) par le Secrétaire Général, dix huit mois au moins avant la date fixée pour le Symposium. Un avis doit être envoyé par la poste à chaque Comité National et publié dans le Bulletin de l'Association.

15.2. Les Symposiums de l'AISH sont organisés conjointement avec un Organisme approprié du Pays Hôte et peuvent bénéficier de l'appui d'autres Organisations Intemationales, ou être organisés en collaboration avec ces Organisations Internationales. La préférence doit être donnée aux Symposiums pour lesquels il existe des possibilités évidentes d'un appui national approprié.

15.3. L'Association peut apporter son appui ou prendre des responsabilités partielles pour des Symposiums d'autres Organisations Intemationales, suivant des dispositions fixées par échange de correspondance et approuvées par le Bureau.

16. L'éditeur est autorisé à prendre toutes dispositions utiles pour la publication d'un Bulletin périodique en vue d'assurer la liaison avec les Comités Nationaux et avec la communauté mondiale des hydrologues.

Généralités

17. Les Commissions et Comités Scientifiques, les Groupes d'Experts, les Groupes de Travail et "The International Association of Hydrological Sciences Limited" doivent rendre compte au Trésorier tous les ans, en Janvier, de l'usage de tous les fonds reçus de l'Association ou d'ailleurs pour le financement de leurs activités et dépensés par eux pendant l'année précédente.

18. Membres souscripteurs: Le Bureau de l'Association est autorisé à accepter les institutions intéressées par l'hydrologie en tant que membres souscripteurs. Moyennant un versement annuel, dont le montant est fixé par le Bureau, de tels membres reçoivent de droit un exemplaire du "Journal", bénéficient d'une réduction de 20% sur toutes les publications de l'AISH autres que le "Journal", reçoivent des exemplaires de toute note ou circulaire d'information et sont abonnés au Bulletin.

19. Le Président peut inviter des représentants des agences spécialisées des Nations Unies ou d'autres observateurs, conseillers et consultants, à assister aux réunions des Sessions Plénières ou du Bureau avec possibilité de prendre la parole, mais sans droit de vote.

20. Le siège légal de l'Association doit être fixé par le Bureau.

21. Le Secrétaire Général publie les Statuts et le Règlement Intérieur au moins une fois durant la période séparant deux Assemblées Génerales de l'UGGI.

22. Le Secrétaire Général tient à jour une liste d'hydrologues qualifiés désireux de participer activement aux travaux de l'Association. Ces hydrologues seront désignés comme membres correspondants de l'AISH. Le Secrétaire Général signalera aux Secrétaires des Commissions et Comités Scientifiques les membres correspondants s'intéressant à leurs Commissions et Comités respectifs.

INTERNATIONAL ASSOCIATION OF HYDROLOGICAL SCIENCES

STATUTES AND BY-LAWS

I - STATUTES

Objectives

1. The objectives of the Association

1.1. To promote the study of Hydrology as an aspect of the Earth sciences and of water resources; to study the hydrological cycle on the Earth and the waters of the continents; the surface and groundwaters, snow and ice, including their physical, chemical and biological processes, their relation to climate and to other physical and geographical factors as well as the interrelations between them; to study erosion and sedimentation and their relation to the hydrological cycle; to examine the hydrological aspects of the use and management of water resources and their change under the influence of man's activities; to provide a firm scientific basis for the optimal utilization of water resources systems, including the transfer of knowledge on planning, engineering, management and economic aspects of applied hydrology.

1.2. To provide for discussion, comparison, and publication of research results.

1.3. To initiate, facilitate, and coordinate research into, and investigation of, those hydrological problems which require international cooperation.

2. The Association is a constituent body of the International Union of Geodesy and Geophysics. The Association is subject to those Articles of the Statutes and By-Laws of the Union that apply to Associations and also to these Statutes.

3. Any country adhering to the Union also adheres to the Association, and is entitled to send Delegates and otherwise to participate in its work. All scientific meetings of the Association or of its components are open to such Delegates.

4. The Association performs its activities in the framework of ICSU and IUGG, in cooperation with the United Nations and its specialized agencies and through direct contacts with other International Organizations.

5. The Association shall comprise: the Plenary Session, the Bureau of the Association, the Scientific Commissions and Committees, the Panels and Working Groups and the International Association of Hydrological Sciences Limited. The Association shall maintain contact with the several Adhering Countries through their National Committees (often Sub-Committees or Sections of the IUGG National Committees) or through National Representatives. Scientific Commissions: Units of the Association having defined scientific responsibilities in specific hydrological fields (e.g. surface water, groundwater, snow and ice). Divisions are corresponding units of the Scientific Commissions. Scientific Committees:

Units of the Association, ad'hoc or standing, having defined scientific responsibilities linking specific hydrological subjects in a quite broad sense (e.g. remote sensing and data transmission). Divisions are corresponding units of the Scientific Committees. Panels or Working Groups: Ad'hoc units to report on specific problems, either scientific or administrative. National Committees: National Committees are administrative bodies for maintaining contacts with the various countries. The National Representatives have the same role. The International Association of Hydrological Sciences Limited: This is a UK Registered Charity having as part of its Memorandum and Articles of Association objects which are identical to those of this Association and coming within the framework of ICSU and IUGG.

Plenary Session

6. A Plenary Session of the Association shall be convened in accordance with the By-Laws of the Union. At least one Plenary Session of the Association shall be held during a General Assembly of the IUGG and during a Scientific Assembly of the Association. Each Adhering Country may be represented by one or more delegates to the Plenary Session.

6.1. The Plenary Session has final authority on questions of a scientific character.

6.2. The Plenary Session shall consider the state of hydrological sciences, the trends in their development, and questions relating to the organization of Symposia on important programmes, taking into consideration the appropriate programmes of other International Organizations.

6.3. Each participant present at the Plenary Session shall have one vote on scientific matters.

7. The final authority of the Association in all matters of administration and finance shall be vested in the Plenary Administrative Session of the Association.

7.1. The Plenary Administrative Session shall consist of the President, the President-Elect or immediate Past-President, the Vice-Presidents, the Secretary General, the Treasurer, the Editor, the President or other designee of each Scientific Commission and Committee in existence at the time, the Chairman of IAHS Limited and one voting delegate from each Adhering Country, appointed by that country to vote in the Plenary Administrative Session.

A quorum shall consist of the President (or Vice-President acting as President), the Secretary General, or his deputy, and voting delegates from at least 10 countries.

7.2. Voting in the Plenary Administrative Session shall be by countries, each country having one vote, with the provision that its subscription has been paid up to the end of the year preceding the voting. This voting may also be by mail but if the vote has been by mail then the country cannot vote at the Plenary Session again. Only those officers of the Association and its Scientific Commissions and Committees who are also voting delegates of their countries may vote.

7.3. The Plenary Administrative Session, during the General Assembly of the IUGG, shall elect for the Association, in accordance with the By-Laws, the President-Elect, Vice-Presidents (not to exceed three), the Secretary General, the Treasurer, and such other elective officers as may be deemed necessary.

The election shall be held as close as possible to the beginning of the IUGG General Assembly, in accordance with Articles 7.1, 7.2 and 7.6.

The period of office for all Association officers except the President, shall be the interval between elections at two successive IUGG General Assemblies.

The President-Elect shall become President, and the President shall become immediate Past-President, two years after the elections at the IUGG General Assembly.

If a Scientific Assembly is held during the second year after the elections, the President-Elect shall become President at the beginning of the Scientific Assembly.

The term of immediate Past-President shall be from the time the new President takes office to the next election of a President-Elect. At any time there shall be in the Bureau either a President and

President-Elect or a President and a Past-President.

The President and Vice-Presidents may not be elected to two successive terms of the same office. The Secretary General and the Treasurer shall be eligible for re-election, but not for more than two additional terms.

The Editor shall be appointed by the Bureau, and shall be eligible for re-appointment without limit.

The President-Elect shall assume the office of President if this office becomes vacant. If there is no President-Elect the Bureau shall appoint one of the Vice-Presidents to be President.

If the office of the Secretary General or that of the Treasurer or that of the Editor shall become vacant between IUGG General Assemblies, acting officers shall be appointed by the President to serve the remainder part of the term.

7.4. The Plenary Administrative Session has the power to form and discontinue Scientific Commissions and Committees. Their terms of reference shall be included in the By-Laws of the Association.

The Plenary Administrative Session during the IUGG Assembly shall be informed of the President-Elect, Vice-Presidents (not to exceed three) and Secretary elected during the Plenary Administrative Session of each of the Scientific Commissions and Committees.

The office of President-Elect of each Scientific Commission and Committee shall be established under the same terms as outlined in Article 7.3 for the Association.

The Presidents of the Scientific Commissions and Committees may not be re-elected to two successive terms of the same office. The Vice-Presidents and the Secretary shall be eligible for re-election but for not more than one additional term.

The Scientific Commissions and Committees have the power to fill vacancies that may occur between elections.

This Article also authorizes the creation of Regional Committees, which may be formed on the initiative of several National Committees or National Representatives.

Their Officers shall be elected by those National Committees, or National Representatives.

7.5. The Plenary Administrative Session may elect an Honorary President, who shall serve for life or until such time as he/she resigns from this office. The Honorary President may participate as a non-voting member in any Association meeting, including those of the Bureau, and may be requested by the Bureau to undertake specific tasks in support of the objectives of the Association.

7.6. In questions involving finance, voting in the Plenary Administrative Session shall be as in Article 7.2, except that upon the request of two voting Delegates, the number of votes for each country shall be one greater than the number of its category of membership in the Union as defined in the Statutes of the Union.

7.7. An Adhering Country not represented at a Plenary Administrative Session may forward its vote on any pertinent item on the agenda, including elections of Association officers, by mail.

7.8. Voting by post on administrative matters between Plenary Sessions of the Association can be authorized by the Bureau.

The Bureau

8. The Bureau of the Association shall consist of the President, the President-Elect or immediate Past-President, the Vice-Presidents, the Secretary General, the Treasurer, the Editor and Presidents of the Scientific Commissions and Committees in existence at the time and the Chairman of the International Association of Hydrological Sciences Limited. The immediate Past-President shall remain a Bureau member during the period between the end of his/her office and the election of an new President-Elect. The President shall convene the Bureau at least every other year to guide the affairs of the Association.

President, Secretary General, Treasurer and Editor

9. The President shall be the executive officer of the Association and shall direct its affairs in accordance with the decisions of the Plenary Session of the Association. The President shall be assisted by the Vice-Presidents.

10. The Secretary General, in consultation with the President, shall manage the business of the Association, conduct the correspondence, preserve the official documents and administrative records. The Bureau may authorize the Secretary General to employ administrative and secretarial personnel to assist him/her in the performance of his/her duties to the Association. The Secretary General shall also take any action necessary to ensure that the Objectives of the Association are fulfilled in a manner which complies with the relevant Law governing administration, taxation, Contract and Tort or their equivalent in any country where the Association is operational including the appointment of a person or corporation if required to protect and represent the Association in any such matters and he/she shall be indemnified by the Association in respect of the costs of any such action.

11. The Treasurer, or acting Treasurer, shall collect the funds of the Association and disperse them in accordance with the decisions of the Plenary Session of the Association and the Bureau. He shall maintain records of all financial transactions of the Association and submit annual reports thereon to the Bureau as required by the Statutes and By-Laws of IUGG. In agreement with the Secretary General he shall arrange for the subscriptions, sales, and storage of the publications of the Association.

> 11.1. The funds of the Association shall be invested in accounts of the Association. They shall be at the disposal of the Treasurer and the Secretary General as may be deemed necessary and as specified in Article 11, but provisions shall be made to enable the President to transfer the funds or part of them to an acting Treasurer appointed according to Article 7.3.

12. The Editor shall prepare for publication by the Association original papers, reviews and other material in a form in accordance with the decisions of the Plenary Session and the Bureau.

Commissions and Committees

13. The following provisions shall govern Scientific Commissions and Committees that are created under Article 7.4.

> 13.1. The Scientific Commissions and Committees shall keep abreast of their fields of hydrology and determine the trends in research on the most urgent problems of hydrology that are of common interest to many countries. The Scientific Commissions and Committees shall study the questions voted by their Plenary Session.
>
> 13.2. The Scientific Commissions and Committees shall participate actively in the preparation of symposia on appropriate scientific problems.
>
> 13.3. (a) The Scientific Commissions shall be styled "International Commission on ...". (b) The Scientific Committees shall be styled "International Committee on ...".
>
> 13.4. Regional Committees (Articles 5 and 7.4) shall examine hydrological subjects of particular concern to a specific region, and may conduct Regional Meetings on such subjects. Regional meetings shall be open to all Adhering Countries, and the Scientific Commissions and Committees may designate a representative to appear on their behalf at these meetings.
>
> 13.5. The National Committee (or National Representative) for IAHS of each Adhering Country may designate one representative on each Scientific Commission, Scientific Committee and on each Regional Committee with which it desires to affiliate. Such representatives may vote on all administrative and scientific matters before the Scientific Commission, Scientific Committee, or Regional Committee and may correspond directly with the Officers of a Commission or such Committee on all matters of concern to that Commission or such Committee. All participants present at a meeting of a Commission or such Committee may vote on scientific matters.
>
> 13.6. Each Scientific Commission and Committee, and Regional Committee may propose a set of regulations for its

organization and governance for approval by the Plenary Administrative Session of the Association.

Panels, Working Groups and Rapporteurs

14. The Plenary Session or the Bureau may create Panels or Working Groups and appoint Rapporteurs to undertake either:

(a) ad'hoc scientific programmes; or

(b) activities of a pro tempore regional nature; or

(c) specific administrative or organizational tasks. The Chairman and members of all such groups shall be appointed by the President, to whom they shall report. Such groups shall exist only during the term between two successive IUGG General Assemblies. The Scientific Commissions and Committees may establish Divisions and ad'hoc Working Groups to report on specific problems.

IAHS Limited

15. The International Association of Hydrological Sciences Limited.

15.1. The International Association of Hydrological Sciences Limited shall deal with those matters set out in its Memorandum and Articles of Association (a copy of which shall be held by the Secretary General) and is a registered Charity in the United Kingdom.

15.2. Membership of the Limited Company is restricted to members of the Association. The Limited Company will deal inter alia with the IAHS publishing programme including the arrangements for the Hydrological Sciences Journal.

15.3. The International Association of Hydrological Sciences Limited shall have as its members the Secretary General and those persons appointed by the President. The Chairman of the Limited Company will report to the President. Because of requirements under English Law, at least half the number of members of the Limited Company, who shall also be Directors, must be ordinarily resident in the United Kingdom.

15.4. For the purpose of continuity of administration of the Limited Company, the President shall have absolute discretion regarding the appointment of the Chairman and members.

By-Laws: Amendments

16. Within the framework of these Statutes, the Plenary Administrative Session of the Association shall have the power to adopt or amend By-Laws by a simple majority.

17. Proposals by adhering countries for a change of any Article of the Statutes must reach the Secretary General at least six months before the date of the meeting at which they are considered by the Plenary Administrative Session of the Association. The Secretary General shall notify all Adhering Countries of any proposed changes at least four months before the named date.

18. The Articles of these Statutes may be changed only by a majority of two-thirds of the votes cast at a meeting of the Plenary Administrative Session of the Association by voting members who are present or who vote by post, provided that the total number of favourable votes is not less than one-half the number of the members of the Plenary Administrative Session of the Association eligible to vote.

19. The Statutes are prepared in English and French, and the English text shall be considered the authoritative text. Questions of interpretation as between the texts shall be decided by the President.

II - BY-LAWS

1. The following Scientific Commissions and Committees have been established in accord with Article 7.4 of the Statutes:

International Commission on Surface Water;
International Commission on Groundwater;
International Commission on Continental Erosion;
International Commission on Snow and Ice;
International Commission on Water Quality;
International Commission on Water Resources Systems;
International Committee on Remote Sensing and Data Transmission;
International Committee on Atmosphere-Soil-Vegetation Relations;
International Committee on Tracers.

Each Commission and Committee shall establish its own terms of reference which, when approved by the Plenary Administrative Session of the Association shall become part of the By-Laws. All Commissions will be concerned with natural processes and these processes as modified by the works of man. All Committees shall be concerned with processes, technologies and applications which traverse the interest of two or more Commissions. Relations to the environment will be considered as appropriate.

1.1. Whenever Scientific Commissions and Committees are referred to in the By-Laws, it implies "International Commissions and International Committees", as applicable.

2. The several Scientific Commissions and Committees shall prepare scientific reviews of the state of research in their respective fields of hydrology, noting achievements and trends, with particular emphasis on significant problems for attack. The reports should be submitted in English or in French and include a summary in the other language. The report shall reach the Secretary General at least four months before the Plenary Session of the Association, for distribution among the officers of the Association including those of the several Scientific Commissions and Committees and among the National Committees, and for publication in the reports of the Plenary Session of the Association. The President of the Association shall introduce these reviews in his address to the Plenary Session of the Association, together with his recommendations as to the course of research.

3. The Scientific Commissions and Committees shall meet at the IUGG General Assemblies and Scientific Assemblies of the Association unless authorized otherwise by the Bureau. A Scientific Commission and Committee may also schedule other meetings under the regulations it adopts according to Statutes Article 13.6.

4. The Scientific Commissions and Committees may invite advisors from Non-Adhering Countries to participate in the work of the Scientific Commissions and Committees. These advisors may not vote.

5. Each Scientific Commission and Committee shall show on its stationery or other formal documents its identification with the International Association of Hydrological Sciences.

Nominations and Voting for Office

6. The Bureau shall establish a Nomination Panel of not less than three members at least 10 months before an IUGG General Assembly to receive and consider suggestions and prepare nominations for the President-Elect, the three Vice-Presidents, the Secretary General and the Treasurer.

At least nine months before an IUGG General Assembly the Secretary General shall inform all National Committees of the membership of the Nomination Panel, asking them to send their nominations to its Chairman not later than six months before the General Assembly in order to be considered by the Panel. On the basis of available nominations from the National Committees, the IAHS Bureau and from the Scientific Commissions and Committees, the Panel shall prepare a list of candidates, seeking to achieve a reasonable balance in their geographical and professional distribution.

Each nomination for office must include a resume of the candidate's qualifications relevant to the office for which the candidate is nominated. A signed statement of the candidate's willingness to stand for office must also be provided. The nomination shall not be considered without submission of the resume and consent form.

A person may be a candidate for more than one office except the candidate for President-Elect who may not be a candidate for any other office of the Association. No one may hold more than one office at the same time.

The list submitted for voting shall contain the candidates proposed by the Nomination Panel and mention the names of all other nominees submitted. The voting on the list shall be by the Plenary Administrative Session of the Association or by mail according to Article 7.2 of the Statutes.

6.1. Each of the several Scientific Commissions and Committees shall establish a Nomination Group of not less than three members at least 10 months before an IUGG General Assembly to prepare nominations of Commission and Committee officers. At least nine months before an IUGG General Assembly the Secretary General shall inform all National Committees of the membership of these groups, asking them to send nominations to the Chairman of the Nomination Panel not later than six months before the General Assembly. The Chairman of the Panel shall furnish each Nomination Group with the names of candidates appropriate to each Scientific Commission and Committee. On the basis of available nominations from the National Committees and respective Scientific Commissions and Committees each Nomination Group shall then prepare a list of candidates for Scientific Commission and Committee officers. The preparation of the list shall be done in consultation with the Panel Chairman.

The nominations for Commission and Committee officers shall follow the same procedure as that for the Bureau officers (Article 6) except that the nominee for President-Elect may be a candidate for more than one office. The voting on this list shall be by the Plenary Administrative Session of the Scientific Commissions and Committees or by mail according to Article 7.2 of the Statutes. The results shall be given to the Chairman of the Nomination Panel who shall draw up a list of Scientific Commission and Committee Officers to be announced at a Plenary Session of the Association in Administrative Session.

6.2. The list of candidates for Association and Commission and Committee Officers shall normally contain more than one name for each office. The Chairman of the Nomination Panel shall distribute the list to the National Committees at least three months before an IUGG General Assembly.

The list submitted for voting shall include both the candidates proposed and the names of all the other nominees submitted.

6.3. Voting on the list of candidates for both Association and Scientific Commission and Committee officers shall be done by secret ballot. To be elected, each candidate must obtain a simple majority of votes. For those offices not filled in the first round of voting, a second round shall be held on the two highest ranking candidates of the first round. In the case of a draw in the second round, the President shall decide.

National Committees

7. The National Committees shall disseminate information on the Association within their countries and shall solicit papers for symposia or for publication in the Hydrological Sciences Journal.

8. National Committees shall be invited to present their views on hydrological and water resources research and on matters relating to the management of the Association to the Bureau and the Plenary Sessions, as a contribution to the discussion on future activities of the Association.

9. Where the National Committee for IAHS has not appointed or designated a person or persons to cast its vote as specified by the Statutes in the Plenary Session or at a meeting of a Scientific Commission, Scientific Committee or other Committee, the Delegates present are invited to select one of their number for this purpose.

10. The Association should encourage the formation of National Committees or correspondents for hydrology in all countries that adhere to the Union. Where such National Committees do not exist, de facto or de jure Delegates who have attended General Assemblies and Symposia of IAHS are invited to petition the National Committee for IUGG to form a national group for discussion of questions before

IAHS or its Scientific Commissions and Committees or to designate delegations to a General Assembly.

11. National Committees shall designate a Delegate to the Plenary Sessions of the Association and each of the Scientific Commissions and Committees. The names of such Delegates should be given to the Secretary of the pertinent body at least one day in advance of any Administrative Session.

Agenda, Symposia and Publications

12. The Bureau of the Association shall organize the agenda for the Plenary Sessions of the Association.

13. Suggestions for the agenda of the Plenary Session of the Association must reach the Secretary General at least three months before the date of the meeting. However, a question which has not been placed on the agenda may be discussed if a proposal to that effect be approved by two-thirds of the votes of the delegates to the Plenary Session.

14. A Scientific Assembly may be held once during the four-year period between the General Assemblies of IUGG.

Guidelines for organizing symposia

15. Symposia for which the Association has primary responsibility (referred to as IAHS Symposia in this By-Law) should meet the following conditions and be accepted by the Bureau:

(i) a subject having an important role in the development of hydrology;

(ii) proposed by a National Committee or by officers of the Association or of its Scientific Commissions and Committees;

(iii) a Member Country expressing readiness to serve as host and presenting evidence of adequate support.

15.1. IAHS Symposia (with subject outline) should be announced by the Secretary General not later than 18 months before the date of the Symposium, by post to each National Committee and published in the Journal of the Association.

15.2. IAHS Symposia are organized jointly with a relevant organization of the host country and may be supported by or organized in collaboration with other International Organizations. Preference shall be given to those Symposia where there is evidence of adequate national support.

15.3. The Association may support or take partial responsibility in Symposia of other International Organizations according to arrangements formulated through exchange of correspondence and approved by the Bureau.

16. The Editor is authorized to arrange for the publication of a periodic Journal to provide a line of communication with the National Committees and with the world hydrological community.

General

17. Scientific Commissions and Committees, Panels, Working Groups and the International Association of Hydrological Sciences Limited shall account to the Treasurer in January of each year on all funds received from the Association and from other sources for their activities and disbursed by them during the preceding year.

18. Corporate Subscribers: The Bureau of the Association is authorized to accept institutions with an interest in hydrology as Corporate Subscribers who, for an annual fee established by the Bureau, shall be entitled to receive a copy of each Journal published by the Association, a 20% discount on any IAHS publication other than the Journal, copies of all notices and information circulars, and to a listing in the Journal.

19. The President may invite representatives of the UN specialized agencies or other observers, advisors or consultants to attend Plenary Sessions or meetings of the Bureau, with voice but without vote.

20. The legal domicile of the Association shall be established by the Bureau.

21. The Secretary General shall publish the Statutes and By-Laws at least once in each period between General Assemblies of the IUGG.

22. The Secretary General keeps a list of hydrologists who are willing and qualified to participate actively in the work of the Association. These hydrologists are designated as Corresponding Members of IAHS. The Secretary General will notify the Secretaries of the Scientific Commissions and Committees of the Corresponding Members interested in their respective Commission or Committee.

PART III

ASSEMBLY REGISTRATION

IUGG XXI GENERAL ASSEMBLY

Assembly Registration by Country

Albania	4	Hungary	29	Oman	1
Angola	1	Iceland	8	Peru	1
Argentina	23	India	25	Phillippines	5
Armenia	1	Indonesia	7	Poland	28
Australia	100	Iran	2	Portugal	16
Austria	29	Ireland	6	Romania	1
Belgium	40	Israel	15	Russia	87
Bolivia	1	Italy	119	Saudi Arabia	1
Brazil	20	Ivory Coast	2	Slovakia	5
Bulgaria	6	Japan	269	Slovenia	2
Canada	218	Jordan	3	South Korea	13
Chile	8	Latvia	3	South Africa	26
China	74	Lebanon	1	Spain	39
Colombia	1	Lithuania	2	Sweden	41
Costa Rica	1	Luxembourg	1	Switzerland	63
Croatia	1	Macedonia	1	Taiwan	28
Czech Republic	27	Malaysia	7	Thailand	12
Denmark	36	Mali	1	Turkey	7
Ecuador	1	Mexico	21	Uganda	1
Egypt	11	Molova	1	Ukraine	3
Estonia	1	Monaco	1	United Arab Emirates	5
Ethiopia	1	Morocco	3	United Kingdom	281
Finland	34	Netherlands	55	USA	2056
France	188	New Zealand	33	Uzbekistan	1
Germany	312	Nicaragua	1	Vietnam	1
Greece	10	Niger	1	Zimbabwe	2
Guinea	1	Nigeria	3	**TOTAL**	**4525**
Hong Kong	1	Norway	28		

Assembly Registration by Association

IUGG	400	IAHS	462	IASPEI	777
IAG	567	IAMAS	773	IAVCEI	264
IAGA	1137	IAPSO	4	OCEANS	141
				TOTAL	**4525**

In the list of registrants that follows, asterisks indicate that registration materials were not retrieved at the meeting.

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