
Appendix 1 – ICSU International Scientific Unions

An ICSU Scientific Union Member is 'an international non-governmental organisation devoted to the promotion of activities in a particular area of science and shall have been in existence for at least 6 years.' The information below was collected from the ICSU website, and from the individual Unions' websites and reports. The information was current as of December 2004.

International Astronomical Union (IAU)

(www.iau.org)

The mission of the IAU, founded in 1919, is to promote and safeguard the science of astronomy in all its aspects through international cooperation. The IAU continues to play a key role in promoting and coordinating worldwide cooperation in astronomy. IAU activities range from the definition of fundamental astronomical and dynamical constants and unambiguous astronomical nomenclature, rapid dissemination of new discoveries, organisation of international observing campaigns, and promotion of educational activities in astronomy to early informal discussions of possible future international large-scale facilities. The IAU is the sole internationally recognised authority for giving designations and names to celestial bodies and their surface features. The IAU is also active in promoting astronomical education and research in countries where astronomy is not yet fully developed through the IAU International Schools for Young Astronomers, Teaching for Astronomy Development, and other programs carried out in concert with other ICSU bodies and UN organisations.

Involved countries or organisations

There are 67 member countries.

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- Australia has 217 individual members (2.39% of the total IAU membership).
- The current IAU President is Ron Ekers (CSIRO).
- Several Australian scientists are involved in leadership roles in the various IAU Divisions and Commissions.
- The 2003 IAU General Assembly was held in Sydney.

Main programs

There are 12 Scientific Divisions (with 37 specialised Commissions and 83 Working and Program Groups):

- Division I: Fundamental Astronomy;
- Division II: Sun and Heliosphere;
- Division III: Planetary Systems Sciences;
- Division IV: Stars;
- Division V: Variable Stars;
- Division VI: Interstellar Matter;
- Division VII: Galactic System;

-
- Division VIII: Galaxies and the Universe;
 - Division IX: Optical and Infrared Techniques;
 - Division X: Radio Astronomy;
 - Division XI: Space and High Energy Astrophysics;
 - Division XII: Union-Wide Activities.

International Brain Research Organisation (IBRO)

www.ibro.info

IBRO is a multinational organisation of neuroscientists dedicated to the promotion of teaching, research and communication worldwide. When first created about 40 years ago in a politically divided world, IBRO was intended to offer an international forum to encourage scientific discussion and training of neuroscientists. With the passage of time, IBRO has adapted its objectives to better serve the current international situation and now focuses on training and education of students and scientists in regions with special needs. In particular, IBRO wishes to assist in giving neuroscientists in different parts of the world a direct voice in defining their own needs and priorities in research and science education. IBRO publishes the high-quality journal, *Neuroscience*, which provides IBRO with substantial annual income, making it possible to fund the various programs described above. Another much smaller source of income is a minor portion of membership dues from the various member neuroscience organisations. IBRO can be looked upon as a federation of neuroscience organisations encompassing the world, and members are encouraged to actively participate in the various programs described above to foster and develop neuroscience and scientific dialogue everywhere.

Involved countries or organisations

There are 45 member countries.

Australian involvement

- The Australian Academy of Science does not pay membership subscriptions.
- The Australian Neuroscience Society (ANS) is a member and pays membership dues.
- The current IBRO Treasurer is SJ Redman (Australian National University).

Main programs

See background above.

International Geographical Union (IGU)

www.igu-net.org/uk/igu.html

IGU has the following aims:

- to promote the study of geographical problems;
- to initiate and co-ordinate geographical research requiring international co-operation and to promote its scientific discussion and publication;
- to provide for the participation of geographers in the work of relevant international organisations;
- to facilitate the collection and diffusion of geographical data and documentation in and between all member countries;

-
- to promote International Geographical Congresses, regional conferences and specialised symposia related to the objectives of the Union;
 - to participate in any other appropriate form of international co-operation with the object of advancing the study and application of geography;
 - to promote international standardisation or compatibility of methods, nomenclature, and symbols employed in geography.

The International Geographical Union adheres to ICSU and the International Social Science Council (ISSC).

Involved countries or organisations

There are 89 member countries.

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- No Australians are on the executive committee, but Australian scientists are involved in some of the 32 Commissions of IGU.
- The 2006 IGU regional congress is to be held in Brisbane. The 1988 congress was in Sydney.

Main programs

Main IGU activities consist of 32 specialist Commissions, 2 task forces (the MegaCity Task Force and the Vulnerability Task Force), and a Special Committee (World Map on the 'State of the Environment').

International Mathematical Union (IMU)

(www.mathunion.org)

IMU is an international non-governmental and non-profit scientific organisation, with the purpose of promoting international cooperation in mathematics. The objectives of the IMU are:

- to promote international cooperation in mathematics;
- to support and assist the International Congress of Mathematicians and other international scientific meetings or conferences;
- to encourage and support other international mathematical activities considered likely to contribute to the development of mathematical science in any of its aspects, pure, applied, or educational.

Involved countries or organisations

There are 65 member countries.

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- No IMU congress has ever been held in Australia.

Main programs

- International Congress of Mathematicians (ICM);
- ICM related and other Grants;
- Developing Countries (CDE);
- Mathematical Instruction (ICMI) (has involvement from Australian scientists);
- Electronic Information and Communication (CEIC) (has involvement from Australian scientists).

International Society for Photogrammetry and Remote Sensing (ISPRS)

(www.isprs.org)

ISPRS is a non-governmental organisation devoted to the development of international cooperation for the advancement of photogrammetry and remote sensing and their applications. The Society's scientific interests include photogrammetry, remote sensing, spatial information systems and related disciplines, as well as applications in cartography, geodesy, surveying, natural, Earth and engineering sciences, and environmental monitoring and protection. Further applications include industrial design and manufacturing, architecture and monument preservation, medicine and others. The principal activities of the Society are:

- stimulating the formation of national or regional Societies of Photogrammetry and Remote Sensing;
- initiating and coordinating research in photogrammetry and remote sensing;
- holding international Symposia and Congresses at regular intervals;
- ensuring worldwide circulation of the records of discussion and the results of research by publication of the International Archives of Photogrammetry and Remote Sensing;
- encouraging the publication and exchange of scientific papers and journals dealing with photogrammetry and remote sensing;
- promoting cooperation and coordination with related international scientific organisations.

Involved countries or organisations

There are 54 sustaining members (mainly companies), plus subscriptions from ICSU and 103 member countries.

Australian involvement

- The Australian Academy of Science is not a member.
- The Remote Sensing and Photogrammetry Association of Australia is a member and pays membership dues.
- No ISPRS congress has ever been held in Australia.
- John Trinder (University of New South Wales) is the current President of ISPRS.

Main programs

- Seven Technical Commissions, with several working groups under each;
- Three Permanent Committees.

International Union of Anthropological and Ethnological Sciences (IUAES)

(www.leidenuniv.nl/fsw/iuaes)

IUAES is a world organisation of social and biological anthropological scientists and institutions working in the fields of anthropology and ethnology. It is also of interest to archaeologists and linguistics specialists, among others. Its aim is to enhance exchange and communication among scholars of all regions of the world, in a collective effort to expand human knowledge. In this way it hopes to contribute to a better understanding of human society, and to a sustainable future based on harmony between nature and culture. Through its International Congresses of Anthropological and Ethnological Sciences (ICAES), held every five years, it provides a world forum for the discussion and dissemination of research in these fields. It also holds Inter-Congresses, seminars and symposia, and encourages the participation of anthropologists in other international meetings and projects. Through its Commissions, the IUAES stimulates the convergence of research interests among anthropologists, and the dissemination of research findings through publications.

Involved countries or organisations

There are more than 50 member countries.

Australian involvement

- No formal Australian Academy of Science involvement.
- Australia is a member country, so an Australian organisation must be paying membership dues, but details were not available.
- Australia has five delegates on permanent council (reflects membership level).
- Australian scientists are involved in some of the 27 IUAES commissions.
- No IUAES congresses have been held in Australia.

Main programs

There are 27 IUAES commissions.

International Union of Biochemistry and Molecular Biology (IUBMB)

(www.iubmb.unibe.ch)

The Mission of the IUBMB is to foster and support the growth and advancement of biochemistry and molecular biology as the foundation from which the biomolecular sciences derive their basic ideas and techniques in the service of mankind. It has particular concern for areas where biochemistry is less well developed, by promoting international cooperation and high standards in research, discussion, application and publication, and through international standardisation of methods, nomenclature and symbols, in biochemistry and molecular biology. The IUBMB aims to accomplish this by:

- serving as a scientific, international, non-governmental body in objectively addressing global issues that involve the sciences of biochemistry and molecular biology. Where appropriate, the IUBMB will represent these interests in governmental and non-governmental forums;
- contributing to the advancement of research in biochemistry and molecular biology throughout the world;
- promoting the service of biochemistry and molecular biology to society;

-
- facilitating the development of effective channels of communication in the international community of biochemists and molecular biologists;
 - assisting the biotechnology industry in its contributions to sustainable development, wealth creation and improvement of the quality of life;
 - utilising its global perspective to contribute toward the enhancement of education in biochemistry and molecular biology and to advance the public understanding of these disciplines and the scientific method;
 - making special efforts to encourage the career development of young biochemists and molecular biologists;
 - broadening the geographical base of the Union and ensuring that its human capital is drawn from all segments of the world community of biochemists and molecular biologists;
 - encouraging worldwide dissemination of information about the activities of the Union.

Involved countries or organisations

There are 74 member countries. The International Federation of Clinical Chemistry and Laboratory Medicine, International Society for Neurochemistry, International Organisation for Free Radical Research and International Society of Vitamins and Related Biofactors are Associated Organisations of IUBMB.

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- There is not much evidence on the IUBMB website of significant Australian involvement.

Main programs

- Sponsoring meetings and conferences;
- Travel scholarships;
- Publishes 7 journals.

International Union of Biological Sciences (IUBS)

www.iubs.org

IUBS is a non-governmental, non-profit organisation, established in 1919. Its objectives are:

- to promote the study of biological sciences;
- to initiate, facilitate and coordinate research and other scientific activities necessitating international, interdisciplinary cooperation;
- to ensure the discussion and dissemination of the results of cooperative research, particularly in connection with IUBS scientific programs;
- to support the organisation of international conferences and assist in the publication of their reports.

The IUBS scientific programs are of an interdisciplinary nature; they are undertaken in collaboration with the national scientific authorities and in cooperation with other international organisations, both intergovernmental (UNESCO, UNEP, FAO, EC, etc.) and non-governmental. These programs address issues in integrative biology, biodiversity (DIVERSITAS), bioethics, biotechnology, bio-indicators, biological education, biological nomenclature, biosystematics, reproductive biology and aquaculture, biological complexity and other fields. IUBS publishes a quarterly journal, *Biology International*, which

channels information on the Union's programs and activities to the IUBS Members and cooperating institutions and individuals. IUBS has around 80 international scientific society members.

Involved countries or organisations

IUBS is sponsored by UNESCO, ICSU and 44 member nations.

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- Alan Bittles of Edith Cowan University is an executive committee member.

Main programs

- Diversitas (1991 -) (joint program with ICSU, SCOPE, IUMS and UNESCO);
- Human Dimensions of Biodiversity (1994 -);
- Systematics Agenda 2000 – International;
- Towards An Integrative Biology – TAIB (1997 -);
- Biological Education (1974 -);
- Bioethics (1974 -);
- Bionomenclature (1974 -);
- International Biological Programme – IBP (1964 – 1974, completed);
- Decade of the Tropics – DOT (1983 - 1994, completed);
- Bioindicators (1983 - 1994, completed);
- Biocomplexity and Theoretical Biology (completed);
- Reproductive Biology and Aquaculture – RBA (1988 - 2000, completed).

International Union of Crystallography (IUCr)

www.iucr.org

The IUCr is a scientific union adhering to ICSU. Its objectives are to promote international cooperation in crystallography and to contribute to all aspects of crystallography, to promote international publication of crystallographic research, to facilitate standardisation of methods, units, nomenclatures and symbols, and to form a focus for the relations of crystallography to other sciences. The IUCr fulfils these objectives by publishing in print and electronically primary scientific journals through *Crystallography Journals Online*, the series of reference volumes *International Tables for Crystallography*, distributing the quarterly *IUCr Newsletter*, maintaining the online *World Directory/Database of Crystallographers*, awarding the Ewald Prize and organising the triennial Congress and General Assembly.

Involved countries or organisations

There are 40 member countries.

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- The 1987 IUCr congress was held in Perth.
- Several Australian scientists are involved in IUCr commissions.

Main programs

There are 18 IUCr commissions.

International Union of Food Science and Technology (IUFoST)

(www.iufost.org)

IUFoST is the sole global food science and technology organisation. It is a voluntary, non-profit association of national food science organisations linking the world's best food scientists and technologists. Its main objectives are:

- international co-operation and exchange of scientific and technical information among scientists, food technologists and specialists of member nations;
- supporting international progress in both theoretical and applied areas of food science;
- advancing technology in the processing, manufacturing, preservation, storage and distribution of food products;
- stimulating appropriate education and training in food science and technology;
- fostering professionalism and professional organisation among food scientists and technologists.

Involved countries or organisations

There are 65 member countries.

Australian involvement

- The Australian Academy of Science does not pay membership subscriptions.
- The Australian Institute of Food Science and Technology is a member and pays subscriptions.
- Several Australians are involved in various IUFoST committees.
- Alan Mortimer is the current President of IUFoST.
- The 1999 IUFoST congress was held in Sydney.

Main programs:

There are 6 working groups:

- SDC 1 - Conferences/Workshops;
- SDC 2 - Global Information Systems;
- SDC 3 - Advice and Expert Opinion;
- SDC 4 - Food Science and Technology Development;
- SDC 5 - Education and Professionalism;
- SDC6 - Marketing and Support Services.

International Union of Geodesy and Geophysics (IUGG)

(www.iugg.org)

IUGG is a non-governmental, scientific organisation, established in 1919. IUGG is dedicated to the international promotion and coordination of scientific studies of Earth (physical, chemical, and mathematical) and its environment in space. These studies include the shape of the Earth, its gravitational and magnetic fields, the dynamics of the Earth as a whole and of its component parts, the Earth's internal structure, composition and tectonics, the generation of magmas, volcanism and rock formation, the hydrological cycle including snow and ice, all aspects of the oceans, the atmosphere, ionosphere, magnetosphere and solar-terrestrial relations, and analogous problems associated with the Moon and other planets. IUGG encourages the application of this knowledge to societal needs, such as mineral resources, mitigation of natural hazards and environmental preservation. **IUGG is comprised of seven semi-autonomous Associations**, each responsible for a specific range of topics or themes within the overall scope of Union activities. In addition, IUGG establishes Inter-Association Commissions, and relationships with several other scientific bodies with similar interests. IUGG holds General Assemblies at four-year intervals, and each of its Associations organise Scientific Assemblies as well as topical symposia in the intervening period between General Assemblies.

Involved countries or organisations

There are 66 member countries.

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- Geoscience Australia also contributes membership fees.
- Tom Beer (CSIRO) is the current vice pres of IUGG.
- Several Australian scientists are involved in various IUGG committees.
- The National Committees of Earth Sciences and Space Science are currently bidding to host the 2011 IUGG congress in Australia.

Main programs

The seven Associations under IUGG are:

- IAG – International Association of Geodesy;
- IAGA – International Association of Geomagnetism and Aeronomy (Charles Barton is the current President of IAGA);
- IAHS – International Association of Hydrological Sciences;
- IAMAS – International Association of Meteorology and Atmospheric Sciences;
- IAPSO – International Association for the Physical Sciences of the Ocean;
- IASPEI – International Association of Seismology and Physics of the Earth's Interior;
- IAVCEI – International Assoc of Volcanology and Chemistry of the Earth's Interior.

IUGG is also involved in the following Joint programs:

- FAGS (with IAU and URSI);
- Scientific Committee on the Lithosphere (with ICSU and IUGS).

International Union of Geological Sciences (IUGS)

(www.iugs.org)

IUGS is one of the largest and most active non-governmental scientific organisations in the world. IUGS promotes and encourages the study of geological problems, especially those of world-wide significance, and supports and facilitates international and interdisciplinary cooperation in the earth sciences. At present IUGS gives special consideration to:

- initiatives related to the identification and assessment of energy and mineral resources;
- global change;
- geologic hazards; and
- environmental geology.

IUGS Commissions, Committees, and Boards are concerned with a wide range of geologic research of direct interest to governments, industry, and academic groups within the earth sciences. IUGS believes that it is of mutual benefit to establish close links with other organisations engaged in geoscience activities, and especially those organisations whose work relates to some of the major activities of IUGS. IUGS fosters dialogue and communication among the various specialists in earth sciences around the world. It achieves this by organising international projects and meetings, sponsoring symposia and scientific field trips, and producing publications.

Involved countries or organisations

There are 84 member countries.

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- Several Australian scientists are involved in leadership roles of various IUGS commissions.
- The 1976 IUGS congress was held in Sydney. Australia is bidding for the 2012 congress.

Main programs

Commissions are established for broad scientific undertakings, the nature of which clearly requires long-term (~8-12 years) attention and funding. The IUGS commissions are:

- Geological Sciences for Environmental Planning;
- Global Sedimentary Geology;
- History of Geological Sciences;
- Management and Applications of Geoscience Information;
- Stratigraphy;
- Systematics in Petrology.

Task Groups are formal, project-oriented activities, pursuing limited objectives of shorter duration. The IUGS Task Groups are:

- Fossil Fuels;
- Global Geochemical Baselines;

-
- Geochronological Decay Constants;
 - Public Affairs.

Joint Programs are scientific enterprises, principally of long duration, carried out in collaboration with one or more other organisations that share with the IUGS the responsibility for funding and/or managing the activity. Joint Programs involving IUGS are:

- International Geoscience Programme, IGCP (with UNESCO);
- Scientific Committee on the Lithosphere (with ICSU and IUGG);
- Geological Applications of Remote Sensing (with UNESCO);
- Mineral Resource Sustainability Program (with UNESCO);
- International Geological Congress.

International Union of History and Philosophy of Science (IUHPS)

<http://ppp.unipv.it/dhs>

The IUHPS is composed of two divisions: the DHS (Division of History and Science) and the DLMPS (Division of Logic, Methodology, and Philosophy of Science). Each division organises its own international congress once every four years. Its scholarly work is conducted mainly through its 13 scientific commissions, five inter-union commissions, and three independent scientific sections. With such a structure, the quality of the DHS's work is largely determined by the vigour of its commissions and sections, and inevitably the profile of activity over the years has been variable. But aided by the modest support that DHS has been able to give, several commissions and sections have achieved positive results, in the form of meetings, newsletters, and scholarly publications.

Involved countries or organisations

Financial support for IUHPS comes from ICSU and 49 member countries.

Australian involvement

The Australian Academy of Science is a member and pays subscriptions (to DHS and DLMPS).

Main programs

- 13 Commissions – Ancient and Medieval Astronomy, Bibliography and Documentation, East Asia, Islamic Civilisation, Meteorology, Modern Chemistry, Modern Physics, Oceanography, Pacific Circle, Science and Empire, Scientific Instruments, Teaching, Women in Science;
- 5 Inter-Union Commissions – History of Astronomy (with IAU), History of Geography (with IGU), History of Geological Science (with IUGS), History of Mathematics (with IMU), History of Soil Science (with ISSS);
- 3 Independent Scientific Sections;
- International Committee for Cooperation in the History of Technology (ICOHTEC);
- International Committee for the History of Metrology (CIMH);
- International Association for Science and Cultural Diversity (IASCUD).

International Union of Immunological Societies (IUIS)

(www.iuisonline.org)

IUIS is an umbrella organisation for many of the regional and national societies of immunology throughout the world. The objectives of IUIS are:

- to organise international co-operation in immunology and to promote communication between the various branches of immunology and allied subjects;
- to encourage within each scientifically independent territory co-operation between the Societies that represent the interests of immunology;
- to contribute to the advancement of immunology in all its aspects.

International Congresses of Immunology are held every three years under the auspices of IUIS. IUIS also contributes to the staging of regular congresses and conferences by each of the four Regional Federations and to various educational activities in immunology. *The Immunologist* is the official journal of IUIS. The journal publishes article and reviews in basic and clinical immunology and provides a forum for discussing issues of importance for the discipline of immunology.

Involved countries or organisations

There are 54 member countries.

IUIS is affiliated to ICSU, the World Health Organisation (WHO), and the Council for International Organisations of Medical Sciences (CIOMS).

The following organisations are affiliated to IUIS:

- International Society of Immunopharmacology (ISIP);
- International Society of Developmental and Comparative Immunology (ISDCI);
- International Association of Allergology and Clinical Immunology (IAACI);
- International Society for Immunology of Reproduction (ISIR);
- Society for Mucosal Immunology (SMI);
- 54 national immunological societies.

Australian involvement

- The Australasian Society for Immunology (ASI) pays the membership subscription to IUIS, and the Australian Academy of Science reimburses ASI for 50% of the fees.
- 1977 IUIS congress was held in Sydney.
- Peter Doherty (University of Melbourne) is the current Vice President.
- The current IUIS President, Rolf Zinkernagel, is a member of the Australasian Society for Immunology.
- Christopher Parish (Australian National University) is also on the IUIS executive committee.
- Australia has had continuous representation on the executive committee for the last 12 years.

Main programs

Several Committees have been established to conduct activities of ongoing interest to IUIS, currently in the areas of clinical immunology, education, nomenclature, quality assessment and standardisation, and veterinary immunology.

International Union of Microbiological Societies (IUMS)

(www.iums.org)

The objectives of IUMS are:

- to promote the study of microbiological sciences internationally;
- to initiate, facilitate and coordinate research and other scientific activities which involve international cooperation;
- to ensure the discussion and dissemination of the results of international cooperative research;
- to promote the organisation of international conferences, symposia and meetings and assist in the publication of their reports;
- to represent microbiological sciences in ICSU and maintain contact with other international organisations.

The International Journal of Systematic and Evolutionary Microbiology, the International Journal of Food Microbiology and International Virology News in Archives of Virology are some of the publications published on behalf of IUMS. IUMS sponsors scientific meetings worldwide and actively supports the development of microbiology in the Third World by the provision of travel grants and the provision of newsletters and journals to member societies considered to be underserved with respect to publications. IUMS presents three international awards at its congresses; the Stuart Mudd Award for Studies in Basic Microbiology, the Arima Award for Applied Microbiology, and the Van Niel International Prize for Studies in Bacterial Systematics.

Involved countries or organisations

There are 62 member countries.

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- The Australian Society of Microbiology is also a member.
- John S. Mackenzie (University of Queensland) is on the current executive committee, as Secretary-General.
- Australian scientists are involved in various IUMS committees.
- The 1999 IUMS congress was held in Sydney.

Main programs

Scientific activities of IUMS are conducted by three Divisions (Bacteriology and Applied Microbiology Division, Mycology Division, Virology Division), six specialist international committees, nine commissions and two federations. Their major activities include the classification and nomenclature of bacteria and viruses, culture collections, food microbiology, antigens and molecular diagnostics, and enteric phage typing. Divisions are responsible for organising their International Congresses.

IUMS also participates in the following joint programs:

-
- DIVERSITAS (with ICSU, SCOPE, IUBS and UNESCO);
 - Species 2000 (with IUBS and CODATA);
 - International Committee on Nomenclature (with IUBS).

International Union of Nutritional Sciences (IUNS)

www.iuns.org

The objectives of IUNS are:

- to promote international cooperation in the scientific study of nutrition and its application;
- to encourage research and the exchange of scientific information in the nutritional sciences, by the holding of congresses and conferences, by publication, and by other suitable means;
- to establish task forces and other bodies as may be required in the pursuit of the first two objectives;
- to provide a means of communication with other organisations, and to encourage participation in the activities of ICSU, of which the Union is a member;
- to develop activity regarded as helpful and appropriate in achieving the objectives of the Union.

Involved countries or organisations

There are 68 member countries.

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- Mark Wahlqvist of Monash University is the current President of IUNS.
- The 1993 IUNS congress was held in Adelaide.

Main programs

The main scientific work of IUNS is done by its task forces and committees. Partnerships with other international organisations foster IUNS in achieving its objectives. Some committees are joint IUNS/IUFoST Committees. IUNS has special consultative status with FAO, WHO and the United Nations Children's Fund, is an associate member of CIOMS, and has signed a Memorandum of Understanding with the United Nations University. Close cooperation exists with UNESCO, IAEA, UNEP and with various ICSU bodies, and with IUFoST. The IUNS tasks forces are:

- Diet Nutrition and Long-Term Health;
- Indigenous Peoples' Food Systems and Nutrition;
- Nutrition in Transition (with WHO);
- INFOODS (International Food Nomenclature and Compositional Committee);
- Eco-Nutrition;
- Nutrition and Technologies;
- Evidence Based Nutrition;
- Nutritional Resistance to Infection;
- School Children Nutrition and Health.

International Union for Pure and Applied Biophysics (IUPAB)

(www.iupab.org)

The objectives of IUPAB are:

- to organise international cooperation in biophysics;
- promote communication between the societies that are interested in the advancement of biophysics in all aspects;
- to support research and teaching in biophysics.

Involved countries or organisations

There are 50 member countries.

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- The Australian Society for Biophysics is also involved with IUPAB.
- Professor Cris dos Remedios (University of Sydney) is the current vice president.
- Frances Separovic (University of Melbourne) is also a member of the executive committee.
- Several Australian scientists are involved in IUPAB task forces.

Main programs

IUPAB has four Task Forces concerned with major areas of biophysics:

- Bioinformatics (Joint Initiative of IUPAB, IUBMB, IUCr, IUPAC and CODATA);
- Capacity Building and Education in Biophysics;
- NMR in Biological Sciences;
- Biomedical Spectroscopy.

The Task Forces also arrange specialist meetings either associated with the Congresses or, more commonly, in the intervals between Congresses. The Union has funds that it uses to support conferences, schools and workshops; these funds are very limited and are normally used to provide 'pump-priming' support to meeting organisers. The Union gives priority in the allocation of its funds to events that will promote biophysics in the developing countries and that will facilitate the participation of young scientists in the conferences that it supports.

International Union of Pure and Applied Chemistry (IUPAC)

(www.iupac.org/dhtml_home.html)

IUPAC aims to advance the worldwide aspects of the chemical sciences and to contribute to the application of chemistry in the service of Mankind. As a scientific, international, non-governmental and objective body, IUPAC addresses many global issues involving the chemical sciences. The Union fosters worldwide communications in the chemical sciences and aims to unite academic, industrial and public sector chemistry in a common language. IUPAC is recognised as the world authority on chemical nomenclature, terminology, standardised methods for measurement, atomic weights and many other critically evaluated data. The Union sponsors major international meetings that range from specialised scientific symposia to CHEMRAWN meetings with societal impact.

Involved countries or organisations

There are 65 member countries.

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- The Royal Australian Chemical Institute (RACI) has close links with IUPAC.
- 28 Australians are members of 38 committees of IUPAC, and include the Secretary General of IUPAC (Prof. David StC. Black of the University of New South Wales).
- Several IUPAC sponsored events have been held in Australia.
- RACI has used the profits from running an IUPAC sponsored conference to fund its *Organometallic Chemistry Award*.

Main programs

Almost 1000 chemists throughout the world are engaged on a voluntary basis in the scientific work of the eight IUPAC Divisions and several other Committees. The eight Divisions are:

- Physical and Biophysical Chemistry;
- Inorganic Chemistry;
- Organic and Biomolecular Chemistry;
- Macromolecular;
- Analytical Chemistry;
- Chemistry and the Environment;
- Chemistry and Human Health;
- Chemical Nomenclature and Structure Representation.

The other Committees and special projects are:

- CHEMRAWN;
- Chemistry Education;
- Chemistry and Industry;
- Printed and Electronic Publication;
- Interdivisional Committee on Terminology, Nomenclature and Symbols;
- Chemistry's contributions to humanity - A feasibility study;
- International research funding in the chemical sciences.

International Union of Pure and Applied Physics (IUPAP)

(www.iupap.org)

The aims of IUPAP are:

- to stimulate and promote international cooperation in physics;
- to sponsor suitable international meetings and to assist organising committees;
- to foster the preparation and publication of abstracts of papers and tables of physical constants;

-
- to promote international agreements on the use of symbols, units, nomenclature and standards;
 - to foster free circulation of scientists;
 - to encourage research and education.

The Union is governed by its General Assembly, which meets every three years. The Council is its top executive body, supervising the activities of the twenty specialised Commissions and the three Affiliated International Commissions. As one of the basic sciences, physics relates to all branches of natural science. Many of the most exciting developments take place in the border areas between different disciplines. To cover interdisciplinary activities IUPAP maintains close liaison with several of the other Unions. In some cases this collaboration is manifested in the form of associate members of IUPAP Commissions. The Union also participates in many of the ICSU Interdisciplinary Bodies and global projects.

Involved countries or organisations

There are 45 member countries.

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- Several Australian scientists are involved in leadership roles of the various IUPAP commissions.

Main programs

IUPAP has three Affiliated International Commissions (these Commissions may have their own Members and dues structures, statutes and assemblies):

- International Commission for Optics;
- International Commission on General Relativity and Gravitation;
- International Commission for Acoustics.

There are also twenty specialised Commissions – Finance; SUNAMCO (Symbols, Units, Nomenclature, Atomic Masses and Fundamental Constants); Statistical Physics; Cosmic Rays; Low Temperature Physics; Biological Physics; Semiconductors; Magnetism; The Structure and Dynamics of Condensed Matter; Particles and Fields; Nuclear Physics; Physics for Development; Physics Education; Atomic, Molecular and Optical Physics; Plasma Physics; Quantum Electronics; Mathematical Physics; Astrophysics; Computational Physics.

IUPAP is also involved with the following Inter-Union Commissions:

- Committee on Data for Science and Technology (CODATA);
- Committee on Space Research (COSPAR);
- International Council for Scientific and Technical Information (ICSTI);
- Scientific Committee on Problems of the Environment (SCOPE);
- Scientific Committee on Solar-Terrestrial Physics (SCOSTEP);
- IUPAC Macromolecular Division;
- IUPAC Committee on Atomic Weights and Isotopic Abundances;
- IUPAC Interdivisional Committee on Nomenclature and Symbols;

-
- Bureau International des Poids et Mesures (BIPM);
 - International Union of Pure and Applied Biophysics (IUPAB).

International Union for Physical and Engineering Sciences in Medicine (IUPESM)

(www.iupesm.org)

The International Union for Physical and Engineering Sciences in Medicine was founded in 1980 by its Constituent Organisations – the International Federation for Medical and Biological Engineering (IFMBE, www.ifmbe.org), and the International Organisation for Medical Physics (IOMP, www.iomp.org). The Union comprises a global network of physical scientists and engineers dedicated to improving health care and well being worldwide, especially in developing countries. The objectives of IUPESM are:

- to contribute to the advancement of medical science and technology;
- to organise international cooperation and promote communication among those engaged in health care science and technology;
- to coordinate activities of mutual interest to the engineering and physical sciences within the health care field, such as international and regional scientific conferences, seminars, working groups, regional support programs and scientific and technical publications; and
- to represent the professional interests and views of engineers and physical scientists in the health care community.

IUPESM has sponsored triennial World Congresses for around 20 years. The proceedings have been published as supplements of Physics in Medicine and Biology and/or Medical and Biological Engineering and Computing, two of the official journals of IUPESM.

Involved countries or organisations

There are 80 member countries.

Australian involvement

- The Australian Academy of Science does not pay membership subscriptions to IFMBE or IOMP;
- The Australian Federation for Medical and Biological Engineering is a member of IFMBE and pays membership dues;
- The Australasian College of Physical Scientists and Engineers in Medicine is a member of IOMP and pays membership dues;
- Prof Barry Allen (St George Hospital Cancer Care Centre) is the current IOMP Vice President;
- Several Australian Scientists are involved in leadership roles of IFMBE and IOMP committees;
- The 2003 World Congress for Medical Physics and Biomedical Engineering was held in Sydney.

Main programs

IUPESM has established Key Programs aimed at being complementary to those of ICSU. IUPESM is establishing collaboration with other members of the ICSU family on these and related projects.

IUPESM Key Programs include:

- Public and Governmental Understanding of Health Sciences;

-
- Education, Training and Continued Professional Development for the 21st Century and Global Biomedical Information Networking for developing countries (for which a Global On-line Medical Physics Textbook and a Biomedical Engineering Encyclopedia are being developed);
 - Evidence Based Health Technology;
 - Medical Equipment Evaluation.

International Union of Pharmacology (IUPHAR)

(www.iuphar.org)

Founded in 1959 as a section of the International Union of Physiological Sciences, IUPHAR has been independent since 1966. The main objectives of IUPHAR are to foster international cooperation in pharmacology by:

- promoting cooperation between societies that represent pharmacology and related disciplines throughout the world;
- sponsoring international and regional congresses and meetings, and helping in their organisation by establishing advisory committees;
- encouraging international coordination and free exchange of scientists and of ideas in research;
- acting as a body through which pharmacologists can participate with other branches of science in international activities, either directly or under the aegis of international scientific bodies such as ICSU, WHO and UNESCO;
- helping in all ways the development of pharmacology throughout the world;
- promoting programs of public awareness on pharmacological issues.

Involved countries or organisations

There are 55 member countries.

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- The Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists is also a member.
- James A. Angus is the current 1st Vice President.
- Australian scientists are active in various IUPHAR divisions, sections and committees.
- IUPHAR sponsored congresses and meetings have been held and are scheduled to be held in Australia.

Main programs

IUPHAR currently has one Division:

- The IUPHAR Division on Clinical Pharmacology.

Seven Sections:

- The IUPHAR Section on Bioinformatics;
- The IUPHAR Section on Drug Metabolism;
- The IUPHAR Section on Gastrointestinal Pharmacology;

-
- The IUPHAR Section on Neuropsychopharmacology;
 - The IUPHAR Section on Pharmacogenomics and Pharmacogenetics;
 - The IUPHAR Section on Safety Pharmacology;
 - The IUPHAR Section on Teaching;

and one Committee:

- The IUPHAR Committee on Receptor Nomenclature and Drug Classification.

International Union of Physiological Sciences (IUPS)

(www.iups.org)

IUPS is an organisation that brings together physiologists from throughout the world. The unifying objective for physiologists is to increase mankind's understanding of the functions of cells, tissues, organs and organ systems of animals and humans. The objectives of the IUPS are:

- to encourage the advancement of the physiological sciences;
- to facilitate the dissemination of knowledge in the field of physiological sciences;
- to promote the International Congresses of Physiological Sciences;
- to promote such other meetings as may be useful for the advancement of the physiological sciences; and
- to promote such other measures as will contribute to the development of physiological sciences in developing countries.

IUPS publishes a journal, *News in Physiological Sciences* in cooperation with the American Physiological Society. It is an adhering member of CIOMS and participates in the work of several Scientific Committees of ICSU.

Involved countries or organisations

There are 51 member countries and two Affiliate Members – the International Society for Pathophysiology, and the International Society of Nephrology.

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- The Australian Physiological and Pharmacological Society is involved as a supporting society.
- Australian scientists are involved with various IUPS commissions and committees.
- IUPS sponsored events have been held in Australia.

Main programs

The IUPS has eight Scientific Commissions and two Committees:

- Commission I – Locomotion;
- Commission II – Circulation / Respiration;
- Commission III – Endocrine, Reproduction and Development;
- Commission IV – Senses;

-
- Commission V – Secretion and Absorption;
 - Commission VI – Neural Control;
 - Commission VII – Comparative Physiology: Evolution, Adaptation and Environment;
 - Commission VIII – Genomics and Biodiversity;
 - Education Committee;
 - Committee on the Physiome and Bioengineering.

International Union of Psychological Science (IUPsyS)

www.iupsys.org

IUPsyS works to promote ‘the development of psychological science, whether biological or social, normal or abnormal, pure or applied’. It represents psychology in its full breadth as a science and as a profession. The aims of the Union are:

- to develop the exchange of ideas and scientific information between psychologists of different countries, and in particular to organise International Congresses and other meetings on subjects of general or special interest in psychology;
- to contribute to psychological documentation in different countries by fostering exchange of publications of all kinds, including reviews, films, and biographies;
- to aid scholars of different countries to go abroad to universities, laboratories, libraries, and other institutions;
- to foster the exchange of students and of young research workers;
- to collaborate with other international and national organisations in matters of mutual interest;
- to engage in other activities to further the development of the science of psychology.

IUPsyS maintains close relations with the World Health Organisation and holds special consultative status with the Economic and Social Council of the United Nations. Every second month, IUPsyS publishes the International Journal of Psychology (together with the International Platform Section). It also produces the annual IUPsyS Psychology Resource File (in CD-ROM).

Involved countries or organisations

There are 68 member countries.

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- The Australian Psychological Society is also a member.
- The 1988 International Congresses of Psychology was held in Sydney.
- An international IUPsyS meeting is to be held in Melbourne in 2010.

Main programs

Special IUPsyS projects relate to the development of psychology in developing countries, (e.g., Advanced Research Training Seminars and Regional Conferences), cognitive psychology in a multidisciplinary environment, data archiving, psychological dimensions of global change, psychology and health, science literacy and communication studies.

International Union of Soil Sciences (IUSS)

(www.iuss.org)

The purpose of IUSS is:

- to foster all branches of soil science and its applications,
- to promote contacts among scientists and other persons engaged in the study and the application of soil science;
- to stimulate scientific research and to further the application of such research, for the benefit of mankind.

Involved countries or organisations

There are 86 member countries.

Australian involvement

- Australian Academy of Science does not pay membership subscriptions.
- Australian Society of Soil Science is a member.
- Several Australian scientists are involved in leadership roles with various IUSS committees.
- The 1968 IUSS congress was held in Adelaide, and the 2010 IUSS congress will be held in Brisbane.

Main programs

The IUSS cooperates with IGU, IUGS, IUPAC, IUBS and IUMS and with many interdisciplinary ICSU bodies and joint initiatives, such as CODATA, COSPAR, IGBP and SCOPE.

The structure of the Union is comprised of Divisions, Commissions, Working Groups, and Standing Committees. There are four Divisions each with Commissions:

- Division 1 (Soils in Time and Space) has four Commissions;
- Division 2 (Soil Properties and Processes) has four Commissions;
- Division 3 (Soil Use and Management) has five Commissions;
- Division 4 (The Role of Soils in Sustaining Society and the Environment) has five Commissions.

There are currently 19 Working Groups and three Standing Committees.

International Union of Theoretical and Applied Mechanics (IUTAM)

(www.iutam.net)

IUTAM was formed in 1946 with the object of creating a link between persons and national or international organisations engaged in scientific work (theoretical or applied) in solid and fluid mechanics or in related sciences. It does so mainly by organising international meetings to deal with scientific problems. An International Congress on Theoretical and Applied Mechanics is held every four years. Additionally a number of specialised Symposia with invited participants are held every year. These IUTAM Symposia are sometimes held in cooperation with other Unions in ICSU or with organisations affiliated to IUTAM.

Involved countries or organisations

There are 51 member countries. The following organisations are affiliated to IUTAM:

- International Centre for Mechanical Sciences (CISM);
- International Centre for Heat and Mass Transfer (ICHMT);
- International Committee on Rheology (ICR);
- International Association for Vehicle System Dynamics (IAVSD);
- International Society for the Interaction of Mechanics and Mathematics (ISIMM);
- International Congress on Fracture (ICF);
- International Congress on Mechanical Behaviour of Materials;
- International Association for Computational Mechanics (IACM);
- International Association for Boundary Element Methods (IABEM);
- International Society for Structural and Multidisciplinary Optimisation (ISSMO);
- International Association for Hydromagnetic Phenomena and Applications (HYDROMAG);
- International Institute of Acoustics and Vibration (IIAV);
- International Commission for Acoustics (ICA);
- International Congresses on Thermal Stresses (ICTS).

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- No International Congress on Theoretical and Applied Mechanics has been held in Australia, but IUTAM symposia have been held in Australia in the past.
- Australian scientists are involved in various IUTAM working parties.

Main programs:

There are nine IUTAM Working Parties. A Working Party in a certain sub field of the mechanics is meant to structure the overlapping activities between IUTAM on the one hand and the relevant Affiliated Organisations and sister International Unions on the other. Also, Working Parties should identify important growth areas of the field. The current Working Parties are:

- WP-1 (Non-Newtonian Fluid Mechanics and Rheology);
- WP-2 (Dynamical Systems and Mechatronics);
- WP-3 (Mechanics of Materials);
- WP-4 (Materials Processing);
- WP-5 (Computational Fluid and Solid Mechanics: acts as link between IUTAM and IACM);
- WP-6 (Biomechanics);
- WP-7 (Nano- and Micro-Scale Phenomena in Mechanics);
- WP-8 (Geophysical and Environmental Mechanics);
- WP-9 (Education in Mechanics and Capacity Building).

International Union of Toxicology (IUTOX)

(www.iutox.org)

The mission of IUTOX is to foster international scientific cooperation among toxicologists and promote global acquisition, dissemination, and utilisation of knowledge in the science of toxicology and ensure continued training and development of toxicologists worldwide. The general objectives of IUTOX are:

- to be the leading international organisation in providing toxicologists world-wide with the latest and complete account of global issues in the toxicological sciences;
- to broaden the geographical base of toxicology as a discipline and a profession to all countries of the world;
- to assist in education and career development of young toxicologists; and
- to pursue capacity building in toxicology, particularly in developing countries.

Involved countries or organisations

There are 43 member countries.

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- The Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists is also a member.
- Several Australian scientists are involved with the various IUTOX committees.
- The 2001 International Congress on Toxicology was held in Brisbane.

Main programs

Main scientific programs of IUTOX are the GM Foods Monograph and Environmental Estrogens. Other activities are organisation of congresses, meetings and awards.

International Union of Radio Science (URSI)

(www.ursi.org)

Radio science encompasses the knowledge and study of all aspects of electromagnetic fields and waves. The International Union of Radio Science (Union Radio-Scientifique Internationale, URSI), a non-governmental and non-profit organisation under ICSU, is responsible for stimulating and co-ordinating, on an international basis, studies, research, applications, scientific exchange, and communication in the fields of radio science. Included within the objectives are the following:

- to encourage and promote international activity in radio science and its applications, for the benefit of humanity;
- to encourage the adoption of common methods of measurement, and the intercomparison and standardisation of the measuring instruments used in scientific work;
- to stimulate and co-ordinate studies of:
 - the scientific aspects of telecommunications using electromagnetic waves, guided and unguided;

-
- the generation, emission, radiation, propagation, reception, and detection of fields and waves, and the processing of the signals embedded in them;
 - to represent radio science to the general public, and to public and private organisations.

Involved countries or organisations

There are 45 member countries.

Australian involvement

- The Australian Academy of Science is a member and pays membership subscriptions.
- Several Australian scientists are involved with various URSI commissions.

Main programs

URSI supports IUCAF, the Steering Committee on Frequency Allocation for Radio Astronomy and Space Science (of which it is a parent Union), and ISES, the International Space Environment Service, which provides information relevant to disciplines related to the Sun-Earth environment. There are 10 Scientific Commissions, with various working groups:

- Commission A: Electromagnetic Metrology;
- Commission B: Fields and Waves;
- Commission C: Radio-Communication Systems and Signal Processing;
- Commission D: Electronics and Photonics;
- Commission E: Electromagnetic Noise and Interference;
- Commission F: Wave Propagation and Remote Sensing;
- Commission G: Ionospheric Radio and Propagation;
- Commission H: Waves in Plasmas;
- Commission J: Radio Astronomy;
- Commission K: Electromagnetics in Biology and Medicine.