

National committees for science

The Academy's national committees foster a designated branch or theme of natural sciences in Australia and serve as a link between Australian and overseas scientists in the same field. Following advice from the committees, the Academy appoints delegates to the business meetings of the International Council for Science (ICSU). There are 21 national committees and three Task Forces, which represent a wide range of the disciplines within the Academy's Fellowship.

In 2007, the National Committee for Psychology was disbanded, and two new committees, the National Committee for Brain and Mind and the National Committee for Data for Science, were formed. The Council of the Academy ceded to the Australian Psychological Society, at its request, responsibility for adherence to the International Union for Psychological Science. The Academy renewed, from January 2008, its adherence to the International Union, CODATA.

Nominations for committee members are sought by the Academy from committee chairs and from the relevant corresponding scientific societies. The nominations are then considered by the Academy's Executive Committee, responsible for appointing committee chairs and members. Guidelines for national committees are available at: www.science.org.au/natcoms/guidelines

Biennial meeting of chairs of national committees and task forces

A meeting of the chairs of the national committees and task forces was held at the Shine Dome on 22 March 2007. The meeting focused on two key issues: the erosion of the disciplines in regards to vocation, and the state of careers of early-career researchers after the postdoctoral fellowship. The chair of the Committee for Mathematical Sciences and a member of the Committee for Medicine gave presentations on relevant activities of their committees, and were followed by breakout discussion groups. Common issues arising from the breakout groups were identified, and the opportunities to act on these issues through the national committee structures were discussed.

A summary of the proceedings of the 2007 meeting is at: www.science.org.au/natcoms



Chairs of the national committees focus on vocation and early-career researchers

Committee reports

Reports have been received from the following committees.

Antarctic research

Chair: Professor Robert Vincent FAA

Australian scientists, including members of the National Committee for Antarctic Research (NCAR), continue to play prominent roles in the international programs of the Scientific Committee for Antarctic Research (SCAR) with good representation on a wide range of committees. Activities covered include Antarctic climate processes, biodiversity, change and ecosystem response, and the geological evolution of Antarctica. Whenever possible, new appointments to various SCAR and other relevant international bodies were proposed during 2007.

In 2007 the main activity centred on contributing to the development of the next Australian Antarctic Division's Strategic Plan, which will set the science strategy for Australia's Antarctic science program in the five year period commencing in 2009. NCAR members provided input through the chair, who is ex-officio a member of the Australian Science Advisory Committee, responsible to the Minister for the Environment. The planning process will continue through the first part of 2008.

The International Polar Year (IPY) commenced in 2007, with about 100 projects taking place worldwide. Australian scientists are playing leading roles in several projects. NCAR is working with the IPY Australian Education Outreach and Communication Committee, hosted by Antarctic Tasmania, to publicise IPY activities. NCAR has also started planning for the end of IPY in March 2009. A number of lines of activity are being pursued, including Australia-wide lecture tours involving both senior and young scientists involved in Antarctic research.



Astronomy

Chair: Professor Matthew Colless FAA

The National Committee for Astronomy (NCA) focused on implementing the *Australian Astronomy Decadal Plan 2006–15* that was launched at the end of 2005, in particular the implementation of those aspects of the plan that were supported by the National Collaborative Research Infrastructure Strategy (NCRIS) funding for radio and optical astronomy infrastructure. The most important step forward was the formation of Astronomy Australia Limited (AAL) as the organisation to manage the NCRIS funding and oversee many aspects of national astronomy infrastructure. The members of AAL comprise almost all the institutions pursuing professional research in astronomy.

One consequence of the formation of AAL was that the advisory structures for astronomy in Australia have been reformed and rationalised, with most now reporting to AAL rather than other, diverse bodies. In particular, this has meant that two NCA working groups have been disbanded: the Extremely Large Telescope (ELT) Working Group has been replaced by the Australian Giant Magellan Telescope (GMT) Advisory Committee, and the Australian Square Kilometre Array (SKA) Consortium has been replaced by the SKA Coordinating Committee. The NCA was pleased to support this reorganisation. The NCA now only has one working group – the International Year of Astronomy Advisory Group, which was formed in 2007 to

lead Australian preparations for the International Year of Astronomy in 2009. That year will also see the next International Astronomical Union General Assembly, which will be held in Rio de Janeiro, Brazil.

Biomedical sciences

Chair: Professor Rob Baxter FAA

The 2007 National Committee for Biomedical Sciences (NCBMS) meeting on 7 March included a joint sitting with the National Committee for Medicine to discuss matters of mutual interest. The NCBMS covers a broad range of biomedical sciences, with 13 current corresponding national societies. In 2007, an effort was made to strengthen links with these societies, resulting in greatly improved communications. The Australian and New Zealand Society for Cell and Developmental Biology has been approached about becoming a corresponding member. A proposal by the NCBMS to prepare a paper on early-career workforce issues in the biomedical sciences, presented as an early draft, was not taken forward in 2007, as the broader issue of early-career options in science was taken up by the meeting of chairs of national committees held on 22 March (*Is there life after the postdoctoral fellowship?*).

A highlight of the year was the National Forum on Education in Biomedical Sciences, organised by Professor Phillip Nagley and colleagues, and held on 11 December at the School of Biomedical Sciences, Monash University. Discussion themes included graduate attributes and employability, and the shape of biomedical science education in the future.

Brain and mind

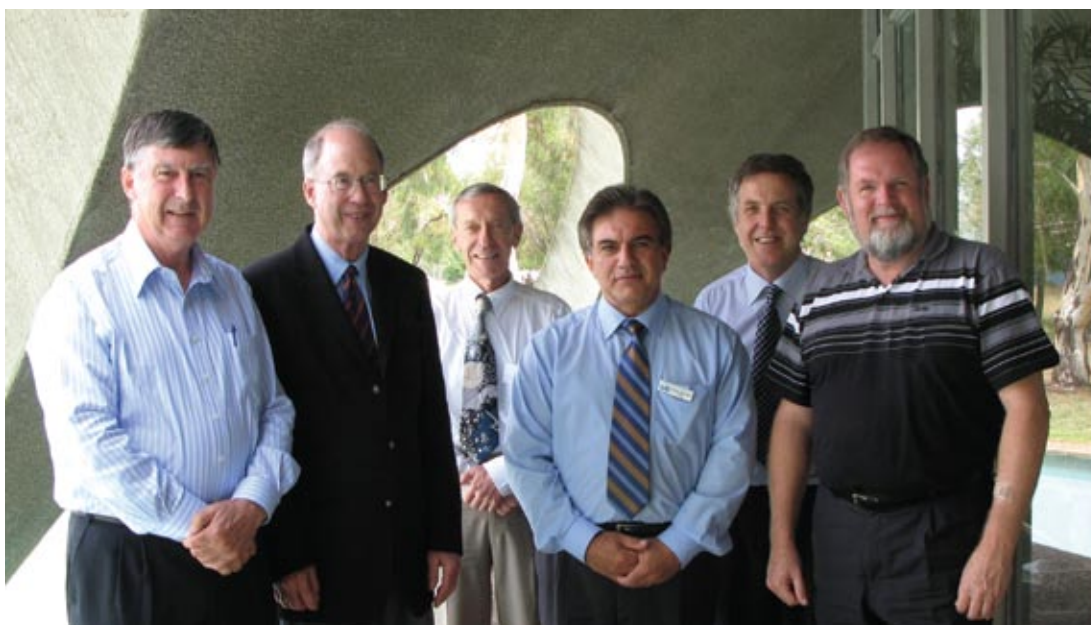
Chair: Professor Max Coltheart FAA

This new national committee was formed in late 2007 to replace the National Committee for Psychology. The first meeting was held in December at the Shine Dome, with Professor Philip Kuchel FAA, Secretary, Science Policy, in attendance.

Chemistry

Chair: Professor Chris Easton FAA

The committee has continued to interact with the International Union of Pure and Applied Chemistry (IUPAC), nominating Australians for IUPAC executive, division and standing positions as they become available. The committee chair and Professors Brynn Hibbert and Mary Garson attended the IUPAC General Assembly in



Members of the National Committee for Chemistry with immediate past-president of IUPAC, Professor Bryan Henry (second left), and Mr Peter Russo (centre front) of the Australian Science Teachers Association

Turin in August, where Professor David Black was re-elected IUPAC Secretary General, Professor Garson was elected Secretary of IUPAC Division 3 (Organic) and Dr Deanna D'Alessandro was awarded a 2007 IUPAC Prize for Young Chemists for her PhD thesis.

Nominations for the IUPAC Prize for Young Chemists are coordinated through the Royal Australian Chemical Institute (RACI) as part of the interactions between the institute and the committee. The president of RACI is an *ex officio* member of the committee.

The committee is cooperating with IUPAC and RACI to promote 2011 as the International Year of Chemistry. During 2007 it also assisted with the Research Quality Framework journal ranking exercise, considered ideas for symposia based on water recycling, quality, and chemical security, as well as continued to provide support for conference activities in Australia and pursued efforts to initiate IUPAC's Company Associates Program in Australia.

Crystallography

Chair: Professor Peter Colman FAA

The Society for Crystallographers in Australia and New Zealand (SCANZ) met in the Hunter Valley in April. Australian scientists were well represented at the Asian Crystallographic Association (AsCA) meeting in Taiwan in November.

The National Committee for Crystallography (NCCr) remained engaged with events surrounding the opening of the new Research Reactor (OPAL) and the Australian Synchrotron. The openings of these two major facilities in 2007 are landmark achievements for our community.

In 2006 NCCr member Professor Keith Nugent FAA chaired the preparation of a Strategic (Decadal) Plan for the



Photo: Courtesy of the Australian Synchrotron

A ray of light for Australian science: The Synchrotron in Melbourne

Australian Synchrotron, which the NCCr and the wider community subsequently endorsed. A similar planning document is now in preparation for neutron scattering beam lines at OPAL, and NCCr chair Professor Peter Colman FAA and Professor Keith Nugent FAA are participating in this process.

Over the past two years, consideration has been given to hosting the 2014 International Union of Crystallography (IUCr) meeting in Australia. Mindful of our role in the region, the NCCr held back until India's plans to submit a bid for this meeting were resolved. NCCr is giving its support to the Indian proposal to host the 2014 meeting in Hyderabad.

NCCr approved nominations for six new Australian members of commissions of the IUCr and continued support for seven existing members. These nominations are screened by the existing commissions and by the IUCr Executive Committee before being put to the General Assembly.

Professor Mitchell Guss has been elected President of the Asian Crystallographic Association (AsCA).

Data for science

Chair: Professor Ray Norris

The National Committee for Data for Science was formed in 2007 and Council resolved to renew Australia's membership of the Committee on Data for Science and Technology (CODATA) from 2008.

Earth sciences

Chair: Professor Andrew Gleadow FAA

The National Committee for Earth Sciences (NCES) was directly involved in, or closely monitored, a number of important activities in 2007.

The geoscience infrastructure program 'AuScope' began operations during 2007 with an NCRIS allocation of \$46m over five years from 2007. A key component of work plans under AuScope will be a program of national geoscience transects as recommended in the *National Strategic Plan for the Earth Sciences* produced by the NCES in 2003. Through the NCES a Geotransect Working Group has been established, chaired by Professor Brian Kennett FAA, to facilitate planning of integrated research programs along a series of major corridors across the continent.

Planning for the 34th International Geological Congress (IGC) in Brisbane, 2–10 August 2012 is now well under way and communication with the NCES has been maintained through the membership of Dr Ian Lambert, who is also Secretary General of the Australian IGC Committee. The Brisbane IGC is to be known as 'Australia 2012' and its theme will be 'unearthing our past and future'. It will be held at the Brisbane Convention and Exhibition Centre and the process of selecting a professional conference organiser has commenced.

Planning for the International Year of Planet Earth (IYPE) 2008 is proceeding under the auspices of the NCES in conjunction with several other geoscientific agencies and societies in Australia. A number of major geophysical and geochemical programs in 2007–09 will be linked to IYPE and several public addresses by eminent geoscientists are planned. In late 2007 a new coin set celebrating the IYPE was released by the Royal Australian Mint. In addition, at least three national or international conferences in 2008, Earth Science Week, and the *Australian Journal of Earth Sciences* will bear the IYPE logo. Numerous other activities of a more local nature are planned for the coming year.

Australia mounted a successful bid to host the 25th General Assembly of the International Union of Geodesy and Geophysics (IUGG) in Melbourne in 2011. The bid was organised by a committee chaired by Professor Ray Cas and presented to the 24th IUGG General Assembly in Perugia in July 2007. The organisation of two major international geoscience events in Australia in consecutive years in 2011 and 2012 will require broad involvement by the geoscientific community across Australia.

Australian Dr Tom Beer, previously IUGG Vice-President, was unanimously elected to succeed Dr Uri Shamir as President of IUGG.



Image: Stockxpert

Focus on data management

The Australian Geoscience Council, the peak organisation for the various geoscience organisations in Australia, has been active during the past year in investigating the condition of geoscience education in Australian universities. The NCES has been involved in this process, which is currently formulating a unified national approach to address a number of serious difficulties that currently face this sector.

The NCES spent a significant amount of its meeting time in 2007 considering the ranking of geoscientific journals on a range of quality criteria as part of the Research Quality Framework process. The ensuing debate across the wider geoscience community was still underway when the change of government led this activity to be suspended.

Earth system science

Chair: Dr Roger Gifford

Succinct summaries of the Intergovernmental Panel on Climate Change (IPCC) Working Group 1 Report and the final overall Synthesis Report were prepared for Academy use to coincide with the release of those reports during 2007. The committee also prepared a rebuttal to the high profile but seriously flawed TV documentary called the *Great global warming swindle*. The proceedings of the workshop on the *Science of seasonal climate prediction* held in August 2006 were prepared. All these documents are available on the Academy's website.

A document was written explaining the scope and concerns of Earth systems science. It was used in an application for an Australian Research Council Learned Academies Special Project grant to facilitate the development over the coming year of a decadal strategic plan for Earth systems science. A first contributory workshop to the strategic planning process was held with support from the Department of Climate Change. The workshop was on vegetation dynamics in relation to climate change aspects of the Earth system considering the research needs beyond the five year *Blueprint for terrestrial carbon cycle research*. A report of the conclusions of this workshop will contribute input to the strategic planning.

To assist the Research Quality Framework evaluation process being undertaken by the Department of Industry, Innovation, Science and Research the committee ranked the significance to Earth system science of over 300 international peer reviewed journals.



Image: Reto Stockli, NASA Earth Observatory

Our planet from space

Geography

Chair: Professor Leslie Head

The committee joined other sections of the geographical community in submissions to the former Federal Minister for Education, Science and Training over the place of geography in schools. Committee member Ms Kathryn Berg spearheaded the development of a position paper, *Australians need geography*.

The International Geographical Union (IGU) publication *Sustainable futures*, edited by committee member Professor Margaret Robertson, was released. The publication was funded by ICSU. Royalties will go to the Commission for Geographical Education of IGU. The Academy wrote a letter of support for the project.

The committee nominated Professor Ruth Fincher as Vice-President of the International Geographical Union. Elections will be held at the IGU Congress in Tunis in August 2008.

We enhanced communication with other key geographical organisations through a strategic approach to membership and a regular contribution by the chair to the Institute of Australian Geographers newsletter.

History and philosophy of science

Chair: Professor Rachel Ankeny

The National Museum of Australia (NMA) student essay prize, offered in alternative years in the history of Australian science and Australian environmental history and worth \$2,500 each, was awarded in 2007 on Australian environmental history. The winner was Dr Coral Dow for her essay *A 'sportsman's paradise': The effects of hunting on the avifauna of the Gippsland Lakes*. Because of the high standard of entries, many of the essays are to be published in the international journal *Environment and History* as a special issue on Australian environmental history, under the guest editorship of Dr Libby Robin of the National Committee for History and Philosophy of Science (NCHPS) and Dr Mike Smith of the NMA. The prizes are administered by the NCHPS on behalf of the Academy, with the chair of the national committee (or nominee) chairing the judging panel. The 2008 prize on the history of Australian science will be announced in May.

The NCHPS provided detailed feedback to the Academy on rankings of journals and publishers as part of the Research Quality Framework preparation in mid to late 2007. In addition, a dialogue was begun between members of all existing history and philosophy of science or science and technology studies (HPS/STS) programs around Australia about the future of the discipline and strategies in light of continued re-organisation in 2006–07 in both faculties of arts and sciences at a number of major universities which traditionally had strengths in HPS/STS.

Mathematical sciences

Chair: Professor Hyam Rubinstein FAA

2007 was a historic year for the mathematical sciences. The national strategic review was launched in December 2006 and as a follow-up, there were numerous activities in 2007. The National Committee for Mathematical Sciences (NCMS) met twice; in February to discuss the outcomes of the review, and in September, coinciding with the annual conference of the Australian Mathematical Society meeting in Melbourne.

Also in February, a symposium on the value of the mathematical sciences was held in the Academy's Shine Dome. Senator the Honourable Kim Carr, (then Shadow) Minister for Industry, Innovation, Science and Research, and Federal MP Pat Farmer, opened the symposium. Speakers from diverse areas of business, science and technology talked about the importance of a strong base of mathematics and statistics for research and applications in industry.

Partly in response to these initiatives, in its May budget, the Howard Government raised the level of support for teaching costs in the mathematical sciences to bring it into line with computer science. The strategic review had found substantial declines over the last decade in the number of students studying high-level

mathematics in schools across Australia and in academic staff positions in mathematics and statistics departments in universities.

Many challenges remain. We cannot lift the number and level of mathematics students in Australian universities unless larger numbers of trained mathematics teachers are available for our schools. The NCMS and professional societies in the mathematical sciences, are working to achieve this goal, directing our efforts through the Australian Mathematical Sciences Institute (AMSI). However, even AMSI is living on borrowed time, and finding a secure source of funding to support its activities is also a major objective for the future.

Mechanical sciences

Chair: Associate Professor Jim Denier

A major focus this year for both the National Committee for Mechanical Sciences and the community it serves is on the organisation of the 22nd International Congress of Theoretical and Applied Mechanics, to be held in Adelaide from 24–30 August 2008. This meeting is shaping up to be a major meeting of minds in the fields of fluid and solid mechanics and will provide an excellent forum for Australian researchers, in particular post-graduate students and early-career researchers, to present their work at the leading congress in the field. Major support for the congress has come from both the engineering community, through Engineers Australia, and the mathematical sciences community, through the Australian Mathematical Society, Australian and New Zealand Industrial and Applied Mathematics, and the Australian Mathematical Sciences Institute.

In 2007, the committee provided input into the revision of the Fields of Research codes as well as into the Research Quality Framework journal ranking exercise in applied mathematics. Professor Ross McAree represented Australia at the General Assembly of the International Federation of Mechanism and Machine Theory, held in France. Professor Ernie Tuck and Associate Professor Jim Denier represented Australia in a meeting hosted by the National Committee of Theoretical and Applied Mechanics of the Chinese Academy of Sciences concerning the establishment of an international centre for theoretical and applied mechanics. Delegates from Japan, India, Singapore, Israel, as well as representatives in the International Union of Theoretical and Applied Mechanics met to discuss the establishment of such a centre in Beijing, and its role in promoting research and education in the mechanical sciences.

Medicine

Chair: Professor Bob Williamson FAA

The chair of the National Committee for Medicine (NCM) represented the committee and the Academy at the meeting of the InterAcademy Medical Panel (IAMP). The report to the Academy's Executive Committee, which was accepted, recommended that the Academy should be involved in the IAMP priority area dealing with rheumatic fever, as this is a major health problem for indigenous Australians.

The NCM was very active in the lead-up to the 2007 budget, which continued to offer good levels of funding for Australian medical research. The national committee participated in discussions with the Department of Health in relation to the Research Quality Framework exercise, pointing out that the present structure of the assessment operated particularly poorly in relation to medical research.

The committee met in September with the Honourable Nicola Roxon and Senator the Honourable Kim Carr, at that time the spokespersons for the federal opposition prior to the election. A strong case was put to them for continuing to support and grow medical and health research, and the committee will continue this involvement now they are in government. Nicola Roxon, now Minister for Health and Ageing, and Senator Kim Carr, now Minister for Innovation, Industry, Science and Research, accepted that there is a need for basic as well as translational research, and a need to strengthen science teaching in schools. They also accept the need for a better coordination of approaches between the states and the Commonwealth, and that Cooperative Research Centres should include a dimension that allows inclusion of aims that aid community health and



Ministers Nicola Roxon and Kim Carr (centre) with Professors Graham Farquhar (left) and Bob Williamson (right)

benefits as well as strictly commercial considerations. Arising from this meeting, the NCM prepared a list of dot points offering policy in relation to medical and health research to Council, for use during the election.

The NCM has established a close relationship with the National Health and Medical Research Council (NHMRC), and met with the Chief Executive Officer (CEO), Professor Warwick Anderson, at its March meeting. Many of the points that were made concerning funding, mentoring, and the relationship between NHMRC and other government agencies were followed through by Professor Anderson, and the committee has been very impressed by this attention to outcome.

The final revised version of the NHMRC and ARC *Australian Code for the Responsible Conduct of Research* was released, and the NCM issued a public statement welcoming it in general terms, as a great improvement on the previous code. It makes it clear that responsibility for the ethical conduct of research lies with each university or institute, and that they must have an appropriate code of conduct in place. The major reservation that the NCM still has is the absence of a national framework to deal with more serious cases of misconduct, and this matter has been raised with the CEO of the NHMRC.

The NCM has continued to urge AusAID, through its principal medical advisor, Dr Jim Tulloch, to increase commitment from AusAID to international medical research programs in our region, and we have evidence that this is beginning to occur.

Although the debate on the Acts relating to embryo research no longer divides parliament, there are still issues that come up from time to time, and the NCM, through its chair, has advised Council and the Executive Committee of the Academy on the scientific matters involved.

The committee was not able to win any further concessions for charitable donations to medical and health research, and was advised by officials to discuss this again after the November 2007 election.

Council agreed to a request from the NCM that its membership remain unchanged for 2008, in view of the excellent relationship that has been established with government and NHMRC, and the fact that many of the issues the committee is dealing with are in a state of flux.

Muses-C

Chair: Dr Trevor Ireland

The Muses-C Task Force has been watching the progress of the Hayabusa Mission. The Hayabusa spacecraft visited asteroid Itokawa in late 2005 to collect samples. On the final ascent leg the spacecraft experienced an inadvertent propellant firing causing it to spiral out of control. This necessitated the delay in the return to Earth from 2007 until 2010. Hayabusa began its return to Earth in May 2007. This involved the successful refiring of the main ion engine with only one active gyroscopic stabiliser and a change in velocity of 1700 m/s with 31,000 hours of operational time. Currently the delta-v to Earth is only 400 m/s and the engines will not be refired again until 2009. The sample chamber is scheduled to return to Earth at Woomera in June 2010.



Image: © Alkeshita (MEF) ISAS

Delayed in space: Hayabusa spacecraft now to return in 2010

Nutrition

Chair: Professor Jennie Brand-Miller

The National Nutrition Committee (NNC) met in Sydney in April 2007 and corresponded by email over the remainder of the year. The focus of activities has been the accreditation of nutritionists and the rise in iodine deficiency in Australia. The NNC has fostered a dialogue with the Nutrition Society of Australia in their efforts to see a system of accreditation of nutritionists, similar to that operating in the United Kingdom.

The process is now complete and official registration of nutritionists was offered for the first time in June 2007. Associate Professor Neil Mann was the force behind the scenes. Unfortunately, the Dietitians Association of Australia was not happy with the process and has instigated its own accreditation system for nutritionists.

During the latter part of the year, the committee chair Professor Jennie Brand-Miller, was made aware of the seriousness of the rising incidence of mild-to-moderate iodine deficiency in eastern Australia and New Zealand. Iodine deficiency during development results in irreversible effects on brain function including mental retardation. Regretfully, a relatively easy solution, the compulsory use of iodised salt in bread, was rejected by the Australian Food and Grocery Council (although it was accepted by the New Zealand Food Authority). To foster further dialogue and help raise the issue at the highest levels, the NNC is organising a symposium on the subject under the auspices of the Academy and the International Life Sciences Institute Australia, in early 2008.

The NNC has also supported the need for population-based nutrition monitoring in Australia. The National Children's Nutrition and Physical Activity Survey was officially announced in late 2005 with \$3 million in funding from the Australian government and the Australian Food and Grocery Council. Professor Jennie Brand-Miller was appointed by the former Federal Minister for Health, Tony Abbott, to serve on the Technical Reference Group for the survey. The survey of



Photo: Stockxpert

Iodised salt: A simple solution to iodine deficiency

4000 children is now nearly complete and early results should be available in the first part of 2008.

The NNC is also working towards the formation of a leadership program in nutrition for young nutritionists in Australia and New Zealand. Over the past 6 to 12 months, NNC member Associate Professor Maria Makrides has liaised with Professor Ricardo Uauy, the President of the International Union of Nutritional Science. Ricardo is keen to see it happen under 'his watch' because all other continents apart from Australasia have one. The committee is drawing inspiration from the well-established European program as a start and will seek assistance from the food industry in the first instance.

Professor Jennie Brand-Miller attended the Asian Congress of Nutrition in Taipei in September 2007 and gave an invited presentation on carbohydrate and weight control. Many other Australian nutritionists and health professionals were also invited speakers, including Professor Manny Noakes and Professor Mark Wahlqvist.

Physics

Chair: Professor Michelle Simmons FAA

The National Committee for Physics welcomed five new members to the committee this year, all with a known active role in the physics community. The committee were keen to pursue two major objectives during their term: (i) to address the declining number of science teachers at high school with a physics background and (ii) to instigate a strategic plan for physics. The committee met in October 2006 to discuss these issues and has agreed to instigate a major project over the next three years: to assemble a nationally co-ordinated strategic document entitled *Investing in the future of physics*.

The aim is to make this report comprehensive and inclusive, providing a strategic document to lobby for increased funding for all fundamental science. This document will provide a snapshot on where physics-related research is currently at in Australia, and the opportunities available in the future given both current and increased levels of funding. The committee has outlined a list of approximately 20 sub-disciplines and a template is being prepared. The meeting of the committee in February 2008 discussed an action plan for this process.

The other major issue discussed was how to address or lobby for increasing numbers of secondary school teachers with a background in physics. The committee would like to invite the Executive Secretary of the Academy to attend future meetings to provide guidance and input on what the committee can do in this respect and to increase interaction between the committee and Council.

Plant and animal sciences

Chair: Dr TJ Higgins FAA

The National Committee for Plant and Animal Sciences (NCPAS) met twice during 2007. The committee welcomed the news that Professor John Buckeridge was elected President of the International Union of Biological Sciences (IUBS) for 2007–10. The next General Assembly of IUBS will be held in Cape Town, South Africa in 2009.

Two major topics of discussion occupied the committee during 2007. They were:

- Awareness of the science and regulation behind genetically modified (GM) plants. The discussion paper went through several drafts and incorporated the opinions of several Fellows as well as those of the committee. The final draft was approved by Council in December 2007.



Photo: Stockxpert

Fields of modified gold

- Training in biological science at university level. The topic has been canvassed widely by the committee and it is proposed to consider convening one or more workshops during 2008. Areas of study at particular risk include entomology, systematics, phylogeny, plant science and animal science.

NCPAS also worked with the National Committee for Earth System Science on potential projects in the Galapagos Islands.

Quaternary research

Chair: Professor John Chappell FAA

Members of the National Committee for Quaternary Research (NCQR) were involved with the organisation of the XXVII International Union for Quaternary Research Congress, the largest gathering of its kind for Quaternary researchers. The event was held in Cairns from 28 July to 3 August 2007 and addressed the increasing need for Quaternary science to provide better preparation for the future through understanding of the history of climate, the biosphere and humankind.

The NCQR chair, Professor John Chappell FAA, was conference president for the congress organising committee, and NCQR members Dr Tim Barrows, Professor Allan Chivas, and Dr Simon Haberle formed part of the organising committee.

Radio science

Chair: Dr Ray Norris

The National Committee for Radio Science continued to develop the committee's website. A web-based directory of Australian radio science is maintained on www.ncrs.org.au/directory

The committee is still striving to develop a greater level of communication within the broader radio science community.

A Workshop on Applications of Radio Science (WARS) Conference, held at the Gold Coast from 10 to 12 February 2008, was a successful meeting for which published proceedings will be available online. Papers



Photo: Shaun Amy

Sending out a message: Communicate with each other

based on invited WARS talks have been solicited for the International Union of Radio Science bulletin. Three review papers by Australian radio scientists have either appeared or will shortly appear in the bulletin.

The committee is in the process of establishing a 'Christiansen Medal' to commemorate the life and achievements of W N Christiansen FAA, a distinguished Australian radio scientist who died in 2007. This medal will give greater external visibility to successful young Australian radio scientists.

Australian participation in the Square Kilometre Array (SKA) project has continued to develop, with the Australian Square Kilometre Array Pathfinder project, which is an SKA pathfinder, now fully funded by a combination of state and federal funding. Funding includes significant CSIRO and National Collaborative Research Infrastructure Strategy funds, with additional funding allocated in the 2007 budget.

Space science

Chair: Professor Iver Cairns

2007 was a busy year for the National Committee for Space Science (NCSS). The main items are reported here, in addition to managing Australia's participation in international societies for space science – the Committee on Space Research, the International Association of Geomagnetism and Aeronomy, the International Union of Geodesy and Geophysics, and the Scientific Committee on Solar-Terrestrial Physics (SCOSTEP).

Major progress was made in developing and writing the first Decadal Plan for Australian Space Science, supported by a new ARC Learned Academies Special Project grant. Related talks at the Future Summit of the Australian Davos Connection, a meeting with the Australian Government Department of Innovation, Industry, Science and Research, a European Space Agency team, and other meetings promoted the plan and Australian space science, as did several media interviews and articles. NCSS and an associated Academy of Technological Sciences and Engineering group released the new national Space Weather Policy. The NCSS:

- Became the joint sponsor and organiser, with the National Space Society of Australia, of the Australian Space Science Conference (ASSC). The 2007 ASSC was the largest to date and included a decadal plan workshop.
- Made multiple inputs to the taskforce revising Australia's research classification system (the RFCD codes), resulting in multiple new codes and a clear home for space science in the draft revised system.
- Provided multiple inputs to the Research Quality Framework process and the review of the Bureau of Meteorology.
- Sponsored the Victorian Space Science Education Centre (VSSEC)-NASA Australian Space Prize and also the ASSC and Workshop on the Interrelationship between Plasma Experiments in Laboratory and Space. NCSS additionally provided a letter of support for continued funding of Japan's Geotail spacecraft.

Committee member Professor Robert Vincent FAA was elected President of SCOSTEP.

Spectroscopy

Chair: Professor Gerard Milburn FAA

In 2007, the National Committee for Spectroscopy began a discussion with interested parties regarding the future of the Frew Fellowship, awarded by the Academy to distinguished overseas scientists to participate in the Australian spectroscopy conferences and to visit scientific centres in Australia. In particular, the committee received a request from the Royal Australian Chemical Institute for co-sponsorship of the Frew Fellowship in years when the Australasian Conference on Optics, Lasers and Spectroscopy is not held. The committee supported this proposal, which is likely to take effect at the 2009 Physical Chemical Divisional meeting.

The committee responded to the Academy's request for journal rankings in respect of the Australian Government's Research Quality Framework process.

Nuclear matters and Australian Research Reactor

Chair: Professor John White FAA

The Taskforce met in December 2007 at Ian Potter House, Canberra. The chair, Professor John White FAA, invited Dr Ian Smith and other representatives of the Australian Nuclear Science and Technology Organisation to attend to update the committee on matters relating to the Lucas Heights Nuclear Reactor, OPAL. The following points were discussed:

- update on the instrument program and the Bragg Institute
- update on general nuclear matters and nuclear medicine
- the future of nuclear energy in Australia
- the danger of low radiation levels
- other matters related to nuclear power.

During the meeting, a possible project on the biological effects of low level radiation, mooted in 2007, was also discussed. Professor White has produced an extensive set of web-based references in this area and the extent to which the committee alone can carry out the work, or else requires a consultant, is under consideration.



The Replacement Research Reactor Project Taskforce