

# Access Antarctica

## Alternative Energy and Waste Minimisation Opportunities

Last year Antarctica New Zealand identified a need for energy systems that are not reliant on fossil fuels, and solutions to minimise field wastes. In support of this, Professor Pat Bodger of UC's Electrical Power Engineering Centre (EPEC), made a visit in December 2003, to Scott Base, the US's McMurdo Station and NZ and US Antarctic Program (USAP) field sites, to better understand the issues and iden-

tify areas in which the College of Engineering at the University of Canterbury (UC) could provide solutions through research projects.

Overall, the impression was gained that significant consideration has already been given to the use of renewable resources for electricity generation, in the form of wind power and solar energy, especially at the USAP field sites and there are already work-

### Directors Note

#### The Scientific Committee on Antarctic Research comes alive



For the first time since its foundation in 1958, the Scientific Committee on Antarctic Research (SCAR) held an open international and interdisciplinary scientific conference in Bremen on 'Antarctica and the Southern Ocean in the Global System' and what a success it turned out to be. It was run in conjunction with the XXVIII SCAR and XVI COMNAP biannual business meetings and was attended by over 1000 people from

more than 35 countries. The conference opened with a wide range of excellent key note addresses by top international speakers who reviewed our present understanding of Antarctica and its importance to the Earth System. Topics included climate history, biodiversity, astronomy, neotectonics, and ice sheet mass balance. These addresses were followed by 12 parallel sessions devoted to more specialist issues that facilitated interaction of the various disciplines. One of the recurring issues of the conference was the upcoming International Polar Year (IPY) set for 2007/8. Plans are well underway to celebrate this occasion with high profile research programmes. New Zealand has a proud tradition of involvement in previous polar year events and it is very important that we are part of the up coming IPY and that we set some time aside to discuss and coordinate our contribution. IPY is likely to be an important milestone in Antarctic research.

As well as organizing the first open science conference, the newly appointed SCAR Executive Director, Dr. Colin Summerhayes, is compiling the first long-term strategic document which promises to make SCAR a vibrant organization and bring it into the 21<sup>st</sup> Century. If the first open science conference is anything to go on, this signals an exciting new era for SCAR and Antarctic research within the global community. The downside is that it comes with a cost. It is very likely that New Zealand's contribution to SCAR will increase, something that has not happened for many years. I hope that we can find the funds to pay our way and continue to be a part of the new SCAR.


  
--Prof. Bryan Storey



Photo: The Cape Bird Hut. - Pat Bodger

ing schemes in place that are effective. There exists both immediate and long term opportunities for Antarctica New Zealand to adopt the use of these technologies to achieve their aims. There are also a number of schemes associated with water supply and waste treatment and minimisation that could be implemented.

Currently, at UC there are a number of projects underway to specifically address requirements for Scott Base and other existing fixed-site field stations. There are also projects looking at designing modular systems for mobile field stations. In addition, more extensive considerations are being made towards the reduction of fossil fuel usage and waste minimisation at McMurdo Station.

A design of a solar energy system for Cape Bird Hut has been completed by Dr David Hume, UC post-doctoral fellow, with the intention of installing it in October this year. Designs over all the projects have been undertaken by some 90 undergraduate students, these are currently being assessed. The best designs will be evaluated for further research and development.

**Dr. Thomas Jellinek**, Senior Fellow with Gateway Antarctica arrived in New Zealand, in late June to begin a three year transfer from the Senckenburg Museum of Natural History Research Institute, Frankfurt, Germany. Since his arrival Dr. Jellinek has been working closely with Dr. Kerry Swanson from the UC Geological Sciences Department, researching fossil ostracods to gain insight into long term oceanic change.

**Prof. James Kennett**, an Oceanographer from the University of California, Santa Barbara, visited Christchurch in August. While here he presented the S.T. Lee Lecture in Antarctic Studies. His talk entitled 'Antarctica's contribution to abrupt global warming events: Past and future' was well received by his audience at the free public lecture held at the University of Canterbury.



**Kerry McCarthy**, the Curator of the Pictorial Collection at the Canterbury Museum, has recently joined Gateway Antarctica as a part-time PhD candidate. Kerry's thesis topic will see her investigating the role of photography in Antarctica during the early 20th Century.

**Hilary Shibata**, the Antarctic Bibliographer from the Scott Polar Research Institute (SPRI), UK, visited Gateway Antarctica as part of her working tour of Hobart and Christchurch. During her stay in Christchurch, she provided the University with information on SPRI and presented her research on the Shirase Expedition.

A **new book** called 'Polar Monuments and Sites - Cultural Heritage work in the Arctic and Antarctic Regions' (ISBN: 82-996891-1-2, Oslo, 2004) features a chapter devoted to the Scientific Evaluation of Deterioration in the Historic Huts of Ross Island, Antarctica, by Prof. Roberta Farrell *et al.*, Waikato University.

**Graduate Certificate in Antarctic Studies**

Applications for the 2004/05 GCAS summer course closed on 1<sup>st</sup> August. The course continues to be in demand with 36 applicants, ten of which were from the following countries, South Africa, England, USA, Germany, Italy and Australia. The top 20 applicants have been selected and have accepted positions on the course. This year the course will be coordinated by Michelle Rogan-Finnemore, Centre Manager of Gateway Antarctica and expert in Antarctic law and policy issues. For the Antarctic component of the course she will be assisted by Dr. Alan Hemmings (Biology and Environmental issues), Dr. Yvonne Cook (Physical Sciences) and Dr. Michael Finnemore (Ice processes).

**Ministry of Foreign Affairs and Trade Ross Dependency Scholarship**

The closing date for this year's scholarship is set for Friday 29<sup>th</sup> October. The scholarship, valued at \$5000, is tenable for one year and is available for research concerning a matter of importance to the understanding of Antarctica or the Southern Ocean. Further details from Susannah Hawtin at Gateway Antarctica.

**NSF Summer Lecture Series**

The first lecture for 2004 begins on 4th November with a talk by Dr. Martin Sharp entitled "What's Happening to Canada's Arctic Glaciers?" 7pm, Lecture Theatre C2, University of Canterbury. Details of the remaining lectures in the summer series will appear on GA's website soon.

**GA to lead the way with Satellite Interferometry Processing Suite**

Gateway Antarctica was successful in a recent funding round with a proposal to purchase a Satellite Interferometry Processing Suite. This system will produce digital elevation models of the Earth's surface with deci-metre scale accuracy, and will allow for the detection of changes in surface features to within a centimetre or two.

The system will have widespread application to research and teaching-related projects around the University, including use on the McMurdo Ice Shelf (MIS) project to provide accurate surface velocity data for the ice shelf adjacent to Scott Base, Antarctica. This will help to monitor the stability of the ice shelf and how it is has changed over time, shedding some light on the ice shelf's future. The project is an vital component of the UNEP GEF targeted research proposal.

Other departments including Geology, Geography and the College of Engineering have expressed an interest in the new system. For example, in hazards management it can be used to measure ground distortions before volcanic eruptions and landslides. In civil engineering projects it can be used as a means to measure the settling of a building on its foundations or the subsidence of the land as a result of groundwater extraction.

The system is expected to be in place early in 2005 and will be made available for collaborative research projects.



**United Nations Environment Programme**

The joint Centre for Scientific Studies (CECS) and Gateway Antarctica GEF Project Development Proposal entitled "Targeted research on climate change impacts on southern mid-latitude ice fields" received a boost this month when it obtained endorsement from CONAMA, the (CO)mision (NA)tional del (M)edio (A)mbiente. CONAMA is the Chilean government

institution which has as its mission, the promotion of environmental sustainability in the development process and also it coordinates the government's environmental policy and strategy. This endorsement from the Chilean Government means that the GEF Proposal can now be presented to UNEP in Nairobi for funding consideration.

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