

Annual Report

2002 - 2003



Antarctica New Zealand



Front Cover:
Pressure Ridges
Warrick Orchiston
Antarctica New Zealand Pictorial Collection 66:IP

ADVANCING KNOWLEDGE, APPRECIATION AND CONSERVATION OF ANTARCTICA AND THE SOUTHERN OCEAN FOR THE BENEFIT OF NEW ZEALAND AND THE WORLD COMMUNITY, THROUGH LEADERSHIP, PARTNERSHIP AND INVOLVEMENT IN HIGH QUALITY ANTARCTIC RELATED ACTIVITIES.

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Inset: Ross Sea region



Antarctica

'Antarctica and the Southern Ocean form one of the world's most precious remaining wilderness areas. It is a vast natural reserve devoted to peace and science at New Zealand's back door – a place like no other and one whose protection is of utmost importance.'

Helen Clark
Prime Minister
(excerpt from foreword *New Zealand in Antarctica*; *New Zealand Statement of Strategic Interest*
November 2002)

Chairman's Report



Kim Westerkov.

Antarctica exists as a shining symbol of what can be achieved through the partnership of nations – meeting the challenges of a remote and unforgiving environment in pursuit of knowledge with far-reaching potential and benefit.

That New Zealand can play a vital role in this endeavour is due in large part to the ongoing success of this organisation, maintaining the unique relationship our country has always had – in logistics and support, science and discovery, education and awareness – with Antarctica.

Our record of success in the 2002 – 2003 year has been no exception, due in no small part to the leadership of incoming Chief Executive, Lou Sanson. As befits his background in environmental management and remote operations, Lou has made a significant contribution to the organisation in his first year and I am confident he will continue to build upon this foundation.

We welcomed two senior staff, appointed this year, Environmental Manager, Neil Gilbert and Communications Manager, Shelly Peebles. New Board member, Kerry McDonald, brings his wealth of business acumen and a boundless passion for Antarctica to the organisation.

Scientific research remains at the heart of Antarctica New Zealand's programme maintained by excellent working relations with researchers and technical teams alike. Year-on-year, quality, targeted research projects achieve wide-ranging recognition for the New Zealand programme.

Over the course of the year, Antarctica New Zealand has continued to take a leading role in two research projects: the Antarctic drilling project, ANDRILL and the Latitudinal Gradient Project. Both of these programmes, which are examined in detail in this Annual Report, are excellent examples of what can be achieved through international collaboration. We can be justifiably proud that New Zealand is at the

forefront of this leading-edge research.

This past year has also been dedicated to the planning and preparation of what will be the largest single construction project undertaken since the commissioning of Scott Base. The proposed Heated Field Store, to be constructed over the next two years, will effectively complete Scott Base.

The 2002/2003 season held the kind of physical challenges only the Antarctic can pose, most notably the formation of thick sea ice in McMurdo Sound. For the third year running, two icebreakers were required to carve a channel for the supply ship.

These kinds of challenges emphasise the vital importance of co-operation between key partners in the region. We acknowledge the outstanding contributions of the American and Italian teams during the season, through the joint logistics pool and as colleagues, ensuring our respective programmes remain successful.

Our research scholarships, artists, education and media programmes continue to develop, broadening the awareness of our organisation and the importance of work on the continent. In particular, the quality of participants and the works created by our Antarctic Arts Fellows make a significant contribution to the understanding of, and support for, Antarctica and the Southern Ocean.

Antarctica New Zealand is also pleased to provide ongoing support to the Antarctic Heritage Trust, the organisation dedicated to preserving the historic sites in the Ross Sea region. The Trust is to be congratulated on the progress they have made to date, including the production of a Conservation Report for Shackleton's Hut, Cape Royds, which was launched by Prime Minister Helen Clark in March. We look forward to working with AHT on the development of an implementation plan to preserve these treasures.

Support for our organisation has also been strong, especially from the Ministry of Foreign Affairs and Trade. Trevor Hughes' assistance and guidance in his inaugural year as head of the Antarctic Policy Unit is greatly appreciated.

Our efforts this year demonstrate that Antarctica New Zealand continues to use its limited resources to best effect, supporting quality science and building the constituency of understanding and support. We remain committed to the Antarctic Treaty and our Treaty partners, and play a leading part in fostering the unique relationships between nations, scientific communities and operational programmes.

Internationally, there is a growing acknowledgement of the critical role Antarctica plays in the Earth's ecosystem and the contribution that study of the region makes to understanding the physical and biological processes which effect us all.

We face an ongoing challenge in balancing the protection of this unique and important environment with increasing requirements for access. Neither wholesale access nor complete protection is an



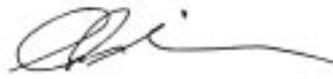
Chris Mace building a snow trench during Antarctic Field Training.

acceptable solution but the long-term management and stewardship of the region demands debate.

Few people that have had an involvement with Antarctica remain unmoved by this magnificent and magical continent. I count myself extremely fortunate to have had this level of involvement with Antarctica New Zealand over the past seven years. It has been a challenge and a pleasure.

I admire the dedication of those who work within the organisation and the researchers and educational institutions that strive to unlock the continent's mysteries. Their work is vital to our understanding of the planet and the impact each of us has upon it.

I would like to welcome new Chairman, Paul Hargreaves, and express my sincere gratitude to the team and the Board for their support. I wish you all every success in the future.



Chris Mace
Chairman



The Board of Antarctica New Zealand



CEO and Board of Directors of Antarctica New Zealand. Left to right: Francis Small, Wendy Lawson, Bill Mansfield, Chris Mace, Paul Hargreaves, Maj de Poorter, Lou Sanson (CEO).



The Year in Review

Throughout the 2002 – 2003 season, Antarctica New Zealand achieved significant successes on a number of levels. In particular, the support of a record number of events, including 34 science events, (two of which were operated throughout the 2003 winter), three educational programmes, and a range of other promotional and media opportunities. The year also saw Antarctica New Zealand participate in a number of international forums, as well as establishing a framework for the long-term management of the science programme.

This year was my first with Antarctica New Zealand and an extremely satisfying beginning to my tenure. I feel especially privileged to join an organisation such as this and am confident that we can continue to build on the significant achievements of the previous CEO, Gillian Wratt.

The successes Antarctica New Zealand achieved during this year would not have been possible without our people, a dedicated and hard-working team of professionals who enable the organisation to perform in often extremely challenging situations and across a broad range of fields.

We actively commit to an organisation focused upon people and strive to ensure that we maintain the best working environment possible. This has been demonstrated by the introduction of Corporate Services as a key strategic unit within the organisation, incorporating human resources.

We are pleased to have Dr. Neil Gilbert, Environmental Manager, and Shelly Peebles, Communications Manager, join the team this year. Both bring a wealth of experience to the organisation. Neil comes to New Zealand from the UK, where, for the last six years, he was deputy head of the Polar Regions Unit in the Foreign and Commonwealth Office responsible for developing and implementing all aspects of UK Antarctic policy. Shelly has a background in marketing/communications and project management and joins us from YHA New Zealand where she was National Marketing and Development Manager.

We also welcomed Keith Springer who has taken on the new role of Programme Support Manager, responsible for the co-ordination of the annual event programme in Christchurch and management of operational support in Antarctica. Keith previously worked for Antarctica New Zealand in the roles of Operations Coordinator and Field Support Officer at Scott Base.

Peter Cleary rejoins the organization as Operations Planner tasked with long term logistics planning and project management. Peter has

worked in Antarctica since 1978 and brings a vast knowledge of Antarctica and Antarctic issues.

Jim Cowie is the newly appointed Project Manager for ANDRILL, the multinational stratigraphic drilling initiative coordinated by New Zealand. Jim has worked for the Antarctic programme in a variety of capacities bringing 29 years of Antarctic experience to the position.

The organisation farewelled Emma Waterhouse and Vivienne Allan over the course of the year. Vivienne was a valued member of the management team, instrumental in coordinating media focus on Antarctica New Zealand's activities, including the visit of HRH Princess Anne in 2002. Emma Waterhouse departed after six years as Environmental Manager during which time she led the development of Antarctica New Zealand's systems of implementation of the *Antarctica (Environmental Protection) Act 1994*, in addition to important initiatives including the production of *Ross Sea Region 2001: A State of the Environment Report for the Ross Sea Region of Antarctica*.

During the 2002 – 2003 season, significant improvements were made to Scott Base as part of the organisation's continued commitment to the upgrading of facilities. The wastewater treatment plant was installed and became operational in October 2002. This new treatment plant uses a biological system to process wastewater and demonstrates our continued commitment to reducing environmental footprints in Antarctica.

Planning has been completed for the new two-storey, 1800 square metre Heated Field Store, the largest single construction project undertaken since the base was commissioned. Work is scheduled to begin on the \$3.9 million project over the coming season, with completion set for October 2005. This important building will improve our ability to handle large field science events and will signify the final completion of Scott Base as a world class Antarctic research facility.

Antarctica New Zealand continues to support a wide range of research programmes with last season being our biggest ever marine programme.

NIWA's research into the aquatic ecosystems of inshore marine areas investigated the potential of regional climate variations impacting upon ecosystem structure and function. The need to expand our understanding of the effects of climate change on a global basis continues to drive this research.

The multi-national (Germany, Italy, NZ and US) project, a precursor to ANDRILL has successfully 'drilled' holes through the 150 metre-thick McMurdo Ice Shelf – a 'first' for Antarctica – keeping the holes

'open' for several days to allow valuable data on sea currents and bottom sediments to be gathered. This data will be used to determine appropriate drill sites for ANDRILL.

Many of the scientific achievements of the past year were highlighted at the Annual Antarctic Conference, held at Dunedin's Otago University in April. NIWA's research into aquatic ecosystems and the report of the ANDRILL team were among the 33 presentations by science and non-science personnel at the conference.

Antarctica New Zealand also provided support for the University of Canterbury's Gateway Antarctica Bio-Prospecting Conference, held in Christchurch in April. The two-day Conference focussed on the protection of Antarctica's biological resources and the balancing of commercial and academic interests.

To support the continuation of the high quality research undertaken in the region, Antarctica New Zealand is working on a draft Antarctic and Southern Ocean Science Strategy, to be completed in September 2003. The revised Strategy, developed in consultation with a broad group of policy makers, funders, NGOs and researchers is centred on research in three key areas: Antarctic Physical Environments, the Southern Ocean and Antarctic Ecosystems. With the potential to bring new understanding of the processes of Antarctica's effect on global ecosystems, effects of climate change and biodiversity research, the implementation of the Strategy is of great importance to New Zealand.

The organisation's focus on international issues and awareness also involved contributions to a number of international forums held this year. Environmental Manager, Dr. Neil Gilbert joined me at the annual Committee for Environmental Protection meeting and the Antarctic Treating Consultative Meeting in Madrid. Science Strategy Manager, Dr Dean Peterson chaired the Joint Committee on Antarctic Data Management (JCADM) meeting in Brussels and LGP Project Leader, Shulamit Gordon represented New Zealand at the annual Regional Sensitivity to Climate Change (RiSCC) in Antarctic Terrestrial Ecosystems workshop. Operations Manager, Julian Tangaere also attended meetings with the Americans and Italians, to reaffirm New Zealand's commitment to the joint logistics pool.

The media, arts and education programmes produced some excellent results over the year. Our selected secondary school, St Bedes Boys' High School in Christchurch, produced a variety of paintings and sketches based around Scott's Hutt at Cape Evans culminating in a successful exhibition at the Centre of Contemporary Art (CoCA) Gallery. Artist and fashion designer Fieke Neuman worked closely with marine based events incorporating this theming into a unique range of garments for exhibition and general sale. Media remained an important focus for the year as we strive to communicate the important work and activities in Antarctica.

Partnerships also continue to play a vital role in our ability to educate and inform New Zealanders of the global significance of Antarctica. The Antarctic Visitors Centre in Christchurch, Kelly Tarlton's Antarctic Encounter and Underwater World in Auckland and Te Papa in Wellington are all instrumental in this area. We are especially delighted with our association with the new Christchurch Art Gallery,



Lou Sanson, CEO of Antarctica New Zealand with Principal Investigator Azzizan Abu Samah and Jordanian Post-doctoral student Aiman Soleimen Oklat from the University of Malaya, Malaysia. Antarctica New Zealand provides logistical support to the Malaysian Antarctic Programme.

opened in March, in the form of the Tait Electronics Antarctica Gallery. Antarctic Arts Fellow Virginia King held the inaugural exhibition and we look forward to many more Antarctic Artists displaying in the future and a continuing partnership with the Gallery.

Internal systems were also a focus for Antarctica New Zealand this year, with the adoption of Navision. Designed to improve financial management as well as the coordination of operations at Scott Base, the first stage of this system was delivered in November 2002. The introduction of this system will allow greater reporting, more efficient use of data and will make information more widely available.

In a year which held a great deal of work with implications for the future of Antarctica, significant investment was also made in the preservation of its past. I would like to join the Chairman in congratulating the Antarctic Heritage Trust on the launch of the first of their Conservation Plans for Shackleton's Hut at Cape Royds and their ongoing dedication to the preservation of the region's historic sites. We look forward to working with the Trust as they move toward the implementation of the plan.

Finally, I would like to personally thank Antarctica New Zealand's staff and Board for their support throughout my first year. Their unfailing commitment has enabled me to make an effective transition, and ensured the organisation was able to perform to the highest standards.

A handwritten signature in black ink, appearing to read 'Lou Sanson'.

Lou Sanson
Chief Executive



Planning and Facilitation of Science

The *Kirkpatrickia* sponge is being studied to determine the effect of marine pollutants. *Nicole Webster Antarctica New Zealand Pictorial Collection KO59 02/03.*

Antarctica New Zealand manages a science review process for all science providers requiring logistics support in Antarctica. The Antarctica New Zealand science review process is currently run on an annual cycle. The proposals are assessed on science merit and relevance to the Antarctica New Zealand 1998 Science Strategy document, *A New Zealand Science Strategy for Antarctica and the Southern Ocean*.

Antarctica New Zealand uses the Antarctic Research Committee (ARC) and peer-review letter reviews. The outcome of this review process is a ranked list of all the proposals. A recommendation on which projects should be supported is provided to the Antarctica New Zealand Board. In recent years the cut off point for recommended support has been at a ranking of 7/10. (Approximately 70% of proposals are approved for support.)

Once a research leader has received Antarctica New Zealand approval he/she can negotiate with a funding agency on the basis that if funding is gained Antarctica New Zealand will provide logistics support in Antarctica. The total amount spent on supporting the logistical needs of science providers in Antarctica and the Southern Ocean, is approximately \$4.3 million per year.

New Zealand's Antarctic science system is spread across many government sectors. Logistics support is provided by Antarctica New Zealand, with science funding and Antarctic research being supported as follows:

Antarctic research providers;

- Government research facilities (CRI's, government departments);
- Universities;
- Private research companies or individuals.

Science funding contributors;

- Public Good Science Fund (PGSF) (Vote: RS&T), which is run by the Foundation for Research, Science and Technology (The Foundation);
- The Marsden Fund, which is run by the Royal Society;
- University Grants (Vote: Education), which is run internally by each University;
- Biodiversity of the Ross Sea funding (BioRoss) run by the Ministry of Fisheries.

Good co-ordination between these entities is key to deliver an efficient and effective science output from Antarctic Research.

Total Antarctic Science Expense*

Funding Agency	Amount
The Foundation	\$ 3.20 m
The Marsden Fund	\$ 0.70 m
Individual University Grant (total costs)	\$ 3.00 m
BioRoss	\$ 0.35 m
Antarctica New Zealand	\$ 4.30 m
Total (not including Centre of Research Excellence – CoRE)	\$ 11.55 million
* This approximation of total costs does not include New Zealand Defence Force spending associated with Antarctic support.	

Overview of the Season

Antarctica New Zealand supported 34 science events during the 2002/03 summer season and two science events over the 2003 winter. The number of events and the complexity and sophistication of the logistics and science related to each event has grown over the past few years. We supported more diving events than ever before and had three very active deep-field events this past season. These events in combination with two large events (K114 and K042 – Site survey work at Black Island and Windless Bight) and ongoing science events have made for a very busy and productive year.

In 1998 Antarctica New Zealand published the *New Zealand Science Strategy for Antarctica and the Southern Ocean*. The science strategy document has been used to once again describe the research supported by Antarctica New Zealand. The five Antarctic science themes in the science strategy are:

1. Antarctica as a Global Barometer
2. The Southern Ocean
3. Life in Extreme Environments
4. Human Influences In/On Antarctica
5. The Connections between Antarctica and New Zealand

1. Antarctica as a Global Barometer

Basal Ice and Substrate Deformation at Subfreezing Temperatures – K064

A group of researchers from Otago University and the Free University of Brussels, led by Dr Sean Fitzsimmons, has been studying the movement and behaviour of dry-based glaciers in Antarctica for the past five years. Measurements of the glacier's velocity have shown that debris-bearing and solute-rich ice deforms faster than adjacent clean glacier ice. The sliding velocities of these very large dry-based glaciers vary from 60 to 150 millimetres per year despite the low ambient temperatures of -16 to -27°C. Analysis of the chemical composition of the dense lower layer of the glacier shows that liquid water can still play an important role in the formation of this ice layer in these very cold glaciers. The information gained through this study will help reconstruct past Antarctic climate scenarios.

Processes and Interactions in the Antarctic Atmosphere – K085

The National Institute of Water and Atmospheric Research (NIWA) and the University of Denver have been making ground-based measurements of the troposphere (approximately 0 – 15 km above sea level) and stratosphere (15 – 40 km above sea level) composition over Antarctica for many years. Near the end of September 2002 a sudden warming event in the Antarctic stratosphere occurred, which resulted in a restricted Antarctic ozone hole. A research study, led by Dr Stephen Wood, has produced a time series of selected gases that illustrate the unusual stratospheric behaviour and shows large differences in the amounts of the trace gases in the spring of 2002 compared to previous years, inferring that upper atmospheric circulation patterns were responsible for the reduced ozone hole, not a lack of reactive chlorine in the atmosphere.



Rebecca Batchelor is a winter over scientist recording stratospheric behaviour using trace gases. Anthony Powell.



Diver collecting algae off Cape Evans. Rod Budd, NIWA Antarctica New Zealand Pictorial Collection.

2. The Southern Ocean

Oceanography and Sedimentation Beneath the McMurdo/Ross Ice Shelf in Windless Bight – K042

An international group of researchers from New Zealand, Germany, Italy and the United States of America, led by the Antarctic Research Centre from Victoria University of Wellington, has made the first measurements of ocean currents under the McMurdo Ice Shelf this past season. An array of detectors measured the water column from the ice shelf surface to the sea floor 900 metres below. The measurements were made continuously for 24 days to ensure that data were gathered over most of the lunar cycle. The study showed that current velocities throughout the water column are driven by the diurnal tides and reach speeds of 60 cm per second under the sea ice and 17 cm per second under the ice shelf.

Antarctic Aquatic Ecosystems – K081A

A research group from the National Institute for Water and Atmospheric Research (NIWA) has been studying the ecology and biodiversity of coastal sea-floor communities in the McMurdo Sound area. The study has shown a strong connection between physical and biological processes, and between water column and seafloor ecology. The strong seasonality in sea ice cover and consequently the light regime means that primary production and input of food to benthic communities is pulsed. The study is developing cost effective techniques to measure habitat structure and the biodiversity of the seafloor communities as well as providing an assessment of structural biodiversity. The research at two sites (Cape Evans and New Harbour) has shown very different situations in habitat structure, biodiversity and biomass.

Strategic statement/output

Output: Planning and Facilitation of Science
Activity: Antarctica New Zealand provides strategic direction and planning for New Zealand Antarctic and Southern Ocean Science including provision of logistical support.



Contribution

John Cockrem first visited Antarctica in 1985 as a biologist and has returned several times studying the behavioural response of Adélie penguins to people. Antarctica New Zealand supports his research which relates to two science themes from the Antarctica New Zealand Science Strategy.



Antarctic Nemertean worms. Rod Budd, NIWA Antarctica New Zealand Pictorial Collection KO81 01/02.

3. Life in Extreme Environments

Responses of Marine Organisms to Changing Environmental Conditions – K057

Researchers at the University of Canterbury are studying the respiratory physiology of the Antarctic nemertean worm. The worm can reach a weight of up to 200 grams, yet has no specialised respiratory organs. The diffusion of oxygen into the animal occurs across the skin. The data taken last season suggests that the Antarctic Nemertean worm is able to grow to its large size because of its low metabolic rate and the high concentration of oxygen dissolved in seawater at -1°C . Any change to these conditions could have a severe effect on the animal, making it a candidate as a sensitive signal to global change.

Ecology of Benthic Communities in Antarctica – K081B

Until recently, the accumulation of organic material in the sediments of Dry Valley lakes has been thought of as passive accumulation of sinking debris. Measurements by a group of researchers at the National Institute for Water and Atmospheric Research (NIWA) of biomass of active material, photosynthesis and nutrient exchange has altered this view. They concluded that most of the biomass of active photosynthetic organisms is associated with thick layers of algae, which live on the lake beds (benthic microbial mats). Not only do these mats comprise a major biological resource within Dry Valley lakes, but their growth bands vary in response to the nature of the ice cover, thus making them potentially useful indicators of current and historic growth conditions at each lake site.

4. Human Influences In/On Antarctica

Human Impacts and Microbial-Chemical Ecology of Antarctic Sponges – K059

The University of Canterbury and the Australian Institute of Marine Science have been studying human impacts on Antarctic sponges in the regions surrounding Scott Base and McMurdo Station. Pollutants including heavy metals, hydrocarbons and nutrients of sediments have been measured to characterise the level of contamination at different sites. Results demonstrated that the Antarctic sponges are very sensitive indicators for stresses in the marine environment.

Impacts of Human Activities on Antarctic Soils – K123

Landcare Research New Zealand Ltd. has been leading a research group in the Dry Valleys in developing environmental protection of ice-free areas of the Ross Sea region. The group is studying the soils in the Dry Valleys and impacts of human activities on these areas. At each chosen site, detailed information on soil properties is collected. Results have shown that Antarctic soils are affected both directly and indirectly by oil contamination. Many of the larger impacts are on the ecosystems that these soils are part of.



The *Isodictya* sponge is being studied to determine the effect of marine pollutants. Nicole Webster Antarctica New Zealand Pictorial Collection K059 02/03.

Strategic statement/output

Output: Planning and Facilitation of Science
Activity: Science management and facilitation including logistical support to science projects, provision of technical specific support and facilities, and reporting science.



Contribution

Tim Haskell has worked as an Antarctic physicist for over 25 years. He is currently conducting investigations into the relationship of sea ice to ocean and atmospheric processes. Tim has authored or co-authored over 30 scientific papers relating to his research.

Antarctic and Southern Ocean Science System

The Antarctic and Southern Ocean science system for New Zealand is currently in a state of change. A proposed flowchart outlining the new process is shown below. The new system will incorporate the new science strategy document, which will be launched in January 2004. The new strategy will have three themes: Antarctic Physical Environments Research, Southern Ocean Research, and Antarctic Ecosystems Research. The new document will create a structure for the Research Theme Committee to integrate research events and create new large-scale research projects.

5. The Connections between Antarctica and New Zealand

The Evolution of the Transantarctic Mountains and its Associated Rift System – K101

The Earth's surface is made up of a series of plates, new crust is created at mid-ocean ridges and converges back into the Earth's mantle around the Pacific Rim. The model of how the Earth's surface "circulates" is still not fully understood. The Institute of Geological and Nuclear Sciences is studying the role of the Antarctic deformation in completing the global plate-motion model. This research involves onshore and offshore geology and geophysics researchers addressing the tectonic evolution of Antarctica over the past 100 million years.

Processes of Volcanic Vent Evolution: Coombs Hills – K061

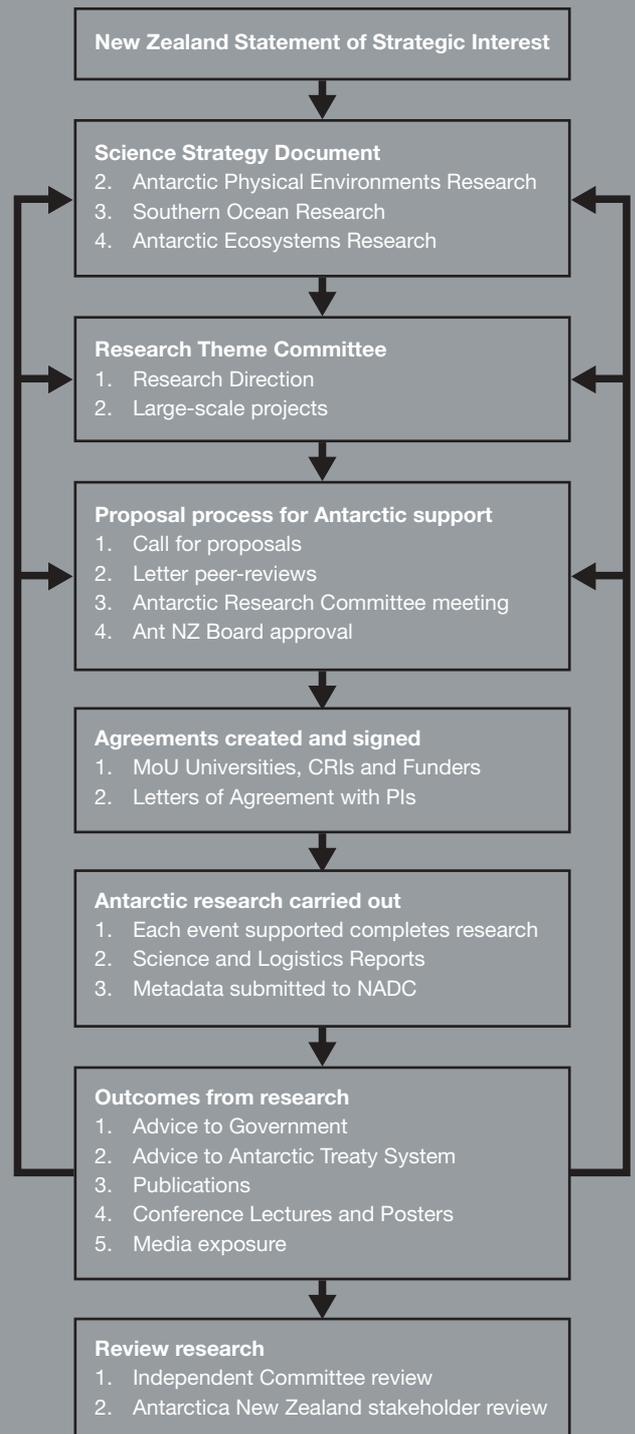
Dr James White from the University of Otago leads a research group working on understanding how volcanic eruptions begin. The volcanic record of the Mawson Formation at Allan Hills represents the edge of a vent complex and may contain features of an origin from explosive eruptions in the area. The precursory activity recorded in these features is starting to be unlocked through the investigation.



Taking measurements of the Mawson Formation in Allan Hills. James White Antarctica New Zealand Pictorial Collection K061 02/03.

Annual Antarctic Conference

The University of Otago hosted Antarctica New Zealand's Annual Antarctic Conference 2003. The conference has grown significantly over the past three years to a three-day event incorporating workshops, presentations and poster sessions. We are proud to announce that this year's conference had a record-breaking attendance of over 130 people. Presentations ranged from fashion design to volcanic research. We are looking forward to planning and participating in an even larger conference this coming year hosted by the University of Waikato in April 2004.



Latitudinal Gradient Project

The Latitudinal Gradient Project (LGP) is aimed at increasing the understanding of the coastal marine, freshwater and terrestrial ecosystems that exist along the Victoria Land coastline in the Ross Sea region, and describing potential environmental variability that may occur in the future.

Antarctica New Zealand successfully bid for capital and operating expenditure from Treasury for the duration of the project. We are therefore able to provide the logistical capabilities for a research camp to be located at specific sites along the Victoria Land coast. Much of this year was spent acquiring the resources for a stand-alone camp.

LGP has been formally incorporated into the SCAR programme RiSCC (Regional Sensitivity to Climate Change). Certain data collected within the LGP will be housed and made available within the RiSCC database framework. Details on how the data will be shared and the timing of when the data will be made available have yet to be decided. It is intended that publications arising from the LGP will be published in a special issue of a refereed journal.

A New Zealand science steering committee has been appointed by Antarctica New Zealand Science Strategy Manager Dean Peterson and Dr. Clive Howard-Williams (NIWA) to work along side the LGP Project Manager, Shulamit Gordon Science Advisor, Antarctica New Zealand. The steering committee consists of:

Dr Jackie Aislabie	Landcare Research	
Dr Megan Balks	University of Waikato	
Prof Allan Green	University of Waikato	
Dr Ian Hawes	NIWA	
Dr Clive Howard-Williams	NIWA	Chair
Dr Dean Peterson	Antarctica New Zealand	Ex-officio

This committee met in October 2002 and March 2003 to discuss the contents of the LGP Science Overview and Logistics Plan (released in August 2002) and other LGP-related issues.



Testing the Ract Tent to be used at the LGP Cape Hallett camp site. *Jim Davis Antarctica New Zealand Pictorial Collection.*



Seabee Hook – site of the LGP camp at Cape Hallett. *Klok/Scott/Sinclair/Terblanche Antarctica New Zealand Pictorial Collection K140 02/03.*

Research under the LGP will be both ship and land-based. At present, ship-based research, funded under the Ministry of Fisheries' BioRoss programme and the Italian Antarctic Programme, has been scheduled for January to March 2004 with a research voyage planned using two vessels aimed at supporting near-shore and deep-water marine research. The vessels dedicated to this research are NIWA's *RV Tangaroa*, and the Italian Antarctic Programme's *RV Italica*. Further information about the ship-based research can be found in the BioRoss research plan and in the BioRoss call for statements of interest.

Five land-based sites have been proposed to be studied for two years each starting in the 2003/04 season. The proposed sites are Cape Hallett (first site in 03/04 and 04/05), Darwin Glacier, Terra Nova Bay area, Granite Harbour and Beardmore Glacier. A year out between each site will allow for reconnaissance of the next site and facilitate re-location of camp resources, as well as providing time for data analysis and write-up.

Seven science proposals submitted in October 2002 were accepted for support under LGP for the 03/04 season at Cape Hallett.

Strategic statement/output

Output: Planning and Facilitation of Science
Activity: Science management and facilitation, including logistical support to sciences projects, provision of technical specific support and facilities, and including provision of strategic planning for Southern Ocean science.



Contribution

Marine biologist **Miles Lamare**, from Otago University led a joint NZ/US team as Principal Investigator operating from Scott Base. Their research involves diving under the sea ice to deploy optical instruments that measure the amount of UV-R penetrating the sea ice and water column. Antarctica New Zealand provides specialised field operating assistance to support scientific diving.

ANDRILL - Antarctic Drilling Project

ANDRILL is a multinational scientific initiative to investigate Antarctica's role in Cenozoic to recent (65 million years ago to the present) global environmental change, and hence its potential future role, through stratigraphic drilling of Antarctica's ice marginal sedimentary basins. An ANDRILL consortium now comprises four countries – Germany, Italy, New Zealand, and the United States of America.

A key aim of ANDRILL is to understand the role of Antarctic drivers on global climate variability, which requires a fundamental knowledge of cryospheric evolution not only in recent times, but as long ago as 40 million years into the past. This was a time when global temperature and atmospheric carbon dioxide (CO₂) were last similar to that which might well be reached by the end of this century. Through better understanding the interaction between the Antarctic cryosphere (ice sheets, ice shelves, and sea ice) and global systems during previous warmer periods, there will be a more comprehensive understanding of the impacts of predicted future climate warming – both in Antarctica and globally.



The ANDRILL site survey hot water drilling set up with flubber tank in foreground. *Miranda Huston Antarctica New Zealand Pictorial Collection KO42 02/03.*

The goals of ANDRILL are to:

- Determine the fundamental behaviour of the Antarctic cryosphere, including the magnitude and frequency of its changes on centennial to million year time-scales.
- To obtain geological records from critical intervals in the development of the Antarctic cryosphere to guide and constrain glaciological and climatic models.
- To document the evolution and timing of major Antarctic rift and tectonic systems, and the stratigraphic development of associated sedimentary basins.
- To determine, by correlating near-ice margin and Southern Ocean stratigraphic records, the role of the Antarctic.

To date, the ANDRILL consortium has focussed on two main areas: the first is conducting site surveys to determine the best drill sites, and the second is to set up the Project's administrative and financial infrastructure.

Site survey work has been conducted over the last two summer seasons, firstly in New Harbour, where the first drilling is programmed for 2005/2006 season, and then on the McMurdo Ice Shelf at two sites – Windless Bight (a few kilometres east of Williams Field skiway), and between Black Island and Minna Bluff. Site survey work has primarily involved seismic surveying using explosive charges and recording the seismic signal, which is used to 'map' sub-sea rock strata, and gravity-magnetic data gathering.

During the 2002/2003 season a team lead by Alex Pyne from Victoria University of Wellington and Dr Uwe Nixdorf from the Alfred Wegener Institute (German Antarctic programme) successfully 'drilled' two holes through the McMurdo Ice Shelf using a German-supplied hot water drill. More importantly, they kept the holes 'open' for several days while they gathered valuable data on sea currents and bottom sediments. Drilling a large diameter hole through the 150 metre-thick ice shelf was a 'first' for the New Zealand programme. ANDRILL will need to develop its own hot water drilling capability to enable the 2 kilometre long drill string to be lowered through the ice shelf and then embedded in the sea floor.



Jim Cowie, project manager of ANDRILL working on the Cape Roberts Project – the forerunner to ANDRILL. *Photographer unknown Antarctica New Zealand Pictorial Collection.*

Early in 2003 Jim Cowie was appointed ANDRILL Project Manager and Alex Pyne was contracted to the Project from Victoria University of Wellington as the Drilling Science Coordinator. Webster Drilling and Exploration Limited, a Wellington based company with considerable Antarctic experience, was confirmed as the Project's driller. Their main focus for the next 18 months is to produce a new drill system capable of drilling to nearly twice the depth of the Cape Roberts Project drill.

The ANDRILL Science Committee (ASC) has had regular meetings over the last two years giving positive direction and impetus to the science effort and planning. The ANDRILL Science Management Office has been set up at the University of Nebraska-Lincoln to provide administrative support for the ASC and Project science in general.

The ANDRILL Operations Management Group, comprising Erick Chiang (Chair, US), Heinz Miller (Germany), Mario Zucchelli (Italy) and Lou Sanson (NZ) has also been formed and is responsible for operational and logistics aspects of the Project.

Strategic statement/output

Output: Planning and Facilitation of Science
Activity: Science management and facilitation including logistical support to science projects, and provision of technical specific support and facilities.



Contribution

Ocean Mercier worked with an established Antarctic research team under the guidance of Tim Haskell in an investigation of the properties of Antarctic sea ice. Ocean used this work as the basis for a Post-Doctoral research project. She completed her PhD at Victoria University of Wellington in 2002 with the distinction of being the first Maori woman to complete a doctorate in Physics at a New Zealand university.

BioRoss

The Marine Biodiversity Research: Biodiversity of the Ross Sea Programme has been developed collaboratively by the Ministry of Fisheries, Antarctica New Zealand and the Ministry of Foreign Affairs and Trade. The programme is a critical initiative for achieving the goals of *The New Zealand Biodiversity Strategy – Our Chance to Turn the Tide* (www.doc.govt.nz/cons/biodiversity/biodiversity_template.html) and for improving understanding of biodiversity as well as providing information to enable action to be taken to protect and enhance the environment. The overarching objectives of the programme are to develop an inventory of the biodiversity present in selected marine communities in the Ross Sea region and to facilitate better state of the environment reporting. The total research budget for 2002/2003 was approximately \$300,000.

The Ministry of Fisheries is funding a marine biodiversity research voyage to the Ross Sea in early 2004. The survey will be carried out in collaboration with the Italian Antarctic Programme and Land Information New Zealand. The overall objective of the survey is to carry out a quantitative survey of the biodiversity of selected marine communities in the Ross Sea region, including the Balleny Islands.



Antarctic fish *Trematomus* sp.
Rod Budd, NIWA. Antarctica New Zealand Pictorial Collection



Ian Owens and Christine Elliot setting up rock weathering data collection equipment. Christine Elliot Antarctica New Zealand Pictorial Collection KO56 02/03.

Scholarships

Antarctica New Zealand believes that encouraging excellence in Antarctic research during the early stages of the scientist's career is extremely important. We therefore continue to administer funding for, and support of, three Antarctic Research Scholarships of \$10,000 each to post-graduate students from New Zealand Universities. Kelly Tarlton's Antarctic Encounter and Underwater World and New Zealand Post have provided generous funding for two scholarships, with a third funded by the Sir Robert Irvine Scholarship.

- Christine Elliott from the University of Canterbury studied rock weathering processes under funding from New Zealand Post.
- Joanna Norkko from the University of Auckland researched soft sediment and bivalves in Antarctic marine ecosystems with funding from Kelly Tarlton's Antarctic Encounter and Underwater World.
- Pierre-Simon Ross from the University of Otago studied vent processes of explosive eruptions in southern Victoria Land with sponsorship from the Sir Robin Irvine Scholarship supported by Antarctica New Zealand.

Strategic statement/output

Output: Encouragement of scholarship and debate relating to Antarctica

Activity: Antarctica New Zealand will support the continuing development of interest in Antarctic scholarship at New Zealand universities.



Contribution

Christine Elliot, a PhD student in geography from the University of Canterbury, is the *New Zealand Post*, Antarctic Research Scholarship winner for 2002/03. She aims to improve understanding of the effectiveness of rock weathering processes. Christine represents Antarctica New Zealand's commitment to supporting new Antarctic scientists.

Environmental Stewardship



Tramway Ridge geothermic area. Paul Broady Antarctica New Zealand Pictorial Collection.

Environmental Highlights

Leading Antarctic State of the Environment Reporting

In June 2003, Antarctica New Zealand won the State of the Environment Reports section of the Institute of Chartered Accountants Annual Report Awards, for *Ross Sea Region 2001: A State of the Environment Report for the Ross Sea Region of Antarctica*. The Institute found the report 'clear, thorough, and characterised by scientific integrity'.

As well as this significant national recognition, the report has generated considerable interest in the international community. Following New Zealand's presentation of the report to the Antarctic Treaty System's Committee for Environmental Protection (CEP) in 2002, alongside a presentation from Australia on their web-based reporting system, both countries were tasked with jointly leading intersessional work to develop an Antarctic-wide state of the environment reporting system. A workshop was held in Sydney in April 2003 and the resulting proposal for a web-based reporting system, maximising use of existing datasets, was endorsed at the sixth meeting of the CEP in 2003. As a result, New Zealand and Australia have been tasked with leading further work on the system over the coming year.

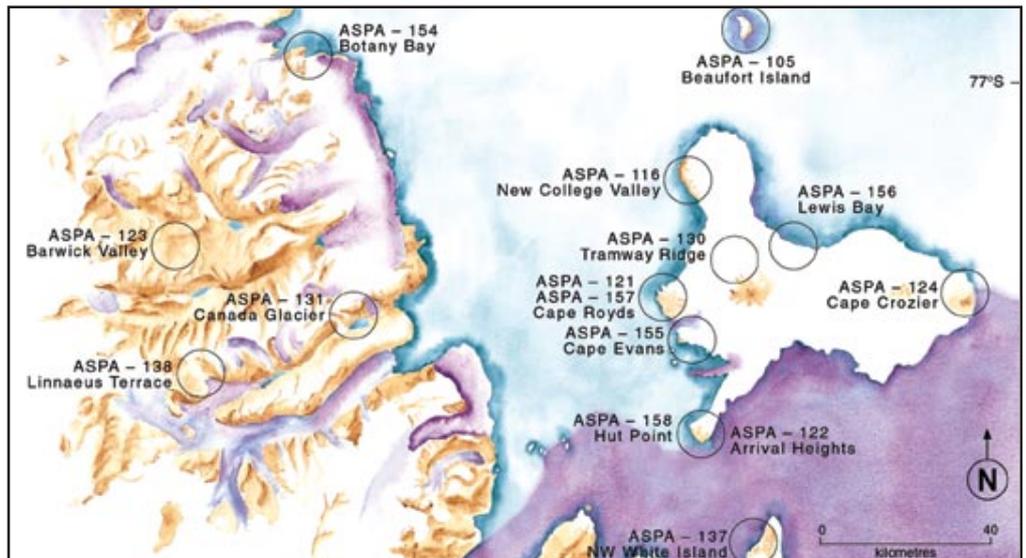
Special Area Protection and Management

In early 2002, Annex V to the Protocol on Environmental Protection to the Antarctic Treaty came into force internationally. Annex V provides for two types of protected area – Antarctic Specially Managed Areas (ASMAs) and Antarctic Specially Protected Areas (ASPAs). New Zealand had already provided Annex V format management plans for the 13 protected areas designated under previous Antarctic Treaty system provisions for which it had responsibility. At the 2002 CEP meeting, New Zealand was congratulated for providing the first five-year review of an ASPA management plan as required under Annex V. The revised plan for Tramway Ridge (ASPA 130) prepared by Antarctica New Zealand was accepted. At the 2003 CEP meeting, three further revised management plans (for Beaufort Island ASPA 105, Mt Melbourne ASPA 118, Botany Bay ASPA 154 and Lewis Bay ASPA 156) were accepted.

In addition, New Zealand and the United States jointly submitted a draft management plan for a proposed ASMA in the McMurdo Dry Valleys, and Australia submitted a draft ASMA management plan for Cape Denison; these are the first two ASMAs to be considered by the CEP.



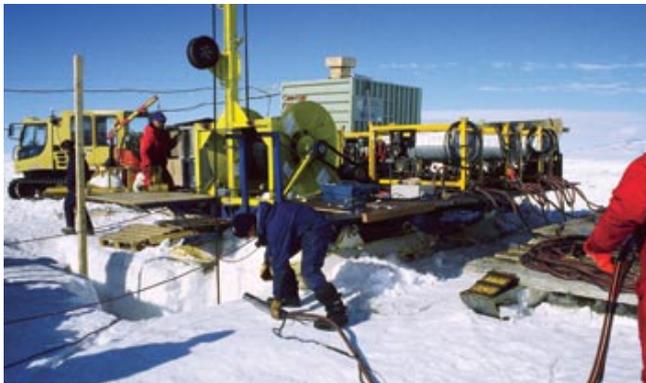
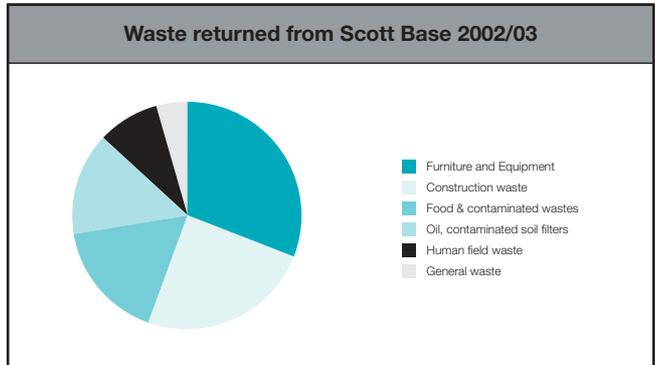
Rebecca Roper-Gee and Shelly Peebles accepting the award for best State of the Environment Report at the Institute of Chartered Accountants Annual Report Awards. Ivor Earp, Antarctica New Zealand Pictorial Collection.



Antarctic Specially Protected Areas in the McMurdo Sound Area. Map from *Ross Sea Region 2001: A State of the Environment Report for the Ross Sea Region of Antarctica*.

Comprehensive Environmental Evaluation for ANDRILL

New Zealand was congratulated at the Committee for Environmental Protection VI this year for a 'well structured' and 'high quality' draft environmental impact assessment (EIA) prepared by Antarctica New Zealand for the proposed ANDRILL Scientific Drilling project. The Comprehensive Environmental Evaluation that was prepared is the most stringent of the EIA provisions of Annex I to the Protocol on Environmental Protection to the Antarctic Treaty. Although the scientific drilling is unlikely to commence before the 2005/2006 summer season, environmental considerations are already an integral part of planning for the project. The final environmental report for ANDRILL's predecessor, the Cape Roberts Project, was also very well received at CEP V last year.



Testing of a hot water drilling system, which may be used in the ANDRILL scientific project. Environmental considerations are an integral part of planning for the multi-national project. *Miranda Huston Antarctica New Zealand Pictorial Collection K042 02/03.*

Environmental Performance

Internal environmental auditing and monitoring during the 2002/2003 season provided the following results:

- **Fuel** – the total used in 2002/2003 was 5% greater than the previous season, but the total spilled was reduced by 40%.
- **Waste** – general waste production (returned to New Zealand and sent to landfill) was slightly up on last year (2%), largely owing to the refurbishment of 3A block accommodation, while biohazardous waste (food scraps, lab waste and human waste from the field) was slightly reduced (1%).
- **Non-compliances** – three corrective actions for incidents deemed 'major' were raised during the season. Two related to breaches of Antarctic Specially Protected Area management plan provisions and one to springtails (possibly introduced) found in the hydroponics unit. All were reported to the Ministry of Foreign Affairs and Trade (MFAT) and the Environmental Assessment Review Panel (EARP) and preventative measures are underway to prevent recurrences.

Advances in Waste Management

A wastewater treatment plant has been installed at Scott Base and became operational in October 2002. A biological process using aerated submerged media, produced by Innovative Water Solutions of New Plymouth was selected as best meeting the specified criteria including high effluent quality and ability to cope with the peculiarities of Scott Base waste, which include highly variable loadings with up to 28% seawater (used for toilet flushing).

Previously sewage and domestic liquid wastes were macerated before being discharged into the ocean through a short outfall pipe. Weekly monitoring of faecal coliforms in the receiving water (sampled at the Scott Base reverse osmosis intake) has continued. Since the plant was installed an average of 1092 colony forming units (CFU) per 100mls has been recorded, compared to 1325 in the same period last year. In addition, the number of times the New Zealand freshwater bathing guideline value of 126 cfu/100ml has been breached is down to 14 from 34 in the same period last year.

The next focus for waste management is on reducing impacts of production, handling and disposal of field waste. There is also a focus on energy efficiencies, both at Scott Base and in the field, with a goal to operate field camps on a totally renewable energy basis by 2008.



Building of the Waste Water Treatment Plant began in February 2002 with internal fit out completed over the 2002 winter ready for commissioning for the 2002/2003 season. *Peter Brookman Antarctica New Zealand Pictorial Collection K400 02/03.*

Strategic statement/output

Output: Environmental Stewardship
Activity: Continued upgrade of Scott Base waste management systems and ongoing implementation of the environmental monitoring programme.



Contribution

Kim Thomas has worked in Antarctica as both the NIWA Science Technician and the Antarctica New Zealand Science Technician. Part of her role was to conduct weekly monitoring of waste-water effects on receiving seawater. Kim also worked with scientists doing long-term investigations at both Scott Base and Arrival Heights Atmospheric laboratory.

Public Awareness and Education



The past year has provided many opportunities to raise public awareness of Antarctica New Zealand and the activities we support. The media have covered topics as wide ranging as; the effects of UV radiation penetrating sea ice, the World Premier by the Christchurch Symphony Orchestra of *Icescape*, composed by Antarctic Arts Fellow Chris Cree Brown, and the visit to Scott Base by the Hon. Chris Carter, Minister of Conservation.

The very successful and well-attended Antarctica New Zealand Annual Conference, held in Dunedin in April, comprised a mix of our science, arts, environmental, education, and media event personnel, sharing the progress and successes of their Antarctic projects.

The Holmes Show (TV1) aired four Antarctic stories; two features of the St Bedes' School students on Ice; the effects of the large iceberg off Ross Island on geographically close penguin colonies; and Christmas on Ice. Radio New Zealand's, *Environment Matters* and Science programmes, have featured science work supported by Antarctica New Zealand, in seven programmes throughout the year, each profiling a number of science events.

Artists to Antarctica

Two Antarctic Arts Fellows travelled to Scott Base this year, Dunedin fashion and wearable arts designer Fieke Neuman, and Auckland intermedia artist Phil Dadson. The two artists bring to fifteen, the number of artists supported by Antarctica New Zealand and Creative New Zealand in a residency partnership established in 1997.

Fieke travelled to Antarctica in November 2002, and has subsequently had her work profiled in Dunedin's Fashion Week, as well as an exhibition at the Hocken Gallery, featuring six garments based on marine science research. Fieke has been personally profiled in the Otago Daily Times, and TV3's news story on the Fashion Week.

Phil Dadson travelled to Antarctica in February and is currently working to produce five video/sound works which will form exhibitions in galleries and museums in NZ and overseas. One performance document titled *Echo-logo*, based on the work of the K024 team (Dr. Allan Green) in the Taylor Valley, will be shown in Sydney from 3 July 2003, in a show titled *Video Spell* (at the Performance Space). Phil has also featured in a Radio New Zealand show on New Zealand artists.

The application round for the 2003/2004 season was completed in May with furniture maker/sculptor David Trubridge and fiction author Laurence Fearnley being awarded Antarctic Arts Fellowships through the Artists to Antarctica Programme partnership between Creative New Zealand and Antarctica New Zealand.

Prominent South Island painter Grahame Sydney has been selected to participate as part of an Invitational Antarctic Arts Programme. Grahame is widely recognised as a major New Zealand artist and is best known for his magnificent landscapes of Central Otago.

Key Achievements:

- The Antarctic Artists Programme has continued to prosper with former artists producing some exciting new work and media profiles.
- The visit in 1999 of composer Chris Cree Brown (Antarctic Arts Fellow 1999/2000) featured in the *New Zealand Music Journal* in addition to The World Premier of his composition *Icescape* by the Christchurch Symphony Orchestra.
- Dee Copland's (Antarctic Arts Fellow 2001/2002) preliminary work has been included in an Antarctic marine biology PhD Thesis by Bryn Fenwick based on work supervised by Bill Davison of the University of Canterbury.
- Exhibitions by Antarctic Arts Fellows, Margaret Elliot, Richard Thompson, Raewyn Atkinson and Anne Noble have been held over the last twelve months.
- After touring New Zealand the sculpture exhibition *Antarctic Heart* by Virginia King opened the Tait Electronics Antarctic Gallery in the new Christchurch Art Gallery in June 2003.
- Bronwyn Judge (Antarctic Arts Fellow 2001/2002) is booked for a three-week tour of Germany and Austria with her dance troupe performances based on her Antarctic experience.



The swinging sundress created by Fieke Neuman based on K081 and showing the richly coloured Antarctic sea floor – "a jeweled cosmos submerged in the oceanic depths". Fieke Neuman Antarctica New Zealand Pictorial Collection K320 02/03.

Education

A review of all education programmes was initiated this year. Surveys of participants and programmes from 1996 to present day were completed to better understand the outcomes from the various programmes. The survey also looked at added value activities generated by programme participants such as public and school talks, exhibitions, publications and media opportunities. Overall, the programmes generated a high level of public outreach, reaching an average in excess of one million people per year. The review and development of an Antarctica New Zealand Education Strategy will be finalised in December 2003.

Secondary Schools Programme

Four students from St Bedes' College travelled to Antarctica for ten days in November 2002, collecting written and sketched impressions of the heroic era huts and landscape. On return to New Zealand they wrote and illustrated a children's book based on Scott's Cape Evans Hut and completed a number of artworks and writing for exhibition. The exhibition at the Centre of Contemporary Art (CoCA) in Christchurch attracted over 2500 visitors.

24 applications for the 2003/2004 secondary schools programme were received by Antarctica New Zealand. Waitaki Boys High School from Oamaru has been selected, and will be sending three students to Antarctica to undertake research encompassing History, (historic conservation), English and Graphics curriculum areas. On return to New Zealand they will work to develop an Antarctic Trail in Oamaru.



Mathew Finnigan, Ben Roy, Joseph van der Loo and James Silcock show working drawings for their book. *John McComb Antarctica New Zealand Pictorial Collection A210 02/03.*

Education Familiarisation Programme

The Education Familiarisation Programme is designed to provide on-site information for educators who work in publicly accessible Antarctic-related institutions.

Staff from the Antarctic Attraction in Christchurch, Kelly Tarlton's Antarctic Encounter and Underwater World, Wigram Air Force Museum, the Map Library University of Canterbury, and the Education Manager from Genoa Antarctic Museum, Italy, travelled to Antarctica in November 2002.

The visit by an Educator from Wigram Air Force Museum is part of a larger plan to develop the Antarctic displays, and education activities of the museum, as well as recognise the strong support New Zealand's Antarctic programme has received from the Air Force since 1956.



Murray Fastier and Jane Abbiss from the Christchurch College of Education worked with seal scientists at Hutton Cliffs to gather material for teaching resources. *Murray Fastier Antarctica New Zealand Pictorial Collection K213 02/03.*

Education Initiatives Programme

Jane Abbiss and Murray Fastier from the Christchurch College of Education visited Antarctica to gather information that would assist in the development of NCEA based secondary teaching resources in the curriculum areas of geology, social studies, history and science. Jane Ellis from Middleton Grange School, created a teaching resource, *Men on Ice, an exploration of the daily lives of heroic era explorers*, which will be tested on classes in 2003 before becoming available on CD and website.

Bu Windsor worked with geologists in the Dry Valleys and will create geology and geography based teaching resources, which will be available to all schools.

Of the fifteen applications received for the Education Initiatives Programme for the 2003/2004 season, two successful applicants were selected.

Paul Rodley of Christ's College will create a virtual tour of Scott Base including curriculum based education worksheets. The tour will provide insight into life at Scott Base, and the physical environment, and how this impacts on researchers and staff.

Patrick Shepherd will create compositions and teaching resources relating to the music curriculum. Due to his standing in the art and music communities Patrick has also been named as an honorary Antarctic Arts Fellow.

Strategic statement/output

Output: Public Awareness and Education
Activity: To improve public awareness and understanding of the Antarctic environment through development of the Artists to Antarctica Programme.



Contribution

Fieke Neuman was named as an Antarctica Arts Fellow for 2002/03. With a strong science background Fieke concentrated her design work on marine science events. Fieke's visit reflects the increasing collaboration between the arts and science programmes, with public exhibitions of her work attracting a wide audience.

Graduate Certificate in Antarctic Studies

This year, Antarctica New Zealand supported twenty students from the University of Canterbury Graduate Certificate in Antarctic Studies travelling to the Ice. The students spent time carrying out field investigations in the areas of biology, human experiences, geology and meteorology, and environmental impacts. Antarctica New Zealand's Christchurch and Scott Base staff were involved as lecturers, and project supervisors as well as providing operational support.



Dean Williams from Radio New Zealand interviewing Dr John Cockrem at Cape Bird. Peter Barrett Antarctica New Zealand Pictorial Collection K034 02/03.

Media Programme

Radio New Zealand *Environment Matters* feature maker Dean Williams travelled to the Ice and spent several weeks working with, and interviewing a variety of event personnel and Scott Base staff. Dean targeted science, environmental teams and other uniquely Antarctic experiences including yoga in the chapel. Seven features have already aired, with further programmes planned through to the end of 2003. Photojournalist Mark Dwyer used his Antarctic visit to profile the people supported by Antarctica New Zealand in print and online newspapers.

The Holmes Show (TV1) travelled to Antarctica to film feature segments on two main stories; the effect of the huge iceberg stranded off Ross Island on geographically close penguin colonies and the visit by and work of St Bedes' School students. Holmes also aired additional stories including a Scott Base Christmas special.

The media programme continues to provide excellent opportunities to improve general public awareness and understanding of the Antarctic Environment and New Zealand's involvement in Antarctica and the Southern Ocean.

Invited Visitor Programme

The Hon. Chris Carter, The Minister of Conservation, travelled to Antarctica in November to receive a comprehensive briefing on Antarctic issues relevant to his conservation portfolio. The Department of Conservation has a statutory role to advocate for conservation within the Ross Dependency, where Scott Base is situated. The Ministry of Conservation played a key role in defining the Government's new Statement of Strategic Interests for Antarctica, which emphasises the 'conservation of the intrinsic and wilderness values of Antarctica and the Southern Ocean'. The Department of Conservation has had a long-term interest in Antarctica, including participation in the Officials Antarctic Committee, and representation in the Committee for Environmental Protection, which falls under the international Antarctic Treaty System.

Dr. Svein Tveitdal of the United Nations Environment Programme accompanied Mr Carter. Dr. Tveitdal is the head of the United Nations Environment Programme concerned with polar issues and is Managing Director of UNEP/GRID-Arendal. Before travelling to Antarctica he spent time in New Zealand liaising with key New Zealand institutions to discuss the international adoption of the United Nations Environment Programme Global Resource Information Database (UNEP/GRID). GRID is a global network of co-operating centres, which facilitate access to environmental information to be used in the design and formulation of policy, guidelines, management procedures and decision-making processes.



Minister of Conservation the Hon. Chris Carter overlooking the Taylor Glacier. Lou Sanson Antarctica New Zealand Pictorial Collection K300 02/03.

Hon. Chris Carter and Dr. Svein Tveitdal were accompanied by Dr. Rick Pridmore, Chief Executive of the National Institute of Water and Atmosphere (NIWA), Mr. Barry Carbon, the Chief Executive of the Ministry for the Environment, Ms. Kaye Turner of the Transition Tertiary Education and Dame Ann Hercus an establishing Trustee of the Antarctic Foundation.

A second invited visitor group consisted of senior members of governmental organisations that interact with or support the work and objectives of Antarctica New Zealand. The group included Mr. Robert Murdoch, (NIWA), Mr. Trevor Hughes (MFAT), Mr. John Anala (Ministry of Fisheries), Mr. Peter Benfall (FORST), Mr. Paul Pearson (FORST), Major General Martyn Dunn (Commander, Joint Forces New Zealand) and Wayne Stevens (Treasury). The group spoke with scientists as well as spending considerable time discussing Scott Base's facilities planning needs.

Strategic statement/output

Output: Facilitation of Antarctic Education
Activity: Encourage the provision of high quality education about New Zealand's Antarctic activities by encouraging tertiary education institutions to develop Antarctic curriculum based resources.



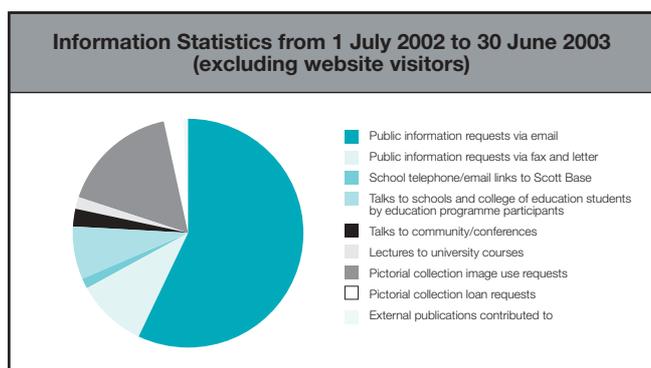
Contribution

Vikki Pink travelled to Antarctica in 2001/02 under the Education Initiatives Programme for professional educators. Vikki, along with colleague Tania McBride, developed teaching resources based on the social studies curriculum. Since her visit Vikki has been actively involved in Antarctica New Zealand's education programme assessment round.

Information Provision

Antarctica New Zealand Website

The website continues to provide a valuable portal for Antarctic information for our wide stakeholder and user base. Upgrades, and the addition of teaching resources to the site generated a 20% increase in user numbers. Work began on redevelopment of the site with an emphasis on making the site easier to manage, update and navigate. The redeveloped site will go live in October 2003.



Antarctica New Zealand Library Collection

Antarctica New Zealand has continued a close working relationship with the University of Canterbury Library, which manages the collection for Antarctica New Zealand on long-term loan. Each year, material is deposited to expand the collection and keep it current. Items are primarily obtained through exchanges with Antarctic Treaty Nations.

The University of Canterbury Geology Department Map Library holds the International Antarctic Abstracts Collection, which includes international scientific papers spanning thirty years. They hold a full set of Antarctic maps as well as the Antarctica New Zealand map collection. The Map Library also provides specialised support to researchers.

Antarctica New Zealand Pictorial Collection

The Antarctica New Zealand Pictorial Collection is an image archive of New Zealand's activities in Antarctica since 1956. Much work has been completed over the last year, in an effort to rationalise and organise the images in preparation for entry into an electronic database. This database will allow easy access to all parts of the collection.

Special Activities

TAE/IGY Hut Enhancement Plan

In December we hosted a visit of artefact conservator Sasha Stollman to look at the TAE/IGY Hut and develop a conservation plan for the hut. This is in line with the management plan and action plan for the hut. While in Antarctica the conservator also visited the Arrival Heights Laboratory to ascertain its suitability for display at Canterbury Museum when the Laboratory is replaced in 2004/05.

Some artefacts were removed from the hut and returned to New Zealand for specialist treatment and creation of display mounts. The artefacts will return to the TAE/IGY Hut during the 2003/2004 season. Funding options are being investigated to aid further conservation and hut enhancement work.



Down filled jacket showing damage caused through wear. The jacket will be stabilised and a display mount created to protect the item. Above right: detail of damage to down filled jacket. *Sasha Stollman Antarctica New Zealand Pictorial Collection K414 02/03.*

Strategic statement/output

Output: Facilitation of Antarctic Education
Activity: Encourage the provision of high quality education about New Zealand's Antarctic activities by organising educators to undertake a familiarisation visit to Antarctica.



Contribution

Ted Prior, Hagglund driver and Visitor Liason Officer from the Antarctic Visitor Attraction in Christchurch was chosen to participate in the Education Familiarisation Programme. Over 60,000 people per year experience the Hagglund ride at the Antarctic Visitor Attraction, which includes information on New Zealand's activities in Antarctica.

Oral Archive

Matthew Leonard from Radio New Zealand continues to make progress with the oral interviews of people who have travelled to Antarctica with the New Zealand programme.

While initial concentration is on the TAE/IGY veterans, other personnel from 1958 to present day are also being interviewed on an opportunity basis. The project, which is funded by Radio New Zealand and supported by Antarctica New Zealand, will be reviewed again in 2003. The first radio show resulting from this project aired in November. This two-hour programme brought together the poetry generated out of the visits by Chris Orsman, Bill Manhire and the Bill Sewell 'Erebus' poems. These ongoing features are an initial result of the collaborative project between Radio New Zealand and Antarctica New Zealand to record the stories of New Zealanders who have explored and worked in Antarctica since 1956.



The recovery team from the Flight TE 901 crash on Mt Erebus. This image was included in the exhibition held at Archives New Zealand.

Exhibitions

Video images of Antarctica by Ed Osborn were exhibited at the Canterbury Museum as part of the Art and Industry Urban Arts Biennial 2002 Exhibition. Entitled the *Antarctica Images Project*, the show ran for two months and was comprised of images from the Antarctica New Zealand Pictorial Collection and the Aerial Photograph Collection. The show then moved on to begin a two-year tour of the United States.

Otago Museum continued their successful Antarctic exhibition resulting from the visit to Antarctica in 2000/2001 of Helen Horner, Exhibitions Manager, under the Education Familiarisation programme. This exhibition was originally planned only to coincide with the International Science Festival, however it was so successful that the show was extended for a further six months. The Museum collaborated with Antarctic scientists based in Dunedin to present public talks and information for the exhibition.

The joint Archives New Zealand, Antarctica New Zealand exhibition, *Erebus Remembered – Flight TE 901, archives and images* which was held at Archives New Zealand from July to September 2002 was highly successful with excellent feedback received from visitors and families of the victims. The remembrance exhibition focused on the efforts of the search and rescue and recovery teams, and the memorial services held in Antarctica.

Antarctic Arts Fellows supported by the New Zealand Antarctic programme

Season	Artist	Medium
1970/71 & 1973/74	Maurice Conly	RNZAF official artist
1988/89	Jonathon White	Painter
1989	Austin Deans	Painter
1990	John Hamilton	Painter
1990's		
(multiple seasons)	Kim Westerkov	Photographer
1997/98	Bill Manhire	Poet
1997/98	Nigel Brown	Painter
1997/98	Chris Orsman	Poet
1998/99	Margaret Mahy	Children's Author
1998/99	Margaret Elliot	Painter
1999/00	Virginia King	Sculptor
1999/00	Chris Cree Brown	Composer
2000/01	Bronwyn Judge	Dance choreographer
2000/01	Raewyn Atkinson	Ceramicist
2000/01	Craig Potton	Photographer
2001/02	Denise Copland	Printmaker
2001/02	Anne Noble	Photographer
2001/02	Richard Thompson	Painter and multimedia sculptor
2002/03	Fieke Neuman	Fashion designer and wearable arts
2002/03	Phil Dadson	Intermedia Artist
2003/04	Graeme Sydney	Painter
2003/04	Patrick Shepherd	Composer
2003/04	David Trubridge	Furniture maker and sculptor
2003/04	Laurence Fearnley	Author (short story and novel)

This list includes artists supported by Antarctica New Zealand and predecessor organisations. It includes both Fellows from the Artists to Antarctica Programme and the Invitational Artists Programme.

International Representation



Committee for Environmental Protection (CEP) and Antarctic Treaty Consultative Meeting (ATCM)

The Chief Executive and the Environmental Manager represented Antarctica New Zealand as part of the New Zealand delegation to the annual meetings of the CEP and ATCM.

Expert technical advice is provided within the delegation both at the meetings and throughout the year, including acting as the contact point for various intersessional consultations, in particular through the CEP. Since the last annual report, two meetings of the CEP and the ATCM have been held: CEP V and ATCM XXV in Poland, (September 2002), and CEP VI and ATCM XXVI in Spain (June 2003). Several initiatives led by Antarctica New Zealand have been profiled at these meetings.



The logo for the XXVI ATCM meeting held in Madrid, Spain. ATCM.



The annual Antarctic Treaty Consultative Meeting and the Committee for Environmental Protection meetings were held in Madrid in June 2003. ATCM.

Key Achievements:

- At CEP V, New Zealand was congratulated on the quality of the Environmental Audit Report prepared by Antarctica New Zealand on completion of the Cape Roberts drilling project. New Zealand also presented a five year review of the management plan for the Tramway Ridge Antarctic Specially Protected Area (ASPA); the first such review to be undertaken as required by the *Protocol on Environmental Protection to the Antarctic Treaty*.
- Significantly, New Zealand presented the findings of the *Ross Sea Region 2001: State of the Environment Report for the Ross Sea Region of Antarctica* that was published in 2001. The report was well received and has assisted the CEP in its consideration of a continent-wide state of the environment reporting system.
- At CEP VI, Australia and New Zealand jointly presented a proposal to develop an Antarctic wide state of the environment reporting system. The proposal was endorsed by the CEP, and New Zealand and Australia were asked to continue developing the proposed web-based reporting system. This will be a key priority for Antarctica New Zealand in the year ahead.
- At CEP VI, New Zealand also presented a draft Comprehensive Environmental Evaluation (CEE) for the international ANDRILL drilling project. The CEP congratulated New Zealand on the high quality of the CEE.
- A comprehensive draft management plan for a new Antarctic Specially Managed Area (ASMA) for the Dry Valleys region of Antarctica was also presented. The draft plan had been prepared by Antarctica New Zealand jointly with the United States Antarctic Programme; the first draft ASMA management plan to be put before the CEP. The Committee endorsed the proposal in principle and sent the plan for intersessional review by the international community.
- At both the Polish and Spanish meetings Antarctica New Zealand also had significant input to ongoing discussions on key issues such as the environmental effects of bioprospecting in Antarctica, designation of specially protected Antarctic species, and the management of tourism activities.

Council Of Managers Of National Antarctic Programmes (COMNAP) and the Antarctic Environmental Officers Network (AEON)

Antarctica New Zealand has continued to play an active role in COMNAP and AEON, through participation by our CEO, Operations Manager, and Environmental Manager. All three attended the XVth meeting of COMNAP in Brest, France (July 2003).

During COMNAP XV, AEON and COMNAP's Training Network (TRAINET) organised a Workshop on Environmental Education and Training, which was attended by the CEO and Environmental Manager. Through a series of presentations, including by Antarctica New Zealand, the Workshop proved to be an extremely successful means of sharing information and ideas on environmental training, and education techniques and practices.

Throughout the year AEON has continued work on preparing practical guidelines for developing and designing monitoring programmes in Antarctica. At the AEON meeting in France, Antarctica New Zealand's Environmental Manager was asked to lead a small drafting group to finalise the guidelines by April 2004.

Antarctica New Zealand's Operations Manager has continued to lead COMNAP's Coordinating Group on Energy Management throughout the year, his term of office as Chair of the group being completed at the France meeting. However, Antarctica New Zealand's influential participation in COMNAP continued with the election of our CEO as Chair of COMNAP's Environmental Coordinating Group.



Dean Peterson, Chair of JCADM and Science Strategy Manager, Antarctica New Zealand, attends the COMNAP meeting with Fred Smits (NIWA) and Neil Gilbert, Environment Manager, Antarctica New Zealand. *Julian Tangaere Antarctica New Zealand.*

Joint Committee on Antarctic Data Management (JCADM)

Antarctica New Zealand's Science Strategy Manager, Dr. Dean Peterson was elected Chief Officer of the Joint Committee on Antarctic Data Management (JCADM) at the XXVII SCAR meeting in July 2002.

JCADM has a mandate to:

1. Recruit National Antarctic Data Centres (NADCs) within SCAR countries.

Over the past year the JCADM executive have spent considerable time and effort in recruiting. JCADM membership has grown from 16 representatives to a total of 26 countries. This proactive recruitment will create the largest JCADM meeting to date, 18 countries will be represented, including 8 new member countries.

2. To empower those NADCs to collect dataset descriptions of Antarctic scientific data for the Antarctic Master Directory (AMD).

The total number of Directory Interchange Format files (DIFs) in the AMD has increased from 2032 (May 2002) to 2244 (April 2003) a 25% growth in the AMD. The growth can be attributed to the excellent support received from the Global Change Master Directory (GCMD) in creating and deploying tools to assist NADCs in creating DIF metadata records to the AMD. The GCMD have also supported the creation of NADC portals to the AMD. These portals are hosted by the GCMD, provide a national view of their metadata in the AMD and a national DIF creation facility.

Dean Peterson will be chairing the 7th annual meeting of JCADM in July 2003. The meeting will be structured to:

- educate emerging countries on populating and using the AMD and general data management protocol;
- plan future strategies to better align to SCAR and COMNAP needs;
- discuss issues arising over the past year.

Strategic statement/output

Output: International Representation
Activity: Continue to increase international connections to Antarctic science. Provision of logistical support, operating plans, and project management services for the multinational ANDRILL Project.



Contribution

Jim Cowie began his Antarctic career in 1974 and in the last 29 years has been:

- Field leader for Scott Base
- Deputy Officer in Charge of Scott Base
- Cape Roberts Project (CRP) Project Manager
- Scott Base Operations Manager

Jim's wealth of experience and international reputation has resulted in his current role as ANDRILL Project Manager.

Operational Presence in Antarctica



Jim Wilson, HNZ.

The Operations Group continues to support the activities of science, public awareness, education, and environmental stewardship throughout the Ross Sea region. This is achieved through the provision of high quality and flexible logistics and field support. The four principle roles of the Operations Group are:

- Logistics; incorporating procurement, passenger and cargo movement by all modes of transport, warehousing and inventory management.
- Field support; including clothing, equipment, specialised vehicles and training for living and working in the Antarctic environment.
- Engineering; encompassing the provision of appropriate buildings, vehicles, and other infrastructure to support Antarctic work.
- Project management; comprising the detailed planning, risk management and resourcing of both large and small scale activities, from four person tented field parties to multi year multinational research projects.

In accordance with Antarctica New Zealand's policy of continuous improvement, the group continues to implement new processes aimed at enhancing the effectiveness and efficiency of the support delivered. Of critical importance is the incorporation of feedback from events supported to identify key risks that require addressing, encourage innovation, and to improve service quality within limited resources.

As a result, priority is now to be given to improving energy efficiency and waste management of Scott Base and field operations with a goal to operate field camps on a totally renewable energy basis by 2008



Camp at Hutton Cliffs used by K063 who were investigating foraging performance of Weddell Seals. Mark Dwyer Antarctica New Zealand Pictorial Collection K313 02/03.



New Zealand provided logistical support to the Malaysian Antarctic Programme who investigated the interaction of electromagnetic waves with sea ice. Ewe Hong Tat Antarctica New Zealand Pictorial Collection K141e 02/03.

Field Support

The 2002/2003 Antarctic season saw an increase in the number of science personnel to Antarctica, as well as the total number supported in the environmental, education and public awareness programmes. In cooperation with the Italian and United States Antarctic Programmes a wide geographical area was covered supporting field parties using both helicopter and Twin Otter aircraft.



HNZ put in K101's camp at Dreikanter Head. Stephen Bannister Antarctica New Zealand Pictorial Collection K101: 02/03.



Map of Ross Sea Region reflecting the geographic spread of supported events. *Waterhouse 2001; Ross Sea Region 2001; A State of the Environment Report for the Ross Sea region of Antarctica Antarctica New Zealand.*

Strategic statement/output

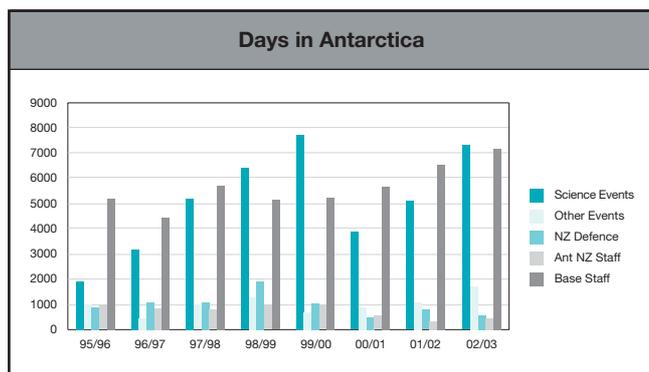
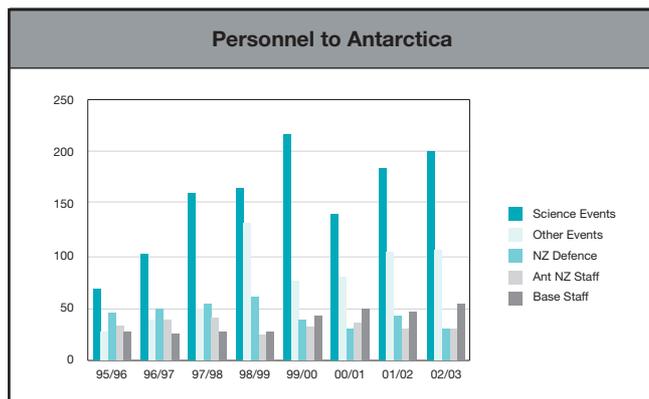
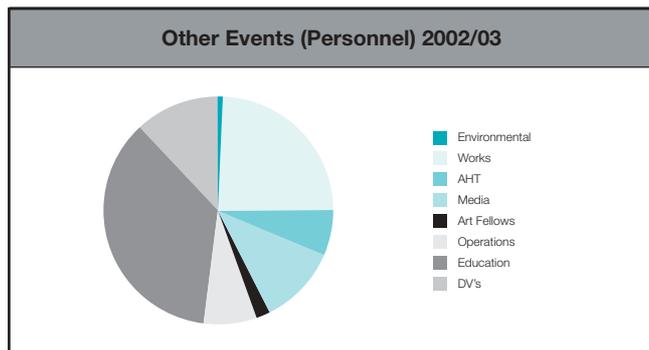
Output: Operational Presence in Antarctica – Scott Base Management
Activity: Operation of Scott Base as a support facility for New Zealand’s Antarctic activities.



Contribution

Squadron leader **Marie (Ma) Peters** worked as Scott Base Services Manager for the 2002/03 season. Seconded from the Royal New Zealand Air Force, Ma was the senior New Zealand Defence Force representative in Antarctica, responsible for around 50 NZDF personnel who provide crucial support to New Zealand’s Antarctic Programme.

Works and Operations represent specialists taken to Antarctica to either audit or review engineering and operational support processes. This can include OSH and risk assessments, servicing or commissioning specialised equipment, and reviews of training and HR procedures.



Logistics

Antarctica New Zealand operates within a joint NZ/US/Italian logistics pool, which allows maximum utilisation of all resources. This joint logistics pool continues to function well for both intercontinental logistics between Christchurch and Ross Island and for on-continent field support.

New Zealand contributed the following major resources:

- 15 RNZAF C130 Hercules flights providing 400,000lbs of air lift capacity
- 226 helicopter hours

420 passengers and 172,000 pounds of air cargo were flown to Antarctica, and 252,000 pounds of cargo shipped by sea in cooperation with the United States Antarctic Programme. The New Zealand Defence Forces again made a significant contribution to the success of the programme through Hercules flights, and specialist personnel at Scott Base, McMurdo, and Christchurch airport.



RNZAF C130 aircraft arrives at McMurdo Sound. *Liam Nolan Antarctica New Zealand Pictorial Collection K391a 01/02.*



Heated Field Store Design Plan. *Courtesy of Ray DeDulin Opus International Consultants Limited.*

Strategic statement/output

Output: Operational Presence in Antarctica – Logistics Capability

Activity: Provision of field operating support in the Ross Sea Region including air transport of personnel and equipment.



Contribution

Jim Wilson is the group chief pilot with Helicopters New Zealand (HNZ), contracted by Antarctica New Zealand to provide helicopter support in the Ross Sea Region. Jim first flew in Antarctica in 1979 and has coordinated HNZ's 60,000 flight hours on the Antarctic Continent.

Engineering and Facilities Development

Antarctica New Zealand continues to invest in the infrastructure at Scott Base, to improve living and working conditions, safety, and environmental compliance. Significant projects over the 2002/2003 period included:

- Completion of the refurbishment of Stage 3 accommodation, (used to house both staff and event personnel), improving the soundproofing and quality of fittings.
- Commissioning of the wastewater treatment plant to meet Environmental Protocol requirements. Testing of the effluent discharge has shown the plant is performing above the required standard.
- A ten-year capital development plan has been produced to align future investment in infrastructure with the needs of the programme. It also incorporated investigation into energy efficiency technologies to reduce dependence on fossil fuels.
- Designs have been produced to construct a new Warm Store and Field Centre. This facility is intended to house field event preparation areas, cargo processing, and temperature sensitive storage. Presently these are carried out in either obsolete facilities or unheated areas.
- As part of the risk management strategy, fire protection improvements to Scott Base continued to be implemented.
- New Very High Frequency (VHF) hand held radios were purchased to improve field communications.

Project Management

ANDRILL

In April 2001 a consortium of New Zealand and international scientists asked Antarctica New Zealand to project manage the proposed ANDRILL (ANTarctic DRILLing) project, based on Antarctica New Zealand's success in managing the Cape Roberts Project. ANDRILL's research effort is an integrated programme involving geophysical surveys, drilling, and numerical modeling that focuses on four scientific themes. The planned programme will use improved drilling technology that will enable excellent recovery of stratigraphic targets beneath sea ice, ice shelves, ice sheets and on land.

The ANDRILL McMurdo Sound Portfolio (MSP) proposes to drill four target areas (projects) in the McMurdo Sound region, with the first drill season planned for 2005/06. Presently the project is committed to the development of the drill system and associated technology, procurement of a vehicle fleet and support camp, and fieldwork including seismic surveys.



Testing the hot water drilling as part of the ANDRILL seismic survey. *Miranda Huston Antarctica New Zealand Pictorial Collection K042 02/03.*



Campsite at Cape Hallett where the LGP camp will be set up. This camp was used for K140 who investigated the biology of Antarctic Springtails. *Kiok/Scott/Sincalir/Terblanche Antarctica New Zealand Pictorial Collection K140 02/03.*

Latitudinal Gradient Project (LGP)

Antarctica New Zealand is providing the logistical capabilities for five terrestrial camps to be located along the latitudinal gradient of the Victoria Land coast. These will each be operational for two consecutive years, whilst instruments will be located at each site to monitor baseline conditions during the project's lifetime. The project is expected to last 10 years starting in the 2003/04 season. A camp with a capacity of 15 people (including two support staff) is being planned at Cape Hallett for the 2003/04 and 2004/05 seasons. The camp is expected to be operational from early November to early February and it is anticipated that there will be the opportunity for two to three exchanges of science personnel through the season.

Strategic statement/output

Output: Operational Presence in Antarctica – Scott Base Management
Activity: Effective delivery of support services to meet user requirements.



Contribution

Jonathan (Johno) Leitch first travelled to Scott Base in 1997 as Base Engineer. In his next eight tours he has worked as Engineering Services Manager and Scott Base Winter Manager. He is one of the few people to have wintered over for two consecutive years at Scott Base.

Corporate Services



During the course of the year, a review of the Operations Group function and capacity was carried out. Resultantly, the HR/Administration component was removed from Operations and combined with Finance to form a new work group under the Corporate Services banner. The new Corporate Services Group is focused on achieving excellence in the services provided to its clients, the majority being the internal work groups within Antarctica New Zealand.

Key Activities: Corporate Services Group

Finance:

- Financial management, recording and reporting systems and procedures which ensure all statutory, compliance and organisational requirements are met.
- Financial Controls and Risk Management strategies to safeguard the assets and financial resources of Antarctica New Zealand and meet the organisational, statutory, legal and professional requirements.
- Preparation of accurate financial forecasts, budgets and project reports supporting the organisations planning processes.

Human Resources:

- Human resource advice and support that ensures employee actions are linked to and add value to organisational objectives.
- Developing and maintaining a performance culture in which employees are rewarded for their contribution and provided with further performance development opportunities.
- Legal compliance monitoring, Health and Safety in Employment compliance and advice.

Administration:

- Office administration.
- Travel coordination.
- Stakeholder database management.

Key initiatives:

People Investing in People

In August 2002, an independent, internal audit was commissioned to provide a 'snap shot' of the organisation and to identify opportunities for improvement. The report reflected an organisation that is performing very well across an extensive assortment of complex issues assisted by a widely divergent group of dedicated and hard working staff. It also confirmed that there are areas of improvement required to ensure Antarctica New Zealand maintains its current performance standard. Three key areas identified were communication, management team operation and strategic direction.

Several methods to engage and increase staff involvement were considered in the development of a 'people strategy' before the organisation decided on an internationally recognised approach – the Investors in People standard. This initiative assists the organisation to effectively tackle and integrate all the issues identified in the audit and provides a means of improving people's (and therefore organisational) performances. Accreditation is achieved upon a successful assessment indicating the organisation has met all 12 predetermined indicators.

Two recommendations implemented have been:

- The establishment of a Season Planning Team to increase information flows within the organisation, particularly prior to each summer season
- A review of the business planning processes with the intention of increasing staff involvement and ownership in setting and achieving the organisation's goals

'Building trust through consistent engagement' is the aim of the project, with a target date of late 2004 for accreditation.

EEO Report

The overall goal of Antarctica New Zealand's Equal Employment Opportunity programme for 2002/2003 was to support an organisational culture in which EEO is recognised and demonstrated to be normal practice within Antarctica New Zealand. Consultative meetings were held with staff at Scott Base and in Christchurch and areas identified for particular attention. A series of EEO education and awareness seminars was planned for the coming year aimed at informing staff of their particular responsibilities as members of the wider state sector.

Information Management System (IMS)

Antarctica New Zealand has undertaken a major upgrade of hardware and software systems during the year, adopting objectives established as part of the IMS strategy development in May 2001. This long-term strategy is to provide Antarctica New Zealand with an integrated, yet flexible business solution that caters for its core business requirements.

The following components have been selected and implemented to achieve Antarctica New Zealand's IMS objectives:

- Navision Attain, for use in all functional areas of the organisation.
- Pay Global, to support payroll and HR functions, and
- DB Text Works, for record management, library and information management systems.

The majority of Antarctica New Zealand staff are now able to use Navision, which was specifically customised to manage the 40 annual events organised to Scott Base.

Triple Bottom Line Reporting

Antarctica New Zealand has continued its involvement with the Ministry for the Environment (MfE) pilot group set up in 2001 to explore the feasibility of government departments and crown agencies adopting triple bottom line reporting in annual reports. Due to reprioritisation of resources, Antarctica New Zealand has chosen to adopt a watching brief stance on development in the Public Sector with regard to Triple Bottom Line Reporting for the next 12 months.

Antarctica New Zealand remains committed to continue its work on sustainability and environmental management, and development of a socially responsible approach to staff management at Christchurch and Scott Base.



Dene Robinson, Corporate Services Manager and Scott Base Manager Summer 2003, on the *Polar Star* icebreaker in McMurdo Sound. *Phil Snelling*.

Strategic statement/output

Activity: During the year this area was developed as a new management section, recognising the importance of Human Resources across the organisation.



Contribution

Prue Sullivan is Antarctica New Zealand's Human Resources Advisor. Her role recognises the importance Antarctica New Zealand places on staff wellbeing and teamwork. Prue is a member of the Health and Safety Committee and is responsible for staff recruitment.



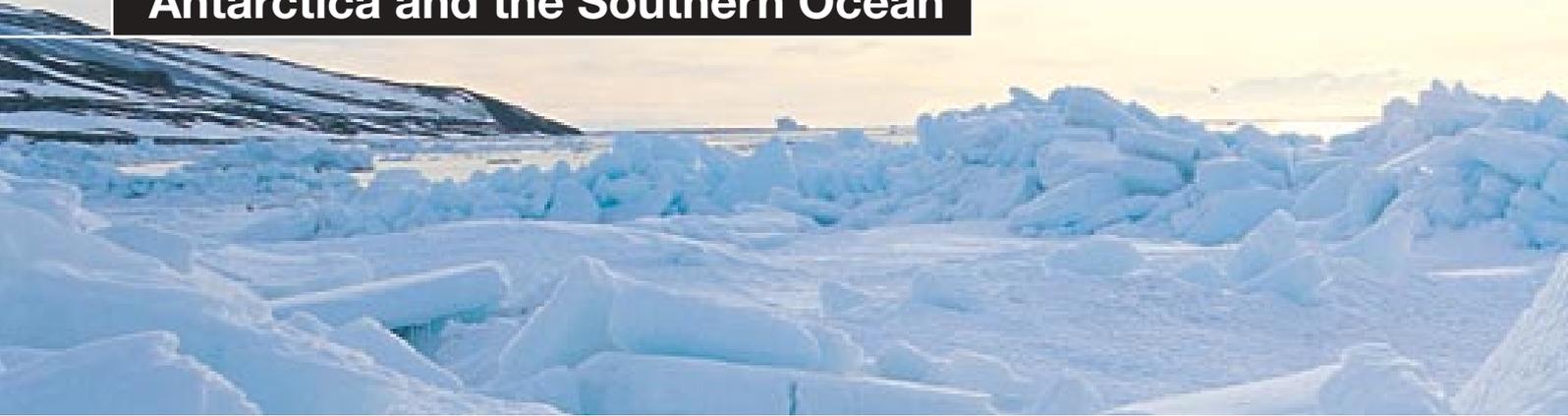
Scott Base, Ross Island Antarctica. *Craig Potton Antarctica New Zealand Pictorial Collection 00/01.*

Statement of Objectives and Service Performance



year ended 30 June 2003

Government Strategic Interests in Antarctica and the Southern Ocean



New Zealand is committed to conservation of the intrinsic and wilderness values of Antarctica and the Southern Ocean, for the benefit of the world community and for present and future generations of New Zealanders. This will be reflected in active and responsible stewardship, under the Antarctic Treaty System, that promotes New Zealand's interests in:

- i. National and international peace and security through a commitment to keeping Antarctica peaceful, nuclear free, and its environment protected;
- ii. Continued influence in Antarctic governance through maintaining an effective role in the Antarctic Treaty System, and maintaining its long term interest and credible presence in, and commitment to, the Ross Dependency;
- iii. Conserving, protecting, and understanding the biodiversity of Antarctica and the Southern Ocean, in particular the biodiversity of the Ross Sea region, including promotion, protection and management of representative special areas, and enhancing biosecurity;
- iv. Conservation and sustainable management of the marine living resources of the Southern Ocean, and in particular the Ross Sea, in accordance with CCAMLR and the Environmental Protocol to the Antarctic Treaty, and within this context supporting strong environmental standards and sustainable economic benefits;
- v. Supporting and where appropriate leading, high quality Antarctic and Southern Ocean science that benefits from the unique research opportunities provided by Antarctica;
- vi. Demonstrating and advocating for best practice in environmental stewardship and all other activities throughout Antarctica, and in particular the Ross Sea region;
- vii. Ensuring that all activity is undertaken in a manner consistent with Antarctica's status as a natural reserve devoted to peace and science.



Cape Royds is an Antarctic Specially Protected Area and contains both an Adélie Penguin Rookery and Shackleton's historic hut. *Bill Davison Antarctica New Zealand Pictorial Collection 02/03.*

Statement of Objectives and Service Performance



Performance achieved against agreed measures, standards and costs for all outputs

The overall requirement of Antarctica New Zealand is to deliver Foreign Affairs and Trade Non-Departmental Output Class 01 Antarctic Research and Support:

Description

Advice on and the development, management and execution of New Zealand activities in respect of Antarctica and the Southern Ocean, in particular the Ross Dependency. The outputs purchased will include:

- Ensuring an effective New Zealand presence in the Ross Dependency through the safe, effective operation of Scott Base, and an effective and flexible logistic support capability, which is appropriately resourced to support New Zealand objectives in Antarctica, including supporting initiatives in science, education, public awareness and environmental stewardship.
- Planning, coordination, facilitation and logistic support for an international quality science programme based on a long-term strategic plan for New Zealand science in Antarctica, the Southern Ocean and the Ross Dependency.
- Environmental stewardship for New Zealand activities in the Ross Dependency, including state of the environment reporting and management and monitoring of environmental impacts and associated logistical support.
- Public awareness and education on Antarctica and the Southern Ocean, including publications and events aimed at public awareness, encouragement of education in schools, and logistic support for associated visits to Antarctica.
- Proactively seeking to ensure that private sector activity in Antarctica is fully consistent with Government objectives in the region.
- International representation in respect of scientific and other programme-level New Zealand activities in Antarctica and the Southern Ocean.
- Encouraging analysis, debate and scholarship related to Antarctic and Southern Ocean issues.
- Providing input into the development of New Zealand Antarctic policy.

Quantity, quality and timeliness

- Outputs will be delivered in accordance with the priorities and policy directions established by the Government.
- Outputs will be delivered by agreed target dates and as specified in the Purchase Agreement between the Minister and the NZAI.
- At least 80% of affected parties will rate as very good or better the consultation processes and final standard of NZAI's policy advice, planning and support services, rules and procedures, publications and international representation.
- Appropriate outputs will be assessed against the following quantitative benchmarks:

	2002/2003 (actual)	2002/2003 (estimated)
Number of person-days in the Antarctic supported for science activities	7295	at least 5000 days
Number of person-days in the Antarctic supported for non-science activities	1645	at least 750 days
Expenditure	\$7,933,078	\$8,209,000

Progress in delivering the outputs is reported below

1.1 OPERATIONAL PRESENCE IN ANTARCTICA

Purchase Agreement Outcomes

- Effective management of Scott Base and the capability to support science, environmental, public awareness and education projects in the field throughout the Ross Dependency.

Costs

Full year estimate: \$7,124,735
Expenditure: \$6,630,123

Activity	Performance Measures	Achievement
<p>Scott Base Management Operation of Scott Base as a support facility for science and other approved activities.</p> <p>Provide a safe working environment in Antarctica to enhance personnel health and safety, environmental compliance, and protect assets.</p> <p>Capture opportunities to enhance efficiency and accountability through procedural/system reviews.</p>	<p>Year-round resident New Zealand Government Representative.</p> <p>Accommodation capacity for 86 personnel, including catering, storage and ablution facilities.</p> <p>An all terrain vehicle fleet.</p> <p>Fixed and rotary wing air support.</p> <p>Appropriate laboratories, offices, and other work areas.</p> <p>Telecommunication capabilities, including phone, data, and radio.</p> <p>Commissioning of a sewage treatment facility.</p> <p>Development of 10 year capital plan and a further 10 year capital forecast.</p> <p>Upgraded preventive maintenance system.</p> <p>Management of the Scott Base shell on behalf of the Crown.</p> <p>Biannual statutory compliance reviews, and annual review of risk management procedures.</p> <p>Environmental Management System compliance.</p> <p>Computerised inventory and purchasing systems implemented in accordance with the IMS project.</p> <p>Review of operational procedure documentation annually.</p> <p>Review of recruitment and personnel selection and conditions of service annually.</p>	<p>Year-round Government representation at Scott Base has been maintained, with accommodation, communications, laboratory and storage facilities.</p> <p>Provided. The peak population at Scott Base this season was 113. Eleven personnel are currently wintering at Scott Base.</p> <p>Provided.</p> <p>Fifteen RNZAF flights were completed this year with only minor delays due to weather. Helicopters New Zealand completed field support to both Antarctica New Zealand and USAP activities achieving a 99% aircraft availability rate. Helo operations were completed within budget. On-continent fixed wing (Twin Otter) support was negotiated with the Italian Antarctic programme. The RNZAF have committed to 15 C-130 flights for next season.</p> <p>The Arrival Heights observatory and Hatherton laboratory continue to support scientific research and data collection. This winter NIWA are carrying out additional work at the Arrival Heights facility and have a scientist wintering over.</p> <p>Telephone, fax, data, VHF and high frequency radio communications were maintained throughout the reporting period. Iridiving satellite telephones have been procured for introduction in October 2003.</p> <p>A commissioning and test phase commenced in October 2002 and continued throughout the summer season, with the plant performing satisfactorily with effluent quality being within required parameters. The testing phase will continue through the winter to assess the effects of reduced population, with outfall samples to be returned to NZ for analysis in August 2003.</p> <p>The report was delivered in January 2003 and formed the basis for the organisation's funding bid to Treasury for capital works.</p> <p>Programmed preventive maintenance system in place.</p> <p>In progress. Shell maintenance is carried out as part of the preventive maintenance programme.</p> <p>The last statutory compliance check was completed 31 March 2003. The risk management project is under action by the Board and Management Team, with annual review expected in October 2003.</p> <p>Corrective Actions raised for springtails in hydroponics unit (CA 02/04) and small hydraulic oil spill (CA 02/05). Routine audit visits to Scott Base and field events by environmental staff found overall compliance very high.</p> <p>Go live of inventory and purchasing successful with all orders now being done through Navision.</p> <p>Review of publications was completed in August 2003.</p> <p>Scott Base staff advertising carried out in May 2002. As at 30 June application vetting and interviewing has been undertaken. Reference checking and appointments will be carried out in the next reporting period.</p>

Activity	Performance Measures	Achievement
<p>Logistics Capability Logistics and supply support for approved New Zealand activities in the Ross Sea region and Southern Ocean.</p> <p>Field operating support in the Ross Sea region.</p>	<p>Fifteen RNZAF C130 flights as a contribution to the joint logistics pool (airlift and sealift) between Christchurch and Ross Island operated pursuant to the existing NZ/US Government to Government arrangement.</p> <p>Freight forwarding and warehouse facilities.</p> <p>Efficient movement of passengers to and from Antarctica, including provision of clothing, and medical screening to required standards.</p> <p>Efficient movement of all cargo requirements including hazardous materials in accordance with pertinent regulations.</p> <p>Effective management of the NZ/US/Italian logistics pool with international parties.</p> <p>Transport support ground, sea and air.</p> <p>Field food, clothing and field equipment appropriate to the environment to be worked in.</p> <p>Reliable field communications including radio and satellite phone.</p> <p>Search and rescue support including joint operations with other national programmes.</p> <p>Specialised training both in New Zealand and Antarctica, including fire fighting, field training, diving operations, handling of hazardous materials.</p> <p>Safe deployment and recovery of field events to required locations.</p> <p>Logistics plans for ANDRILL and LGP.</p> <p>Capability to support field activities anywhere in the Ross Sea Region.</p>	<p>Completed. 40 Squadron RNZAF transported 370,000 pounds of air cargo to Antarctica.</p> <p>Provided.</p> <p>Combined air operations between the New Zealand, Italian and United States programmes successfully deployed all required personnel and material to the Ross Sea Region with minimal delays. 420 NZ personnel were transported to Antarctica in the 2002 – 03 summer season. There were no accidents or safety related incidents.</p> <p>199,023 pounds of cargo were airlifted to Antarctica during the 2002 – 2003 season. 252,138 pounds were transported by ship. There were no safety issues or loss of cargo.</p> <p>New Zealand/United States joint logistics operations for the summer season were successfully completed with excellent cooperation between programmes.</p> <p>Helicopter support by Helicopters New Zealand was exemplary with excellent safety and service. 151,000 pounds of cargo and 658 personnel were transported by helicopter. On-continent Twin Otter support was organised through the Italian programme to support deep field work.</p> <p>Provided. Whilst safe and practical, user feedback indicates that with new technology and designs available, these can be improved.</p> <p>Provided. Some problems with disruption to High Frequency radio communications occurred due to solar flare activity. This will be addressed by the introduction of satellite telephone technology.</p> <p>Joint exercises and planning of SAR coverage, was carried out successfully.</p> <p>Completed by 30 September 2002. Planning for the 2003 training course has commenced.</p> <p>Successfully completed, with no injuries or significant loss of equipment.</p> <p>Ongoing, with the appointment of a Project Manager, and Drilling and Science Coordinator. A preferred supplier for the provision of drilling design and consultancy services has been identified. A revised operational plan and budget will be tabled at an international ANDRILL meeting in July 2003.</p> <p>Deep field parties were supported at locations further than 600 km from Scott Base.</p>
<p>Co-ordination of total logistics support to authorised science and non-science events, throughout the Ross Sea region.</p> <p>Effective delivery of support services to meet user requirements, in an effective manner to conserve organisational resources.</p>	<p>Review event requirements and develop/implement a supportable logistics plan.</p> <p>Operate within budget, and meet reasonable user requirements as measured in event debrief scores of seven or better.</p>	<p>In progress for the 2003 – 2004 summer field season, with the logistics plan due for completion 1 August 2003.</p> <p>All event support requirements were satisfactorily met, as measured by event debriefing and post season logistic reports. The Operations Group has delivered support within budget.</p>
<p>Train and equip New Zealand Government cruise ship representatives.</p>	<p>Provide training and equipment appropriate to the activities and areas that Government representatives will operate in as agreed with MFAT and DOC.</p>	<p>Training sessions held 31 October – 1 November 2002. Antarctic clothing and personal survival kit provided.</p>

Activity	Performance Measures	Achievement
<p>Quality and Environmental Management Systems Work will continue to enhance service delivery, environmental compliance, occupational safety and health, and information accessibility.</p> <p>Ensure the integrity of planning information by implementing the event planning, preventive maintenance and other relevant components of the IMS project.</p>	<p>Compliance with the Antarctic (Environmental Protection) Act, and the Occupational Safety and Health Act.</p> <p>Meeting the requirements of the Environmental Management System consistent with the AS/NZ ISO 14001:1996.</p> <p>Meet the implementation deadlines in accordance with the IMS project.</p>	<p>Achieved with no serious safety or environmental incidents.</p> <p>Ongoing.</p> <p>Achieved.</p>
<p>Surveying, Mapping, Charts and Hydrography Input to LINZ priorities for mapping, hydrography and geodesy work in the Ross Dependency.</p>	<p>Science, operational and safety priorities for mapping, hydrography and geodesy work are provided to LINZ.</p>	<p>Input to new Ross Sea charts ongoing. Naming options given for features in Ross Sea region. Tide gauges were maintained at Cape Roberts in association with Victoria University and at Scott Base in conjunction with NIWA.</p>

1.2 PLANNING AND FACILITATION OF SCIENCE

Purchase Agreement Outcomes

- New Zealand Antarctic science makes a significant contribution to the world store of scientific Antarctic and Southern Ocean knowledge, in particular, an increased understanding of Antarctic ecosystems and predicting effects from global change.
- International profile through increased quality science and collaborations with international partners.
- Research in and related to Antarctica is recognised as a valuable part of New Zealand's science investment by MoRST, FRST and research providers, with the total Antarctic science funding amount at least maintained at its current level.
- New Zealand is the lead country for at least one large-scale international project.

Costs

Full year estimate: \$295,994

Expenditure: \$291,101

Activity	Performance Measures	Achievement
<p>Science Management and Facilitation Provide strategic direction and planning for New Zealand Antarctic and Southern Ocean science.</p> <p>Manage a process for the 2003 – 2004 to 2005 – 2006 Antarctic seasons “Application for Support” round for Antarctic and Southern Ocean science, and initial selection of acceptable projects using the Antarctic Research Committee.</p> <p>Provision of logistic support to science projects in Antarctica.</p> <p>Provision of technical scientific support and facilities for science in Antarctica.</p>	<p>Develop a 3 – 5 year science plan, in consultation with funders, providers and users, which will direct research proposals for the 2002 – 2003 bidding round.</p> <p>Publish the Antarctic Southern Ocean Science Strategy for 2001 – 2006 by October 2002.</p> <p>Develop individual research and operating plans for the Latitudinal Gradient Project, ANDRILL, and BioRoss in collaboration with MFish.</p> <p>Conduct a review of the current processes of funding science and logistics support for research in Antarctica and the Southern Ocean.</p> <p>Successful completion of the application for support selection process by February 2003.</p> <p>All approved science projects are appropriately supported in Antarctica to achieve project goals.</p> <p>Provision of science technician, computing and science support facilities meets event requirements as indicated by event debrief scores within cost constraints.</p>	<p>Antarctica New Zealand has worked closely with ANDRILL researchers and technical staff to create an ANDRILL Science Plan. Antarctica New Zealand has been working with the LGP Science Steering Committee to complete the LGP Science Plan.</p> <p>The Southern Ocean Strategy is being realigned after the failure of the CoRE bid. A first draft of the Strategy was released for comment on 26 June 2003.</p> <p>All three operational plans are working documents.</p> <p>Because of the Antarctic CoRE bid and its impact, Antarctica New Zealand had a one year bidding round for logistical support in 2002. A three-year bidding process will be initiated in August 2003.</p> <p>The Antarctic Research Committee reviewed 39 proposals and recommended 33 proposals for support. The Board of Antarctica New Zealand has approved the recommended list of proposals for the 2003/2004 season.</p> <p>Ongoing.</p> <p>A 64K link for computer connections has been purchased to support the ever increasing needs of computing at Scott Base. This will help deliver the needs for both IMS and science events located in Antarctica.</p>
<p>Reporting Science Publish information on New Zealand Antarctic and Southern Ocean science.</p> <p>Public education and awareness of recent scientific events and findings.</p>	<p>Co-ordinate the annual science publication presenting highlights of Antarctic research events supported by Antarctica New Zealand by September 2002.</p> <p>Annual Report includes contribution of science using the five science strategy themes.</p> <p>The website has up to date scientific information relating to past findings and future directions.</p> <p>Maintain a running bibliography on New Zealand's Antarctic publications.</p> <p>Co-ordination of an annual Antarctic conference in March/April 2003.</p> <p>Hold interviews with media about science related press releases during the year.</p> <p>Lecture on Antarctic science for public education events and Gateway Antarctica graduate certificate course.</p>	<p>Annual Report and inaugural Science Companion Document published September 2002.</p> <p>Annual Report and inaugural Science Companion Document published September 2002.</p> <p>The science pages have all been updated with active links to external science websites at universities and CRIs supported by Antarctica New Zealand.</p> <p>The bibliography was fully updated in August 2002.</p> <p>The Annual Conference was held at the University of Otago, Dunedin. There were a record number of participants (135).</p> <p>Regular media statements on science were released during the 2002/03 season. Interviews were arranged with radio, newspaper, and internet based media. Radio features will be aired from December 2002 until October 2003 on National Radio.</p> <p>Lectures organised. Antarctica New Zealand presented 7 lectures to the Gateway Antarctica Graduate Certificate in Antarctic Studies.</p>

Activity	Performance Measures	Achievement
<p>Science Funding Continued advocacy for Antarctic science to ensure funding availability for high quality research.</p>	<p>Play an active role in Antarctic research priority setting by the Foundation for Research, Science & Technology.</p> <p>Maintain links with appropriate funding and research agencies.</p> <p>Attract interest in Antarctic research from science sector(s) not traditionally involved.</p> <p>Facilitate an agreement with Treasury and the science funders on co-ordination of science and logistics funding.</p>	<p>A specific Invited Visitor group was put together for the 2002/2003 season to focus on science funding. The list of Invited Visitors were Peter Benfell (FRST), Paul Pearson (FRST), Rob Murdoch (NIWA), John Annala (MFish), Trevor Hughes (APU) and Wayne Stevens (Treasury).</p> <p>Antarctica New Zealand is closely linked to the FRST investment process on the Global Environmental SPO and is currently on the Protection and Restoration of Land, Freshwater and Estuarine Ecosystems and Environments SPO.</p> <p>Ongoing. Marsden funding has been further increased from \$350,000 per year to \$750,000 per year for the next 2 years.</p> <p>The FRST are currently commenting on an agreement provided by Antarctica New Zealand.</p>

1.3 ENVIRONMENTAL STEWARDSHIP

Purchase Agreement Outcomes

- Antarctica New Zealand activities, including implementation of actions from the New Zealand Environmental Strategy for the Ross Sea Region, demonstrate leadership in Antarctic environmental management and are adopted nationally and internationally.
- The Ross Sea Region 2001: A State of the Environment Report for the Ross Sea Region of Antarctica provides the platform for the development of a regional process for reporting on the environment and a basis for management of human activities in the region.

Costs

Full year estimate: \$263,234
Expenditure: \$278,127

Activity	Performance Measures	Achievement
<p>Implementing Environmental Management Strategy Ongoing implementation of Antarctica New Zealand Environmental Management Strategy.</p> <p>Continued upgrade of Scott Base waste management systems.</p> <p>Remediation at Cape Hallett.</p>	<p>Antarctica New Zealand's Environmental Management Strategy published, and implementation of key initiatives commenced.</p> <p>Sewage treatment plant operational by October 2002. Monitoring of discharge confirms quality targets.</p> <p>Ongoing co-ordination with the United States Antarctic Program to implement agreed remediation plan.</p>	<p>Revision process (using review of 1998 Strategy and outcomes of the State of the Environment Report) still in progress.</p> <p>Plant commissioned in October 2002, monitoring ongoing.</p> <p>A report of the sampling undertaken by United States environmental personnel during the season has been received. A teleconference (Raytheon, NSF and AntNZ) to progress the remediation plan was held in May and specific actions agreed.</p>
<p>Environmental Performance and Compliance Ensuring compliance with Antarctica (Environmental Protection) Act by persons involved in Antarctica New Zealand managed activities.</p> <p>Providing environmental management advice and oversight for large scale science projects in the Ross Sea region for which Antarctica New Zealand is project manager.</p> <p>Ongoing implementation of Antarctica New Zealand environmental monitoring programme.</p> <p>Compliance monitoring of activities (as feasible) in relation to non-Antarctica New Zealand managed activities in the Ross Dependency which come under the Antarctica (Environmental Protection) Act.</p>	<p>Antarctica New Zealand Environmental Management System (EMS) consistent with AS/NZ ISO 14001:1996.</p> <p>Environmental impact assessment (EIA) and permitting processes are completed for all Antarctica New Zealand supported activities.</p> <p>Environmental authorisations detailing specific activities are issued to all events according to Antarctica New Zealand permits.</p> <p>End of season environmental performance report demonstrates that activities supported by Antarctica New Zealand in Antarctica comply with the Antarctica (Environmental Protection) Act, and effective follow-up for any non-compliance.</p> <p>Preparation of a draft CEE for the ANDRILL project.</p> <p>Provision of advice on the preparation of environmental impact assessment for the Latitudinal Gradient Project.</p> <p>Monitoring of agreed indicators carried out in 2002 – 2003 season and contributes to the assessment of environmental performance of Antarctica New Zealand managed activities.</p> <p>End of season environmental performance report includes reporting on agreed indicators.</p> <p>Reports on relevant monitoring and compliance activities provided to MFAT.</p> <p>Co-ordination of training for the New Zealand Representatives programme for tour vessels in the Ross Dependency and provision of logistics support as required.</p>	<p>Statutory Compliance Manual checklists completed, with no problems identified. End of season logistics reports for 2002/2003 revealed some non-compliances, most serious of which were unpermitted entries to an ASPA. Corrective Actions are being progressed within the EMS to prevent any similar incidents in future. EMS is being further developed using EnviroMark system.</p> <p>Preliminary Environmental Evaluations and one Initial Environmental Evaluation for all Antarctica New Zealand supported events approved by MFAT for the 2002/2003 season. Preliminary Environmental Evaluations and two Initial Environmental Evaluations provided to MFAT for the 2003/2004 season.</p> <p>Approvals and permits sent to all event leaders for 2002/2003.</p> <p>2001/2002 report provided to MFAT, EARP and Board in August. Transition to Navision has delayed production of usual format performance report for 2002/2003. Interim report provided to MFAT and EARP, outlining known incidents and non-compliances and the action being taken to rectify or prevent future recurrences.</p> <p>Draft circulated to ATCPs and submitted for consideration at CEP VI in Madrid (June 2002), where it was noted to be 'well structured', 'appropriate' and 'consistent with Annex I of the Protocol'.</p> <p>Completed IEE provided to MFAT in June.</p> <p>Monitoring continued in 2002/2003 and results are still being used to evaluate performance.</p> <p>Results included in 2001/2002 report and to be included in 2002/2003 Environmental Performance Report.</p> <p>National Representative report provided for February 2003 voyage of <i>Kapitan Khlebnikov</i>.</p> <p>Training sessions held 31 October – 1 November 2002. Antarctic clothing and personal survival kit provided.</p>

Activity	Performance Measures	Achievement
<p>Ross Sea Region State of the Environment Report (RSR-SOER) Follow-up to the publication of <i>Ross Sea Region 2001: A State of the Environment Report for the Ross Sea Region of Antarctica</i>.</p>	<p>Publication of proceedings from Ross Sea Region 2001 follow-up workshop held in May 2002.</p> <p>Action plans developed for specific regional environmental initiatives identified as priorities following the workshop including future state of the environment reporting in the Ross Sea region.</p>	<p>Published and circulated to all participants. Further copies available for sale.</p> <p>At both ATCM XXV in Poland (2002) and ATCM XXVI in Madrid (2003), New Zealand was appointed to jointly lead intersessional work on Antarctic-wide state of the environment reporting with Australia. The outcomes of this work will be used to help determine the best approach for further initiatives.</p>
<p>Protected Areas Revision of protected area management plans for Mt Melbourne and Tramway Ridge protected areas.</p> <p>Provision of input and advice on the ongoing development of a protected area proposal for the Balleny Islands.</p> <p>Development of an Antarctic specially managed area (ASMA) for the McMurdo Dry Valleys.</p>	<p>Draft plan for Mt Melbourne protected area revised and submitted to the ATCM/CEP 2002 meeting in Poland in September 2002.</p> <p>Five year review of Tramway Ridge completed and paper submitted to the ATCM/CEP 2002 meeting in Poland in September 2002.</p> <p>Chair the Balleny Islands sub group.</p> <p>Input and advice contribute to the further development of the Balleny Islands protected area proposal.</p> <p>Continuing liaison with the US on the draft management plan for a McMurdo Dry Valleys ASMA, including preparation of maps and consultation with the science, tourism, and NGO communities during 2002 – 2003.</p>	<p>Plan submitted at CEP V in 2002 and an intersessional contact group established. The resulting revised plan was accepted at CEP VI in June 2003.</p> <p>Revised plan submitted and accepted at CEP V.</p> <p>Emma Waterhouse is continuing to chair this group in her new role with MFish.</p> <p>Meeting of Balleny Islands Working Group held to agree approach for 2003. Acting Environmental Manager attended.</p> <p>Draft Management Plan submitted to CEP VI by US in June 2003. New Zealand to lead intersessional contact group to review draft plan and report back to CEP VII in 2004.</p>
<p>Provision of Advice Provision of high quality expert advice on EIAs for government and non-governmental activities and other significant environmental issues as requested to MFAT and EARP.</p> <p>Provision of advice on national Antarctic environmental policy issues to MFAT and the OAC.</p> <p>Provision of advice to OAC departments and research organisations on Ross Sea region marine conservation and management, including research priorities.</p>	<p>Expert advice:</p> <ul style="list-style-type: none"> ■ meets timelines; ■ is proactive, highlighting emerging issues where appropriate; ■ includes consideration of all relevant available information; ■ includes consideration of relevant scientific, technical and operational aspects. <p>Policy contributions and advice meet the policy advice criteria outlined above.</p> <p>Policy contributions and advice meet the policy advice criteria outlined above.</p>	<p>Draft ANDRILL CEE circulated to ATCM and CEP contacts and considered at CEP VI. Assistance with a science project IEE in 2002 was provided, and IEEs produced by Antarctica New Zealand for LGP and Scott Base warmstore in 2003. Antarctica New Zealand is assisting AHT with an IEE for the hut conservation programme.</p> <p>Considerable input on MFAT document “Policy & Procedures for Non-Governmental Visitors to the Ross Sea Region”, which has not yet been published. Input also provided on MFAT Ministerial paper on tourism, which resulted in new policy, released in May 2003.</p> <p>Ongoing.</p>

1.4 PUBLIC AWARENESS AND EDUCATION

Purchase Agreement Outcomes

- Public awareness of the global significance of Antarctica and the Southern Ocean, to create a constituency of interest and knowledge that encourages and underpins a continuing strong national involvement in the Ross Sea region, and international influence to encourage compliance with the Antarctic Treaty System.

Costs

Full year estimate: \$182,547
Expenditure: \$393,960

Activity	Performance Measures	Achievement
<p>Facilitation of Antarctic Education Encourage the provision of high quality education about New Zealand's Antarctic interests and activities.</p>	<p>Organise educators from identified New Zealand museums, galleries and other similar institutions to undertake a familiarisation visit to Antarctica.</p> <p>Select a secondary school group to visit Antarctica and facilitate the visit from applications received.</p> <p>Encourage tertiary education institutions to develop appropriate Antarctica curricula as part of school programmes.</p> <p>Facilitate a collaborative approach towards educational opportunities between identified educators from Italy and New Zealand.</p>	<p>Education familiarisation event for 2002/2003 season was successfully completed in November. Participants represented Kelly Tarltons, Antarctic Visitors Centre, University of Canterbury Map Library and Wigram Air Force Museum. Applications for 2003/04 season were received in Feb 2003. Familiarisation group for 2003/04 season to include representatives from Te Papa, Kelly Tarltons and Antarctic Visitors Centre.</p> <p>St Bede's college travelled to Antarctica in November 2002. On return the participants presented public talks and worked on both a children's book based on Scott, and art and writing for exhibition. An exhibition of their work opened at CoCA Gallery, Christchurch in July 2003. Applications for 2003/2004 round are complete, with the successful school, Waitaki Boys High School travelling to the ice during the 2003/2004 season.</p> <p>Work with the Christchurch College of Education is continuing with four teaching units completed. Completed units are attached to the Antarctica New Zealand website. A strategy for continued creation of teaching resources is planned for late in 2003.</p> <p>An Italian Education Manager from Genoa Antarctic Museum visited Scott Base in October 2002. Due to logistical constraints no Italian education visit will be supported for the 2003/2004 season.</p>
<p>Public Awareness Grow and develop the artists to Antarctica programme.</p>	<p>Implement the visit of two Antarctic arts fellows to Antarctica in the 2002 – 2003 season. Work with the Christchurch Art Gallery, Te Papa and the US, Australian, UK, and Chilean artists programmes to extend the potential for a touring international Antarctic Art Exhibition.</p> <p>Develop a collaborative approach between the US and New Zealand artists programmes.</p>	<p>Two Antarctic Arts Fellows were supported this season, Fieke Neuman, fashion designer in October and Phil Dadson, intermedia artist in February.</p> <p>Applications closed for the 2003/2004 season on 1 March with David Trubridge, furniture maker and sculptor, and Laurence Fearnley, novelist, being named Antarctic Arts Fellows in the Artists to Antarctica Programme. Painter Grahame Sydney will visit Antarctica next season as an invited artist and photographer. Andris Apse will travel as a worker visitor to provide photographs of the 2003/2004 season.</p> <p>Virginia King's exhibition <i>Antarctic Heart</i> opened the Tait Antarctic Gallery at the new Christchurch Art Gallery. Fieke Neuman opened her exhibition of fashion (wearable art) at the Hocken Gallery (Dunedin) in April with each piece representing a different marine biology science event.</p> <p>Extensive discussions were held with potential partners regarding an International Antarctic Art Exhibition. While the idea merited interest, it was deemed premature at this time due to the fact that some programmes are still in their infancy and require further development before quality artworks are available from all programmes.</p> <p>Ongoing at an individual artist level.</p>

Activity	Performance Measures	Achievement
<p>Improve general public awareness and understanding of the Antarctic environment, and New Zealand involvement in Antarctica and the Southern Ocean.</p>	<p>Provide specific opportunities for media visits to Antarctica including film and documentary makers, mainstream news reporters and specialist reporters.</p> <p>Provide opportunities for key influencers and decision-makers to visit Antarctica through the Invited Visitor programme and highlight their visit by the inclusion of media where appropriate.</p>	<p>Successful media visits were implemented in the 2002/2003 season. Promotion completed for Media Initiatives Programme for 2003/2004. The focus for next season is on profiling both quality New Zealand supported science in Antarctica and the people who work for, and are supported by Antarctica New Zealand.</p> <p>Successful visits were completed for the Minister of Conservation accompanied by an Antarctic Foundation Trustee, and science and international Antarctic stakeholders. Media interviews and releases were arranged from Scott Base. The invitation round for the Invited Visitor programme for the 2003/2004 season is in progress.</p>

1.5 ENTERPRISE

Purchase Agreement Outcomes

- Private sector support for New Zealand Antarctic-related activities.
- New Zealand private sector activity in Antarctica is fully consistent with Government objectives in the region.

Costs

Full year estimate: \$73,693
Expenditure: \$104,213

Activity	Performance Measures	Achievement
<p>Tourism Initiative Contribute to the development of a national tourism policy for Antarctica and the Southern Ocean.</p> <p>Develop scenarios for Antarctica New Zealand and for tour operators in the Ross Sea region.</p>	<p>Contribute as a member of the OAC sub-group on tourism in the development of appropriate guidelines and principles.</p> <p>The formulation of a plan for Antarctica New Zealand's interaction with Antarctic tourism.</p>	<p>Considerable input on "Policy & Procedures for Non-Government Visitors to the Ross Sea Region", which has not been published. Input also provided on MFAT Ministerial paper on tourism, which resulted in new policy.</p> <p>No progress.</p>
<p>Private Sector Involvement in Antarctica-related Activities Proactively seek to ensure that private sector activity in Antarctica is fully consistent with Government objectives in the region.</p> <p>Identify 2 – 3 private sector sponsorship opportunities.</p>	<p>Implementation of a strategic plan to establish an Antarctic Foundation that will provide opportunities for private sector funding of Antarctic science and environmental projects.</p> <p>Sponsorships successfully established.</p>	<p>Papers on the progress of the establishment of the Antarctic Foundation were presented to the Board November 2002 and March 2003. Discussions are continuing on the strategic focus of the Antarctic Foundation.</p> <p>Work on relationship management and firming up of established scholarships is ongoing. No new scholarships established due to potential focus of the Antarctic Foundation.</p>

1.6 INTERNATIONAL REPRESENTATION

Purchase Agreement Outcomes

- New Zealand profile and influence in the international management of Antarctica and the Southern Ocean, evidenced by New Zealand initiatives that Antarctica New Zealand has contributed to featuring in Antarctic Treaty Consultative Meeting ('ATCM'), Committee on Environmental Protection ('CEP') and Council of Managers of National Antarctic Programmes ('COMNAP') etc activities, and receiving international acknowledgment.
- New Zealand contribution to Antarctic and global environmental knowledge bases is enhanced by Antarctica New Zealand activities.
- Antarctica New Zealand activities stimulate enhanced international commitment to conservation of Antarctica.
- Foreign collaboration, research and scholarship in Antarctic activities through New Zealand is encouraged as a result of Antarctica New Zealand initiatives.

Costs

Full year estimate: \$213,248

Expenditure: \$168,514

Activity	Performance Measures	Achievement
<p>International Forums / Antarctic Treaty Consultative Meeting ('ATCM') Contribute to MFAT and OAC consideration of ATCM issues, the New Zealand ATCM/ Committee on Environmental Protection (CEP) delegation, and a positive New Zealand profile in the Antarctic Treaty System.</p> <p>Contribution to the New Zealand influence in the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR).</p> <p>Contribute to the development of Antarctic tourism policies and procedures internationally.</p>	<p>Expert advice provided within the New Zealand delegation throughout the year.</p> <p>Chief Executive and Environmental Manager members of the New Zealand delegation to ATCM XXV and CEP VI.</p> <p>Act as the New Zealand contact point for intersessional CEP work on Ross Sea region and Peninsula protected area plan reviews and on cumulative impacts, including preparing New Zealand input and responses to the work of these groups.</p> <p>Present New Zealand ATCM/CEP papers on final Cape Roberts Project Environmental Report, Tramway Ridge and Mt Melbourne Protected Area management plans, the Ross Sea Region State of the Environment Report, including follow up actions, and bioprospecting.</p> <p>Continue to assist in the development of a more strategic/ long-term approach to New Zealand ATCM positions, in particular for the CEP.</p> <p>Work with MFAT to better present the outcomes of the ATCM and associated meetings to interested New Zealand agencies.</p> <p>Provide environmental and scientific advice to the New Zealand CCAMLR delegation throughout the year.</p> <p>Consider the CCAMLR meeting agendas (including the scientific committee) and decide on the priority for Antarctica New Zealand participation in CCAMLR and associated meetings.</p> <p>Represent New Zealand at the annual IAATO meeting, and propose an IAATO meeting in New Zealand in 2003 or 2004.</p>	<p>CEO and Environmental Manager attend CEP delegation meetings.</p> <p>Chief Executive and Environmental Manager played active role in ATCM, XXVI and CEP VI delegations.</p> <p>Acting Environmental Manager worked on several intersessional contact groups and prepared CEP working paper presenting the findings of the Mt Melbourne ASPA 118 management plan intersessional contact group.</p> <p>Papers prepared by Antarctica New Zealand on all but bioprospecting, which was prepared by MFAT for CEP VI on the basis of a University of Canterbury workshop. All papers tabled.</p> <p>CEP delegation input ongoing.</p> <p>Meeting held with NGO representatives.</p> <p>Ongoing, particularly through Balleny Islands working group.</p> <p>Ongoing, particularly through Balleny Islands working group.</p> <p>Acting Environmental Manager attended IAATO meeting in May 2003. IAATO agreed New Zealand to host in 2004.</p>
<p>International Operational, Environmental and Scientific Influence Influence in international operational developments through the Council of Managers of National Antarctic Programmes (COMNAP) and its sub-groups.</p>	<p>Chief Executive, Environmental Manager and Operations Manager attendance at COMNAP annual meeting in July 2002.</p> <p>Membership of COMNAP Executive Committee for July 2002 meeting.</p> <p>Establishment of COMNAP Energy Management Network and Chair Network Steering Group at July 2002 meeting.</p>	<p>In addition to the main COMNAP meeting, representatives also attended a training network workshop, energy management workshop, and a meeting of the ANDRILL Project Operations Management Group.</p> <p>The Chief Executive fulfilled the role as a member of the Executive Committee for COMNAP.</p> <p>The network was successfully established including website access to energy management surveys, and an energy management workshop will take place in association with the Brest COMNAP meeting in July 2003.</p>

Activity	Performance Measures	Achievement
Participation in the Antarctic Environmental Officers Network (AEON).	<p>Prepare a report for COMNAP on its annual meeting for circulation to Antarctic Treaty parties and for public availability (subject to COMNAP meeting agreement).</p> <p>Present a poster paper on the Scott Base sewage treatment plant at the SCALOP Logistics Symposium.</p> <p>Active participation in the AEON steering group.</p> <p>Co-ordinate AEON work on the analysis and comparison of Initial Environmental Evaluations (IEEs) for different activities, including the drafting of a paper for the 2002 CEP meeting. Participate in the AEON working group to finalise and publish guidelines for designing and developing monitoring programmes.</p>	<p>Report completed and available from Antarctica New Zealand.</p> <p>Completed.</p> <p>Ongoing.</p> <p>Environmental Manager and Environmental & Policy Officer led IEE analysis. Report presented at the 2002 COMNAP meeting. Input to final monitoring guidelines document.</p>
Pursue possibilities for international profile/influence from the <i>Ross Sea Region 2001: A State of the Environment Report for the Ross Sea Region of Antarctica</i> .	<p>Work with other interested countries/organisations on the development of a procedure for Antarctic-wide state of the environment reporting, and identify and follow up other opportunities for contribution to the Antarctic-wide SOER process.</p>	<p>New Zealand and Australia were charged at CEP V with jointly leading intersessional work on Antarctic-wide state of the environment reporting for ATCM. A very productive workshop held in Sydney in March with 13 agencies represented, including several New Zealand participants, resulted in a paper to CEP VI proposing a low-cost, web-based state of the environment reporting system. This was well received and New Zealand and Australia are leading further intersessional work.</p>
Continue to increase international connections in Antarctic science.	<p>Continue to develop ANDRILL and LGP co-operation opportunities with US, Italy, Germany, and the UK; and provide operations management for the project subject to international science and logistics funding and acceptance of the New Zealand operations proposal.</p> <p>Continue support for Malaysian Antarctic scientific interests, subject to consistency of Malaysian approach with Antarctic Treaty principles.</p> <p>Explore opportunities for scientific collaboration with Switzerland, Canada and Germany.</p> <p>Contribute to New Zealand representation within the Scientific Committee on Antarctic Research (SCAR and attendance at SCAR meeting in July 2002).</p> <p>Active participation in international scientific forums/conferences.</p>	<p>The ANDRILL project management proposal was presented to participating countries at the 2002 COMNAP meeting, with Antarctica New Zealand appointed as the ANDRILL Project Management Office. Work continues on securing funding for the project, and field work is planned for next summer season to evaluate and test equipment, and to complete seismic surveys.</p> <p>The 2002/2003 season is scheduled for three separate Malaysian science events. The research consists of sea-ice modelling and atmospheric measurements.</p> <p>Ongoing.</p> <p>Science Programme Manager has been appointed the JCADM Chair and chaired the JCADM meeting in July in Belgium. Science Programme Manager is also in discussions with the Royal Society on becoming a SCAR alternate representative for New Zealand.</p> <p>Ongoing.</p>

1.7 ENCOURAGEMENT OF SCHOLARSHIP AND DEBATE

Purchase Agreement Outcomes

- Increased academic involvement in Antarctic policy issues development.
- Increased New Zealand influence on Antarctic policy and issues relating to Antarctica and the Southern Ocean.

Costs

Full year estimate: \$26,658
Expenditure: \$40,428

Activity	Performance Measures	Achievement
<p>Scholarship Support the development of Gateway Antarctica at University of Canterbury as a Centre of Excellence in Antarctic studies.</p> <p>Support the continuing development of interest in Antarctic scholarship at New Zealand universities.</p> <p>Support the New Zealand UNEP GRID node for Antarctica and the Southern Ocean.</p>	<p>Active membership of the Board of the University of Canterbury's Antarctic Studies Centre – Gateway Antarctica.</p> <p>Antarctica New Zealand staff involved in lecturing to University of Canterbury's Graduate Certificate in Antarctic Studies (GCAS) Course, and support for Scott Base field trip.</p> <p>Encourage the development of fellowship opportunities at Gateway Antarctica.</p> <p>Encourage Gateway Antarctica to take a leadership role in developing national initiatives involving other universities, including pursuing opportunities for a universities Antarctic Centre of Research Excellence (CoRE).</p> <p>Support and encourage the development of Antarctic courses and studies at other New Zealand universities.</p> <p>Continue to advocate for the benefits to New Zealand of adequate Government funding for the UNEP GRID node.</p>	<p>Review of Board structure currently underway</p> <p>Field visit successfully completed. Lectures ongoing.</p> <p>Work continuing on Gateway Antarctica opportunities and proposed Antarctic studies programme with University of Auckland.</p> <p>CoRE bid unsuccessful.</p> <p>Discussions ongoing with universities. Some opportunities may arise through development of the Antarctic Foundation. Antarctica now presented at both primary and secondary courses at Christchurch Teachers College.</p> <p>Supported visit by UNEP GRID Director as a distinguished visitor to Scott Base. Links established with University of Canterbury to provide information to UNEP GRID on New Zealand's Antarctic activities.</p>

1.8 POLICY ADVICE

Purchase Agreement Outcomes

- New Zealand Antarctic and Southern Ocean policy incorporates sound operational, scientific, environmental principles.
- A robust policy framework for Antarctica New Zealand activities in Antarctica and the Southern Ocean.

Costs

Full year estimate: \$28,891
Expenditure: \$26,612

Activity	Performance Measures	Achievement
<p>Policy advice Contribute Antarctica New Zealand expertise to MFAT policy development.</p> <p>Provide advice to other Government policy development/forums.</p>	<p>Raise appropriate Antarctica New Zealand policy issues and concerns with the Minister and MFAT.</p> <p>Active involvement in OAC meetings and policy development.</p> <p>Present discussion document(s) to seek OAC input to the revision of the New Zealand Environmental Strategy for the Ross Sea region.</p> <p>Continue to seek OAC consideration and development of a New Zealand policy on bioprospecting in Antarctica.</p> <p>Continued representation on the Officials Committee on Geospatial Information to ensure New Zealand Antarctica and Southern Ocean interests are appropriately represented.</p>	<p>Antarctic Treaty meeting identified need for specific tourism and bioprospecting policy development.</p> <p>One meeting attended.</p> <p>Final draft completed</p> <p>Antarctica New Zealand providing input to Ministry of Economic Development discussion document on bioprospecting national policy.</p> <p>No relevant agenda items at OCGI this year.</p>

OUTPUT COST ESTIMATES (excl GST)

	Actual	Estimate
Operational presence in Antarctica	\$ 6,630,123	\$ 7,124,735
Planning and Facilitation of Science	\$ 291,101	\$ 295,994
Environmental Stewardship	\$ 278,127	\$ 263,234
Public Awareness and Education	\$ 393,960	\$ 182,547
Enterprise	\$ 104,213	\$ 73,693
International Representation	\$ 168,514	\$ 213,248
Scholarship	\$ 40,428	\$ 26,658
Policy Advice	\$ 26,612	\$ 28,891
TOTAL:	\$7,933,078	\$8,209,000

Financial Statements



year ended 30 June 2003

Reporting Entity

Antarctica New Zealand is the trading name of the New Zealand Antarctic Institute, a Crown Entity established by the New Zealand Antarctic Institute Act 1996. The financial statements have been prepared in accordance with The Public Finance Act 1989 as amended.

Measurement Base

The measurement and reporting of results, financial position, and cash flows is based on historical cost with the exception of clothing, the library collection and the art collection.

Accounting Policies

The following particular accounting policies which materially affect the measurement of financial performance, financial position, and cash flows have been established and consistently applied.

(a) Revenue Recognition

Revenue is recognised when earned and is reported in the Statement of Financial Performance in the period to which it relates.

(b) Leases

Antarctica New Zealand has not contracted for any lease that would be classified as a finance lease. Operating lease payments where the lessors effectively retain substantially all the risks and benefits of ownership of lease items are charged as expenses in the periods to which they relate.

(c) Fixed Assets

Expenditure incurred on fixed assets is capitalised where such expenditure will increase or enhance the future benefits provided by the assets. Expenditure incurred to maintain future benefit is expensed in the period incurred. Fixed assets are valued at cost, adjusted for additions and disposals, less accumulated depreciation to date, except for the following three categories:

(i) Library Collection

Rare books are recorded at market value as at 30 June 1997 as determined by the Institute's librarian using published specialist price lists. This is deemed to be cost. Other books provided by the Crown are valued at depreciated replacement cost as at 30 June 1997. This is deemed to be cost. Additions are recorded at cost less accumulated depreciation. Periodicals and other materials are expensed at time of purchase.

(ii) Clothing

Clothing is valued at depreciated replacement cost as at 30 June 1997. This is deemed to be cost. Additions are recorded at cost less accumulated depreciation.

(iii) Art Collection

The art collection is recorded at market value as at 9 September 1999 as determined by H Fisher & Son Limited fine art dealers. This is deemed to be cost.

(d) Depreciation

Depreciation is provided at rates estimated to write off the cost of the assets over their estimated useful lives. Depreciation is not charged on rare books. All other assets are depreciated on a straight line basis with the following exceptions:

- (i) Computer hardware and software and communications equipment are depreciated on an accelerated basis reflecting the diminution in value as a result of rapid technological change.
- (ii) Leasehold improvements are depreciated over the life of the improvement or the life of the lease whichever is shorter.

The useful lives of major classes of assets have been estimated as follows:

Buildings	10 years
Communications Equipment	5 – 7 years
Computer Hardware and Software	3 – 4 years
Scott Base Fit Out	20 years
Leasehold Improvements	15 years
Office Equipment	5 years
Office Furniture	5 years
Plant and Machinery	10 years
Vehicles – Christchurch	7 years
Vehicles – Christchurch	10 years
Clothing	10 years
Library Collection (excluding rare books)	20 years

(e) Employee Entitlements

Provision is made in respect of liabilities for annual leave, long service leave, contribution leave and retirement leave. Calculation of the entitlement for annual leave is based on current rates of pay or the appropriate historical rate whichever is the highest. Long service leave, contribution leave and retirement leave are calculated on an actuarial basis.

(f) Debtors

Debtors are stated at their estimated realisable value.

(g) Goods and Services Tax

The Financial Statements have been prepared exclusive of goods and services tax (GST) with the exception of debtors and creditors, which are stated GST inclusive.

(h) Income Tax

Antarctica New Zealand is a public authority for the purposes of income tax legislation and is exempt from income tax.

(i) Financial Instruments

Antarctica New Zealand is party to financial instruments as part of its normal operations. These financial instruments include bank accounts, short term deposits, receivables and payables. All financial instruments are recognised in the Statement of Financial Position and all revenues and expenses in relation to financial instruments are recognised in the Statement of Financial Performance.

(j) Foreign Currency

Transactions in foreign currencies are converted at the New Zealand rate of exchange ruling on the date of the transaction. Monetary assets and liabilities are converted to New Zealand dollars at the exchange rate ruling at balance date and any exchange gains or losses are taken to the Statement of Financial Performance.

Changes in Accounting Policies

There have been no changes in accounting policies. All policies have been applied on a basis consistent with those used in previous years.

Statement of Financial Performance for the year ended 30 June 2003

	Note	2003 Budget \$000	2003 Actual \$000	2002 Actual \$000
Revenue	1	8,221	9,048	7,205
Expenses		8,209	7,933	6,950
Operating surplus/(deficit)	2	12	1,115	255
Net Surplus/(Deficit) attributable to Taxpayers	3b	12	1,115	255

Statement of Movements in Equity for the year ended 30 June 2003

	Note	2003 Budget \$000	2003 Actual \$000	2002 Actual \$000
Taxpayers funds at start of period		5,575	6,216	5,961
Net surplus/(deficit) for the period		12	1,115	255
Total Recognised Revenues and Expenses for the Period		12	1,115	255
Crown Capital Contribution		0	320	0
Taxpayers funds as at 30 June 2003		5,587	7,651	6,216

Statement of Financial Position as at 30 June 2003

	Note	2003 Budget \$000	2003 Actual \$000	2002 Actual \$000
TAXPAYERS FUNDS				
Taxpayers Funds	3a	5,587	7,048	6,216
ANDRILL Project Management Reserve	3b	0	603	0
Total taxpayers funds		5,587	7,651	6,216
Represented by:				
CURRENT ASSETS				
Cash and Short Term Deposits		869	2,757	2,197
Receivables and Prepayments	4	47	262	311
Total Current Assets		916	3,019	2,508
NON CURRENT ASSETS				
Fixed Assets	5	5,309	5,367	4,363
Total Non Current Assets		5,309	5,367	4,363
CURRENT LIABILITIES				
Payables and Accruals	6	277	579	511
Employee Entitlements	7	361	156	144
Total Liabilities		638	735	655
NET ASSETS		5,587	7,651	6,216

Statement of Cash Flows for the Year ended 30 June 2003

	Note	2003 Budget \$000	2003 Actual \$000	2002 Actual \$000
CASH FLOWS FROM OPERATING ACTIVITIES				
Cash was provided from:				
Receipts from Crown		7,794	8,259	6,326
Receipts from Customers		437	642	596
Interest Received		47	162	159
Other receipts		0	0	0
Total Receipts		8,278	9,063	7,081
Cash was applied to:				
Payments to Suppliers		(5,102)	(4,425)	(4,106)
Payments to Employees		(2,242)	(2,607)	(2,192)
GST (net)		47	(5)	5
Total Payments		(7,297)	(7,037)	(6,293)
Net Cash inflow/(outflow) from Operating Activities	8	981	2,026	788
CASH FLOWS FROM INVESTING ACTIVITIES				
Cash was provided from: Sale of Fixed Assets				
		0	26	32
Cash was applied to: Purchases of Fixed Assets				
		(1,523)	(1,812)	(1,375)
Net Cash inflow/(outflow) from Investing Activities		(1,523)	(1,786)	(1,343)
CASH FLOWS FROM FINANCING ACTIVITIES				
Cash was provided from: Capital contribution				
		0	320	0
Cash was applied to: Payment of Crown liability				
		0	0	0
Net Cash inflow/(outflow) from Financing Activities		0	320	0
Net Increase (Decrease) in Cash Held		(542)	560	(555)
Add Opening cash and short term deposits		1,411	2,197	2,752
Closing cash and deposits		869	2,757	2,197

Statement of Commitments as at 30 June 2003

	2003 Actual \$000	2002 Actual \$000
Capital Commitments	173	823
Operating Commitments	1,384	1,483
Total Commitments	1,557	2,306
Term Classification of Commitment		
Less than one year	422	422
One to two years	418	422
Two to five	544	639
Over five years	0	0
	1,384	1,483

Statement of Contingent Liabilities as at 30 June 2003

Last year the Institute reported that it was seeking clarification of how the Goods and Services Tax legislation applied to the delivery of outputs at Antarctica. Based on advice from Inland Revenue (IR) appropriate GST ratings have been applied to the Crown revenue received between 1 July 2002 to 30 June 2003.

The Institute did not seek retrospective application of zero rated supplies to Crown Revenue prior to 1 July 2002.

Notes to and forming part of the Financial Statements for the year ended 30 June 2003

Note 1

Revenue

Revenue for the 2001/02 year includes the \$61,123 of assets purchased from the proceeds of Armed Forces Canteen Council Scott Base Canteen profit share agreement. These assets were purchased over the past six years and had not previously been recognised in the financial statements.

Note 2

Operating Surplus (deficit)

	2003 Actual \$000	2002 Actual \$000
After Charging		
Remuneration of Auditor		
- Audit Fee	15	15
- Other Services	0	0
Depreciation	808	654
- Buildings Scott Base	62	44
- Leasehold Improvements	17	17
- Communications Equipment	15	19
- Plant and Machinery	144	203
- Vehicles	205	72
- Computer Hardware and Software	126	53
- Scott Base Fit Out	191	177
- Office Furniture	8	19
- Office Equipment	4	10
- Clothing and Tents	29	36
- Library Collection	7	4
- Art Collection	0	0
Directors' Remuneration	60	58
Interest Expense	0	0
Rental and Operating Lease Costs	422	422
Bad Debts Written Off	1	0
Changes in Provision for Doubtful Debts	0	(4)
Assets written off	0	30
After Crediting		
Interest Income	165	151
Gain on sale of assets	26	19

Note 3a

Taxpayer Funds

	2003 Actual \$000	2002 Actual \$000
Opening Balance	6,216	5,961
Net Surplus/(Deficit)	1,115	255
Crown Capital Contribution	320	0
Transfer to ANDRILL Project Management reserve	(603)	0
Closing Balance	7,048	6,216

**Note 3b
ANDRILL Project Management Reserve**

	2002 Actual \$000	2002 Actual \$000
Opening Balance	0	0
Transfer from Taxpayers Funds	603	0
Closing Balance	603	0

In 2002/03 the Crown funded the Institute for its share of the new Antarctic Drilling Project, ANDRILL.

ANDRILL follows on from the successful Cape Roberts Drilling Project and is a collaboration between Germany, Italy, New Zealand and the United States Antarctic Scientific programmes.

At the ANDRILL Operators Management Group meeting in Annapolis March 2003 the Institute was appointed Project Manager. The \$603,000 reserve reflects the Crown funds allocated by the Institute to the ANDRILL project but not paid out at 30 June 2003.

In the 2003/04 financial year the reserve funds will be paid out to the ANDRILL project creating an unbudgeted line item in the annual accounts.

**Note 4
Receivables and Prepayments**

	2003 Actual \$000	2002 Actual \$000
Trade Debtors	246	291
Term Deposit Interest	13	9
Provision for Doubtful Debts	(2)	(2)
Net Trade Debtors	257	298
Prepayments	5	13
Total Receivables and Prepayments	262	311

**Note 5
Fixed Assets**

2003	Cost \$000	Accumulated Depreciation \$000	Book Value \$000
Buildings Scott Base	1,136	(293)	843
Leasehold Improvements	154	(105)	49
Communications Equipment	573	(494)	79
Plant and Machinery	977	(358)	619
Vehicles	2,459	(1,191)	1,268
Computer Hardware and Software	1,079	(515)	564
Scott Base Fit out	2,848	(1,504)	1,344
Office Furniture	68	(31)	37
Office Equipment	52	(42)	10
Clothing & Tents	363	(300)	63
Library Collection	135	(48)	87
Art Collection	62	0	62
Work in Progress	342	0	342
	10,248	(4,881)	5,367

2002	Cost \$000	Accumulated Depreciation \$000	Book Value \$000
Buildings Scott Base	659	(232)	427
Leasehold Improvements	154	(89)	65
Communications Equipment	552	(479)	73
Plant and Machinery	1,934	(950)	984
Vehicles	554	(264)	290
Computer Hardware and Software	506	(423)	83
Scott Base Fit out	2,463	(1,309)	1,154
Office Furniture	49	(24)	25
Office Equipment	52	(38)	14
Clothing & Tents	328	(270)	58
Library Collection	135	(42)	93
Art Collection	62	0	62
Work in Progress	1,035	0	1,035
	8,483	(4,120)	4,363

Work in progress represents items of capital expenditure that are not operational as at balance date.

Buildings are recorded at cost, less accumulated depreciation, which in the Directors' opinion is an indication of fair value.

In addition to rare and current books, Antarctica New Zealand has a resource of periodicals, maps, slides, photographs, films and microfiche located at Antarctica New Zealand and at the University of Canterbury. These items are expensed at time of purchase. Microfiche is physically held on loan from the US National Science Foundation.

Note 6

Payables and Accruals

	2003 Actual \$000	2002 Actual \$000
Trade Creditors and Accruals	380	241
Accrued Payroll	46	41
Directors' Fees	0	0
Fuel	92	136
Other	61	93
	<hr/> 579	<hr/> 511

Note 7

Employee Entitlements

	2003 Actual \$000	2002 Actual \$000
Long Service Leave	7	8
Annual Leave	149	136
Retirement Leave	0	0
	<hr/> 156	<hr/> 144

Note 8

Reconciliation of Net Surplus to Net Cash Flow from Operating Activities

	2003 Actual \$000	2002 Actual \$000
Net Operating Surplus/(Deficit)	1,115	255
Add/(Less) Non-Cash Items		
Depreciation	808	654
Gain receivable on Sale of Assets	(26)	(19)
AFCC Assets	0	(61)
Assets written off	0	30
Total Non-Cash Items	<hr/> 782	<hr/> 604
Add/(Less) Movements in Working Capital		
(Increase)/Decrease in receivables and prepayments	49	(94)
Increase/(Decrease) in payables and accruals	80	23
Working Capital Movements – Net	<hr/> 129	<hr/> (71)
Net Cash Flow from Operating Activities	<hr/> <hr/> 2,026	<hr/> <hr/> 788

Note 9

Post Balance Date Events

No post balance date events have come to the attention of Antarctica New Zealand that are of a material nature as to require adjustment of the amounts contained in the financial statements or separate note disclosure.

Note 10

Related Party Transactions

Antarctica New Zealand is a Crown Entity. All transactions with other Crown Entities, Government departments and State Owned Entities are carried out on an arm's length basis.

The Crown has granted a license to Antarctica New Zealand in respect of the Scott Base facility. The initial term of this license was five years from 1 July 1996. The contract has been renegotiated for 5 years and awaits final signature from Treasury.

Antarctica New Zealand purchased IT hardware from Datacom Systems Limited, a subsidiary of Datacom Group Limited, of which P. M. Hargreaves, a director of Antarctica New Zealand, is also a director. The purchases were charged on normal terms and conditions. Purchases paid during the year from the point which Mr Hargreaves became a director of Antarctica New Zealand amounted to \$327,618.

Note 11
Financial Instruments

(A) Nature of activities and management policies with respect to financial instruments

1) Foreign Exchange Risk

Antarctica New Zealand undertakes transactions denominated in foreign currencies. As a result of these activities exposures in foreign currencies arise. It is the policy of Antarctica New Zealand to hedge significant currency risks associated with fuel purchases.

Antarctica New Zealand puts in place forward foreign exchange contracts to match anticipated purchases with budgeted costs for the period for which information is known.

As at balance date Antarctica New Zealand did not hold any foreign exchange cover.

2) Credit Risk

In the normal course of business Antarctica New Zealand incurs credit risk from trade debtors and financial institutions. There are no significant concentrations of credit risk from trade creditors and exposures to them are monitored on a regular basis. Antarctica New Zealand places its cash and short term investments with high quality financial institutions which limits the amount of credit exposure. No collateral or security to support financial instruments is required due to the quality of the financial institutions dealt with.

3) Interest Rate Risk

Antarctica New Zealand has no significant exposure to interest rate risk on its financial instruments.

(B) Fair Values

The estimated fair values of Antarctica New Zealand's financial assets and liabilities are as disclosed in the Financial Statements.

Note 12
Segmental Reporting

Antarctica New Zealand operates primarily in the scientific research industry in New Zealand and Antarctica.

Note 13
Remuneration of Employees and Directors

Remuneration band	No of employees
\$110,001 – \$120,000	1
\$130,001 – \$140,000	1 *

* Chief Executive Officer is in this range

Directors

Mr Chris Mace (Chairman)
Mr Paul Hargreaves
Dr Maj de Poorter
Dr Wendy Lawson
Mr Bill Mansfield
Dr Francis Small

Remuneration

\$ 10,000
\$ 10,000
\$ 10,000
\$ 10,000
\$ 10,000
\$ 10,000

Statement of Responsibility

In the financial year ended 30 June 2003, the Board and management of Antarctica New Zealand were responsible for:

- the preparation of the financial statements and the judgements used therein.
- establishing and maintaining a system of internal control designed to provide reasonable assurance as to the integrity and reliability of financial reporting.

In the opinion of the Board and management of Antarctica New Zealand, the financial statements for the financial year fairly reflect the financial position and operations of Antarctica New Zealand.



P M Hargreaves
Chairperson
26 September 2003



L Sanson
Chief Executive Officer
26 September 2003

Performance indicators

Operating Results

	2003 Budget	2003 Actual	2002 Actual
Revenue \$000	8,221	9,048	7,205
Surplus/(Deficit) \$000	12	1,115	255
Current Ratio	1.44	4.11	3.83
Working Capital	278	2,284	1,853
Ratio Personnel Expenses: Total Expenses	29.00%	32.26%	32.36%

Report of the Auditor General



Audit New Zealand

REPORT OF THE AUDITOR-GENERAL TO THE READERS OF THE FINANCIAL STATEMENTS OF THE NEW ZEALAND ANTARCTIC INSTITUTE FOR THE YEAR ENDED 20 JUNE 2003

We have audited the financial statements on pages 31 to 54. The financial statements provide information about the past financial and service performance of the New Zealand Antarctic Institute and its financial position as at 30 June 2003. This information is stated in accordance with the accounting policies set out on page 48.

Responsibilities of the Board

The Public Finance Act 1989 require the Board to prepare financial statements in accordance with generally accepted accounting practice in New Zealand that fairly reflect the financial position of the New Zealand Antarctic Institute as at 30 June 2003, the results of its operations and cash flows and service performance achievements for the year ended on that date.

Auditor's Responsibilities

Section 15 of the Public Audit Act 2001 and Section 43(1) of the Public Finance Act 1989 require the Auditor-General to audit the financial statements presented by the Board. It is the responsibility of the Auditor-General to express an independent opinion on the financial statements and report that opinion to you.

The Auditor-General has appointed K J Boddy, of Audit New Zealand, to undertake the audit.

Basis of Opinion

An audit includes examining, on a test basis, evidence relevant to the amounts and disclosures in the financial statements. It also includes assessing:

- the significant estimates and judgements made by the Board in the preparation of the financial statements; and
- whether the accounting policies are appropriate to the New Zealand Antarctic Institute's circumstances, consistently applied and adequately disclosed.

We conducted our audit in accordance with the Auditing Standards published by the Auditor-General, which incorporate the Auditing Standards issued by the Institute of Chartered Accountants of New Zealand. We planned and performed our audit so as to obtain all the information and explanations which we considered necessary in order to provide us with sufficient evidence to give reasonable assurance that the financial statements are free from material misstatements, whether caused by fraud or error. In forming our opinion, we also evaluated the overall adequacy of the presentation of information in the financial statements.

Other than in our capacity as auditor acting on behalf of the Auditor-General, we have no relationship with or interests in the New Zealand Antarctic Institute.

Unqualified Opinion

We have obtained all the information and explanations we have required.

In our opinion the financial statements of the New Zealand Antarctic Institute on pages 31 to 54:

- comply with generally accepted accounting practice in New Zealand; and
- fairly reflect:
 - _ the New Zealand Antarctic Institute's financial position as at 30 June 2003;
 - _ the results of its operations and cash flows for the year ended on that date; and
 - _ its service performance achievements in relation to the performance targets and other measures adopted for the year ended on that date.

Our audit was completed on 10 October 2003 and our unqualified opinion is expressed as at that date.

K J Boddy
Audit New Zealand
On behalf of the Auditor-General
Christchurch, New Zealand

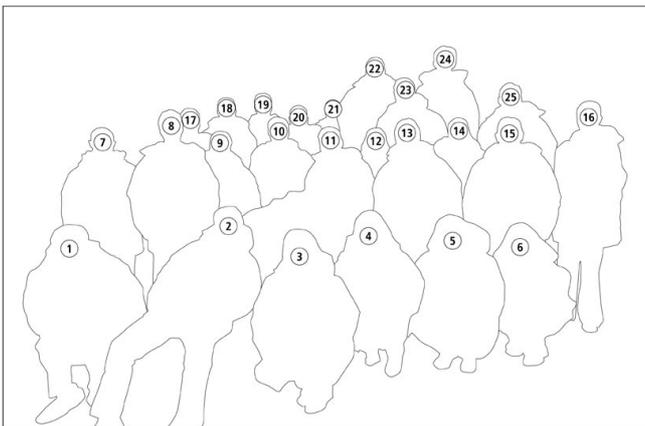
Acronyms

AEON	Antarctic Environmental Officers Network
AHT	Antarctic Heritage Trust
ANDRILL	Antarctic Drilling Project
ASA	Antarctic Support Associates
ASMA	Antarctic Specially Managed Areas
ASOC	Antarctic and Southern Ocean Coalition
ASPA	Antarctic Specially Protected Area
ATCM	Antarctic Treaty Consultative Meeting
ATCP	Antarctic Treaty Consultative Parties
ATS	Antarctic Treaty System
BIOROSS	Biodiversity of the Ross Sea
CCAMLR	Convention for the Conservation of Marine Living Resources
CEE	Comprehensive Environment Evaluation
CEP	Committee for Environmental Protection
CEMP	CCAMLR Ecosystem Monitoring Programme
COMNAP	Council of Managers of National Antarctic Programmes
CORE	Centre of Research Excellence
EARP	Environmental Assessment Review Panel
EIA	Environmental Impact Assessment
FRST	Foundation for Research, Science and Technology
IAATO	International Association of Antarctic Tour Operators
IEE	Initial Environmental Evaluation
IGY	International Geophysical Year
IMO	International Maritime Organisation
IMS	Information Management System
IPCC	Intergovernmental Panel on Climate Change
LGP	Latitudinal Gradient Project
MFAT	Ministry of Foreign Affairs and Trade
MFE	Ministry for the Environment
Mfish	Ministry of Fisheries
MoRST	Ministry of Research, Science and Technology
NASA	National Aeronautics and Space Administration
NGOs	Non-Governmental Organisations
NIWA	National Institute of Water and Atmospheric Research
NSF	National Science Foundation (USA)
OAC	Officials Antarctic Committee
PEE	Preliminary Environmental Evaluation
SCAR	Scientific Committee on Antarctic Research
SSSI	Site of Special Scientific Interest
UNEP	United Nations Environmental Programme
UNFCCC	United National Framework Convention on Climate Change
USAP	United States Antarctic Programme
WAIS	West Antarctic Ice Sheet
WINFLY	Winter Flights
WMO	World Meteorological Organisation

Scott Base Staff: Names and Positions 2002/2003 Season

Margaret Auger – Domestic (s) Science Technician (w)
 Doug Bell – Electrician (s) Winter Manager (w)
 Peter Brookman/Dene Robinson – Scott Base Managers
 Helen Brown – Domestic
 Steve Brown – Carpenter
 Shauna Campbell – Comms Operator (NZDF)
 Sam Claridge – Canteen Manager (AFCC)
 Jim Cowie – Scott Base Operations Manager
 Kim Dudek – Plant Operator (NZDF)
 Sue Green – Second Chef (s) Chef (w)
 Barry Herrick – Mechanic
 Kyle Hunter – Painter/Decorator (w)
 Hailey Ingle – Comms Operator (NZDF)
 Aaron Lock – Chef
 Steve Locke – Telecom Technician
 Gus McGregor – Plant Operator (NZDF)
 Fabian McQueen – Cargo Handler (NZDF)
 Shannon Mitchell – Comms Ops (NZDF)
 Ewan Paterson – Field Support Assistant
 Ma Peters (NZDF) – Base Services Manager
 Aaron Poroa-Simmons – Stores Person (NZDF)
 Anthony Powell – Telecom Technician (w)
 Glenn Powell – Base Engineer (w)
 Cath Slee – Domestic/First Aider
 Julie Smith – Domestic
 Phil Snelling – Carpenter (w)
 Keith Springer – Scott Base Operations Coordinator
 Brian Staite – Field Support Officer
 Andre Tana – Comms Operator (NZDF)
 Rob Teasdale – Mechanic
 Shane Thomson – Science Technician
 Peter Wederell – Base Engineer (s) Engineering Manager (w)
 Steve Wells – Comms Operator (NZDF)
 Carl Williams – Comms Operator (NZDF)

Antarctica New Zealand Staff



Antarctica New Zealand Christchurch Staff

1. Jim Cowie – ANDRILL Project Manager
2. Shulamit Gordon – Science Advisor
3. Shelly Peebles – Communications Manager
4. Alison Whitaker – Receptionist
5. Natalie Cadenhead – Information Services Specialist
6. Miranda Huston – Environmental Researcher
7. Neil Gilbert – Environmental Manager
8. Dr. Dean Peterson – Science Strategy Manager
9. Jeanette Tamakehu – Accounts
10. Keith Springer – Programme Support Manager
11. Lou Sanson – Chief Executive
12. Michelle Jones – Executive Assistant
13. Prue Sullivan – HR Advisor
14. Rebecca Roper-Gee – Environmental & Policy Officer
15. Peter Brookman – Facilities Engineer
16. Jess McDuff – Office Assistant
17. Dene Robinson – Corporate Services Manager
18. Paul Woodgate – Movements Controller
19. Julian Tangaere – Operations Manager
20. David Callis – Pictorial Assistant
21. Kevin Rigarfsford – Maintenance & Field Engineer
22. Rob Stewart – Movements Officer (cargo)
23. Michael Nottage – Inventory/Purchasing Controller
24. Kevin Leech – Movements Officer (clothing)
25. Peter Cleary – Operations Planner

Antarctica New Zealand

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Antarctica New Zealand

New Zealand Antarctic Institute