

2006/2007 Research Season – Events

Antarctica New Zealand

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2006/2007 RESEARCH SEASON

EVENT SUMMARIES AND CONTACT INFORMATION

Event K001 ANDRILL Operations & Logistics Preparation

26-Aug-06 to
22-Feb-07
McMurdo
Ice Shelf,
McMurdo
Station, Scott
Base

Antarctica New Zealand, Christchurch. Jim Cowie, Phone: (03) 358 0240, Fax: (03) 358 0211, Email: j.cowie@antarcticanz.govt.nz

ANDRILL (ANtarctic DRILLing) is an international scientific drilling project following on from the Cape Roberts Project (CRP) 1995-2000. Antarctica New Zealand is the Project Operator on behalf of the four participating countries – Germany, Italy, NZ and USA. The purpose of the drilling is to recover ancient rock cores from sub-sea floor sites in the McMurdo Sound area using the McMurdo Ice Shelf and the annual sea ice as the drilling 'platform'. The cores analyses will tell us of past ice shelf responses to climate forces over the last 60,000 years, and provide a way forward to speculate on future climate patterns and change. The first hole is to be drilled under the McMurdo Ice Shelf (MIS) about 10kms SE of Scott Base in summer season 2006-2007.

Event K002 Latitudinal Gradient Project (LGP)

Darwin
Glacier,
Scott Base

Antarctica New Zealand, Christchurch. Shulamit Gordon (Project Manager), Phone: (03) 358 0200 Fax: (03) 358 0211 E-mail: s.gordon@antarcticanz.govt.nz

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 is providing the logistical capabilities for research camps to be located at specific sites along the Victoria Land coast. Thus, the opportunity to work at particular locations in collaboration with other scientists from various disciplines and National Antarctic Programmes is provided. K002 covers the terrestrial work that will be undertaken in the Darwin Glacier region under the LGP. This year is a recon year to support a full research season next year. The following New Zealand events will be visiting the Darwin Glacier region season: K024, K081, K056 (see individual event entries for research summary).

Event K003 Latitudinal Gradient Project (LGP)

02-Nov-06 to
22-Dec-06
Gondwana
Station,
Scott Base

Antarctica New Zealand, Christchurch. Shulamit Gordon (Project Manager), Phone: (03) 358 0200 Fax: (03) 358 0211 E-mail: s.gordon@antarcticanz.govt.nz

See above for LGP abstract. K003 covers the marine studies that will be undertaken in the Terra Nova Bay area under the LGP. The researchers will be located at the German base, Gondwana. The following New Zealand events will be undertaking research here: K018, K043, K066, K082 (see individual event entries for research summary).

Event K015 The Structure and Age of Antarctic sand Dunes

27-Nov-06 to
22-Dec-06
Packard Glacier
Vida Lake,
Scott Base

Department of Geology, Auckland University, Private Bag 92019, Auckland. Paul Augustinus, Phone: (09) 373 7599 Ext: 87603, Fax: (09) 373 435, E-mail: p.augustinus@auckland.ac.nz

Within the Victoria Valley there is a dune field that includes barchanoid, transverse and whaleback dunes (Selby 1974, Calkin and Rufford 1974). The structure of barchanoid and transverse dunes is well known from hot dry deserts and it is presumed that the internal structure will be similar for cold climate dunes although the effects of permafrost, alternating snow and sand laminae and seasonal freeze thaw are yet to be determined. The internal structure of whaleback dunes is unknown. This study will use ground-penetrating radar (GPR) to investigate the internal structure of the sand dunes in Victoria Valley sector of the McMurdo Dry Valleys, Antarctica. The results will lead to increased understanding of the formation of cold climate dunes

and help to interpret dunes of similar morphology on Mars. Optically stimulated luminescence (OSL) dating of dune sand will be used to investigate the timing of formation of the dunes and the rates of dune migration. The combination of GPR and OSL has recently been used to determine the rates of migration of desert dunes in Namibia (Bristow et al. 2005) and this methodology will be applied to cold climate dunes for the first time in this study.

Event K018

Event K018 Latitudinal patterns in the Ross Sea meroplankton – Terra Nova Bay
09-Nov-06 to **School of Biological Sciences, Auckland University, Private Bag 92019, Auckland.**
15-Dec-06 **Dr Mary A Sewell, Phone: (09) 373 7599 Ext: 83758, Fax: (09) 373 7417,**
Gondwana **E-mail: m.sewell@auckland.ac.nz**
Station,
Scott Base

The pelagic community of the Ross Sea consists of a permanent component (= holoplankton) and a temporary component which is primarily made up from the larval stages of benthic marine invertebrates and fish (the meroplankton). To date little attention has been paid to the distribution and abundance patterns of the meroplankton in the Ross Sea. In research conducted in the 2002/2003 season (K-018) we used a combined morphological and molecular approach to identify the common larval “types” collected from McMurdo Sound near Scott Base. In the 2003/2004 and 2004/2005 seasons we extended sampling for marine invertebrate larvae out of McMurdo Sound and into the Ross Sea at Cape Hallett; allowing a broader based study of Antarctic larval forms. In this research we will continue sampling the latitudinal gradient along the Victoria Land coast by collecting plankton for two consecutive seasons (2006/07, 2007/08) in the Terra Nova Bay area. Sampling will involve daily quantification of the distribution and abundance of the common larval forms identified in previous research and the study of “new” northern Ross Sea larvae.

Event K023 Resolving Environmental Drivers for Microbial Biodiversity in Antarctic Dry Valley Mineral Soils
23-Nov-06 to **Department of Biological Sciences, University of Waikato, Private Bag 3105, Hamilton.**
12-Dec-06 **Professor Craig Cary, Phone: (07) 838 5493, Fax: (07) 838 4324,**
ASP A 130, **E-mail: caryc@waikato.ac.nz**
Battleship

Promontory,
Beacon Valley, This project aims to extend our current research program (K-023) designed to elucidate the environmental drivers controlling the diversity and genetic function of microbial communities in Antarctic Dry Valley mineral soils. We will address four basic questions: 1) What is the active fraction of the detectable microbial diversity in terrestrial cold-desert biotopes? 2) What physicochemical factors control microbial biomass, activity and diversity? 3) How can an assessment of metabolic gene diversity be used to evaluate microbial community structure and interactions. 4) How can metagenomic and classical methods be used to access valuable organisms, genes and gene products in uncultured Antarctic microbiota? Our intent is to continue to investigate unique physical/nutrient gradients (altitudinal, moisture, C/N enrichment, and specialized soil microhabitats) located in the Meirs Valley and other relevant Dry Valley sites. These studies will employ a suite of modern molecular genetic approaches in parallel with micro-environmental monitoring. While these methods are widely validated in studies of microbial molecular ecology, they have, to date, not been applied in any comprehensive study of microbial populations inhabiting Antarctic terrestrial environments.

Event K024 Terrestrial Biodiversity in Southern Victoria Land
A, B & C Department of Biological Sciences, University of Waikato, Private Bag 3105, Hamilton.
29-Dec-06 to **Professor T G Allan Green, Phone: (07) 838 4225, Fax: (07) 838 4324,**
06-Feb-07 **E-mail: greentga@waikato.ac.nz**
ASP A 138,

This research focuses on describing and interpreting biodiversity of terrestrial

ASPAs 124,
Falconer Mt,
Nussbaum
Riegel,
Darwin Glacier,
Scott Base

ecosystems in the Ross Dependency and continues previous research based on a successful mixture of classical and molecular taxonomy. Antarctic terrestrial research is about to go through several paradigm shifts. Rather than a decline in biodiversity at higher latitudes with increasingly extreme environments it seems more likely that we have a contraction to sites with better microclimates with actual species present determined by a colonisation lottery. The organisms present may not all be recent colonists but, rather, have expanded from refugia; endolithic systems, supposedly thousands of years old, are dated to less than a century. We intend to continue to test these new ideas by extending sampling (invertebrates, lichens and mosses) to the Darwin region (LGP site) and inland from Granite Harbour. We are also introducing an Archiving Change programme to capture existing information for well-researched sites that can be used to monitor and detect change. Our research fits with the New Zealand Science Strategy and LGP (Latitudinal Gradient Programme) and will provide improved capacity for New Zealand to meet its current and future obligations in managing Antarctic terrestrial ecosystems.

Event K025 **Determining Unique Genetic, Co-Evolutionary, and Metabolic Patterns/Rates that Preval in Polar Environments**

23-Nov-06 to
02-Feb-07
Bird Cape,
Scott Base

Allan Wilson Centre for Molecular Ecology and Evolution, Massey University, Palmerston North, 06 350 5515 x 7626, E-mail: a.mcgaughran@massey.ac.nz

My PhD is centred around deciphering the unique evolutionary patterns that prevail in polar environments. One aspect of my project will be to test springtail and mite samples for the presence of endosymbiotic bacteria such as Wolbachia, Rickettsia and Spiroplasma, which has not been done before in Antarctic species. If I find evidence for coexistence of these different bacterial types within mite and springtail species, then I will be able to produce a co-phylogeny. Co-evolutionary information will inform my PhD project by determining how long, if present, these bacterial species have been with springtails and mites, and therefore how the evolutionary histories of all the studied species overlap.

Additionally, to adequately interpret evolutionary history, we must understand the evolutionary rates of the organisms of study, particularly in the cold where unique constraints on life evoke distinctive adaptive mechanisms. For example, biotic factors such as life cycle length, organism activity and metabolic rates are thought to potentially affect DNA mutation rates and it is postulated that low environmental temperatures in polar regions tend to lengthen life cycle (due to a short annual growing season). This, in turn, would reduce overall activity and potentially slow rates of molecular evolution (e.g. through a reduced mutation rate). A sound and sensible theory perhaps, however the hypothesis that significant geographic variation in rates of evolution may exist has been examined quite vigorously and there have been many conflicting results. Accordingly, my project allows me to attempt to resolve this issue through investigation of variation in activity (energetic budgets), along a latitudinal gradient, by coupling behavioural observations with measurements of in situ microclimate parameters and respiration/metabolic rates at selected Antarctic sites.

Event K029 **Gut Micro-organisms of Antarctic Mega-fauna. Is Everything, Everywhere?**

13-Nov-06 to
21-Nov-06
ASPAs 124,
ASPAs 137,
Butter Point,
Chocolate Cape,
Evans Cape,

Centre for Biodiversity and Ecology Research (CBER), Department of Biological Sciences, Private Bag 3105, University of Waikato, Hamilton. Dr Jonathan Banks, Phone: (07) 838 4139, Fax: (07) 838 4324, E-mail: jbanks@life.uiuc.edu

The constituents of bacterial communities, their diversity and biogeography, are understood poorly and yet microbial ecology drives Earth's ecology [1]. The predominant theory in microbial diversity has been that "everything is everywhere, the environment selects" [2]. However, genetic data from bacteria are revealing that endemism exists

Scott Base, West Dailey Island within the microbial world and that everything is not everywhere. Although the relatively recent arrival of humans in Antarctica and the continent's physical separation appears to have limited the introduction of pathogens associated with human activity, there have been disease outbreaks in Antarctic wildlife, possibly due to human activities. There is a lack of knowledge about the route novel micro organisms might take if introduced to naïve Antarctic host populations, in part because the probability of detecting an individual animal with active disease is extremely low. We will overcome the low probability of detecting active disease by using the genetic distances between populations of benign gastrointestinal bacteria to model the pattern of transmission of bacteria around the Ross Sea. This study will also provide insight into the evolution of gut micro-organisms and the information obtained may be significant in ensuring the conservation of the Ross Sea's charismatic and iconic mega-fauna in an environment predicted to change markedly.

Event K042 Cape Roberts Tide Gauge check

17-Nov-06
Roberts Cape, Scott Base
Antarctic Research Centre, Victoria University of Wellington, PO Box 600, Wellington. Mr Alex R Pyne, Phone: (04) 463 5396, Fax: (04) 463 5186, E-mail: Alex.Pyne@vuw.ac.nz
The Cape Roberts Tide gauge was initially established in 1990 by VUW to support marine geological investigations and the Cape Roberts Project drilling operations in the last ten years. A permanent installation has been established and has continued operating since 1990 providing the longest tidal record for the Ross Sea region of Antarctica. The operation of the tide gauge has encouraged USGS and Ohio State University workers to establish Cape Roberts as a primary datum for their GPS stress and deformation control network in South Victoria Land. In 2000 LINZ in partnership with USGS have established a continuously recording GPS station at Cape Roberts that will also require continued tidal records. LINZ bathymetric survey commitments in the Ross Sea (C. Adare and C. Hallet) require a linked Ross Sea tidal datum and the Cape Roberts Tide gauge data recording was modified in 2000/2001 for this purpose. New drilling initiatives proposed in Granite Harbour will also require continued tidal data recording. The installation will be serviced by VUW, supported by LINZ and data archived by LINZ.

Event K043A Antarctic Sea Ice and Pelagic Microbial Communities: Latitudinal influences on Biodiversity and Productivity

09-Nov-06 to 15-Dec-06
Evans Cape, Gondwana Station, Scott Base
School of Biological Sciences, Victoria University of Wellington, Private Bag 600, Wellington. Dr Ken Ryan, Phone: (04) 463 6083, Fax: (04) 463 5331, E-mail: ken.ryan@vuw.ac.nz
Each year, an area of Antarctic sea ice more than twice the size of Australia forms during winter and melts in summer; a process that is perhaps the most dramatic seasonal change on Earth. This ice provides a unique habitat for growth of the micro-organisms that provide the energy base for marine life in ice covered regions. This ice bound microbial community is one of the most diverse forms of life in Antarctica, but we still do not understand how it supports local ecosystems, and as far as the bacterial component is concerned, we do not even know what is there. We will assess the biomass and productivity of the algal component as well as their responses to environmental stresses using PAM fluorometry and oxygen microelectrodes. We will also determine bacterial biodiversity using DNA-identification technologies. We will link productivity and biomass measurements with physical and geographic data into a mathematical model of population dynamics for sites along the western coast of the Ross Sea. The model will describe a baseline for the state of health of the population and will be used to predict future scenarios of reduced ice at sites further south. The work will be an integral part of the "Latitudinal Gradient Project", will build on previous

seasons results, and will assess of the effect of global climate change on productivity and biodiversity in Antarctic coastal ecosystems.

Event K049 NZ ITASE – Erebus Drilling: Climate Change along the Victoria Land Coast
A, B & C Antarctic Research Centre, Victoria University of Wellington, PO Box 600, Wellington.
13-Oct-06 to **Ms Nancy Bertler, Phone: (04) 463 5233 ext 8391, Fax: (04) 463 5186,**
29-Dec-06 **E-mail: nancy.bertler@vuw.ac.nz**

Malta Plateau, Unprecedented changes are occurring in the Earth's climate. The 1990's were the warmest decade in the last 2000 years and average global temperature is projected to rise between 1.4°C and 5.8°C by 2100 [IPCC, 2001]. Although the scientific evidence of global warming is now widely regarded as incontrovertible, predicting regional impacts is proving more problematic. Especially, conclusions of the Southern Hemisphere record are limited by the sparseness of available proxy data at present [Mann and Jones, 2003]. We propose to use ice cores from the Antarctic margin to address the lack of longer-term, high-resolution climate observations in the Southern Hemisphere. We will recover a series of ice cores from glaciers along a 14 degree latitudinal transect of the climatically sensitive Victoria Land coastline and thereby directly contribute a critical dataset of ITASE, AGCS, ACE, and the NZ-led Latitudinal Gradient Project, as well as providing essential reference records for the NZ-led ANDRILL objective to obtain a high-resolution sedimentary archive of Ross Ice Shelf stability. Our results will help to improve our understanding of regional patterns of climate behaviour, leading to more realistic regional climate models. Such models are needed to sensibly interpret Antarctic climate records and for the development of appropriate mitigation strategies for New Zealand.

Event K051 The Heimdall Erosion Surface
02-Jan-07 to **Department of Geological Sciences, University of Canterbury, Private Bag 4800,**
30-Jan-07 **Christchurch. Margaret Bradshaw, Phone: (03) 364 2954, Fax: (03) 03 364 2769,**
Balham Valley, **E-mail: Margaret.brandshaw@canterbury.ac.nz**

Electra Mt, The proposal is to look at the sedimentary history of the lower Taylor Group and seek possible tectonic triggers for the formation and development of the initial Beacon basin. Hercules Mt, The quartz enriched composition of the Taylor Group has been taken to indicate a relatively quiescent tectonic setting. There has been little research on the origin and Jason Mt, cause of the subsidence of the sedimentary basin in which the Taylor Group was deposited, or on the origin of the erosion surface that appears to subdivide the lower part of the group. Recent research suggests that new sediment sources, the result of uplift, are associated with the Heimdall Erosion Surface and may indicate a tectonic driver for sedimentation. Does the discontinuous nature of the Erosion surface indicate the rejuvenation of remnant paleogeography by broad tectonic warping or does it indicate local faulting and tectonic motions within the southern Victoria Land basin? The proposed research will focus on the Heimdall Erosion Surface and will test the hypothesis that the surface is of regional significance and is one of the 'far-field' effects of orogenesis in the Australia-Antarctica Lachlan Fold belt.

Event K054 Non-Invasive Imaging of Polygonal Patterned Ground
20-Nov-06 to **Department of geological sciences, University of Canterbury, private Bag 4800,**
23-Jan-07 **Christchurch. Dr David Nobes, Phone: (03) 364 2987 Ext: 773, Fax: (03) 364 2769,**
Beacon Valley, **E-mail: david.nobes@canterbury.ac.nz**

Taylor Valley, Permafrost and polygonal patterned ground (PPG) have been extensively studied in the Arctic, but they have received much less attention in the cold hyperarid McMurdo Victoria Valley, Lower, Dry Valleys of Antarctica. The ice-free Antarctic regions are the best terrestrial analogue Scott Base for permafrost and patterned ground on Mars, and our best hope for studying these processes in detail. Many fundamental questions remain, including: What is the depth to and thickness of ice cement? How prevalent and thick are buried massive ice

bodies? What is the depth to bedrock?

Our aim is thus to understand the subsurface properties of polygonal patterned ground (PPG), and to attempt to resolve competing theories of PPG activity. In addition to studying the surface morphology and stream cuts of patterned ground, we will use non-invasive, non-destructive geophysical methods to obtain three-dimensional images of the subsurface beneath PPG in the McMurdo Dry Valleys. Such imaging of PPG is important because: (1) PPG is sensitive to climatic change, (2) studies of analogue PPG in the Antarctic Dry Valleys is our best opportunity to understand Martian subsurface conditions and processes, and (3) the geophysical surveys will leave the PPG relatively undisturbed in this sensitive region.

Event K055 Dynamics and Ionization in the Antarctic Middle Atmosphere

23-Nov-06 to
15-Dec-06
Arrival Heights,
Scott Base

Department of Physics and Astronomy & Gateway Antarctica, University of Canterbury, Private Bag 4800, Christchurch. Adrian McDonald, Phone: (03) 364 2281, Fax: (03) 364 2469, E-mail: a.mcdonald@phys.canterbury.ac.nz

This program continues the long-term monitoring of the middle atmosphere with the MF radar at Scott Base. The monitoring is of significant interest because General Circulation Model simulations have suggested that the mesosphere is a particularly sensitive region to climate change. In particular, the variations in temperature predicted in the mesosphere are significantly larger than those predicted at the surface. This long-term monitoring function is particularly important because the radar system has been in operation since late 1982 and makes up the longest duration continuous climate record of this type in the world. The fundamental goal of this research programme is to study the seasonal and intra-seasonal behaviour of the wave-driven circulation, particularly its dependence on major disturbances from the troposphere and stratosphere which result in the transport of energy and momentum by waves to higher altitudes. This transport generates forces that drive the flow in the middle atmosphere and play a significant role in the formation of the polar vortex. Planetary scale waves in the stratosphere have also been shown to have a significant impact on year-to-year variations in the ozone depletion observed over Antarctica.

Event K056 Dynamics and Change of the Darwin-Hatherton Glacial System

27-Nov-06 to
06-Feb-07
Darwin Glacier,
Scott Base

Director, Gateway Antarctica, University of Canterbury, Private Bag 4800, Christchurch. Prof. Bryan Storey, Phone: (03) 364 2368, Fax: (03) 364 2197, E-mail: bryan.storey@canterbury.ac.nz

The Darwin-Hatherton glacial system offers a unique opportunity to investigate the response of the Antarctic Ice Sheet to future climate change. As well as draining the East Antarctic Ice Sheet into the Ross Ice Shelf, there is plenty of evidence of its past glacial history preserved in marginal moraine sequences. Earlier research has produced differing estimates of the amount and rate of recent change in the system, partly because of the absence of measurements of key controlling parameters including ice thickness, mass balance and climate. This research takes an integrated earth systems approach by combining glacial, geomorphological and climatological methodologies to obtain a set of information that will enable the system to be characterised and understood. This will include the collection of field data on glacier dynamics and thickness, the origin, nature and age of moraine sequences and the key characteristics of the mesoscale and local climate regimes. Remote sensing will be used to develop preliminary geomorphological maps of the area that will aid the field interpretation of its recent glacial history as well as determine the surface velocity field of the glacial system. Numerical modelling will then be employed to describe the past history of the system and to predict how it might respond to different future scenarios of climate change.

Event K057 Temperature and Cardiovascular Physiology of Antarctic Fish

19-Oct-06 to
05-Dec-06
Scott Base

Department of Zoology & Gateway Antarctica, University of Canterbury, Private Bag 4800, Christchurch. Associate Professor William Davison, Phone: (03) 364 2029, Fax: (03) 364 2024, E-mail: Bill.Davison@canterbury.ac.nz

Global climate change appears to be increasingly affecting the world's ecosystems. Antarctic fish are generally regarded as examples of extreme stenotherms, lacking an ability to compensate for even small changes in water temperature, and thus susceptible to climate change. However, recent research has shown that at least some species are able to tolerate and even acclimate to increased temperatures, showing major changes to swimming ability, cardiac function and enzyme activity. The proposed programme seeks to investigate the mechanisms behind these changes, in particular looking at cardiovascular and respiratory systems, as uptake of oxygen and its distribution are fundamental to survival. The function of the cardiovascular system in whole animals will serve as a base line for studies at the organ and tissue level and ultimately at the cell and molecular level. This integrated approach will allow us to unravel the mechanisms that allow these fish to survive in what are regarded as hostile environmental conditions.

Event K058 Lipid Metabolism and Temperature Adaptation in Antarctic Fish

19-Oct-06 to
12-Dec-06
Mario Zucchelli
Station, Scott
Base

School of Biological Sciences, University of Canterbury, Private Bag 4800, Christchurch, New Zealand. Dr Victoria Metcalf, Phone: (03) 364 2987 ext 4848, Fax: (03) 364 2590, E-mail: Victoria.metcalf@canterbury.ac.nz

Notothenioid fish, the dominant fauna of the Southern Ocean, show substantial adaptation to the frigid waters they inhabit. Their preferred oxidative metabolic fuels are fatty acids and they also lay down significant lipid deposits, which aid in buoyancy. Yet at least one notothenioid species, the Antarctic toothfish, *Dissostichus mawsoni*, lacks the major fatty acid transporter albumin in its blood and instead transports fatty acids using high density lipoprotein. The loss of albumin in the toothfish may be a means of further reducing blood viscosity, aiding survival in subzero water temperatures. This project will use biochemical and genetic approaches to determine if loss of albumin is common and to establish the mechanism of LCFA transport in Antarctic fish. Whether notothenioid fish lack expression of the albumin protein, lack transcription of the mRNA or lack the albumin gene will be determined. The determination of genetic sequences for other genes involved in lipid metabolism will start to provide a more complete picture of the primary metabolic pathway in Antarctic fish. To complement this, assaying for changes in gene expression of selected genes, including those involved in lipid metabolism, when fish are acclimated to warmer temperatures, will tell us much about how temperature adaptation occurs and provide insights into what their capacity is for adaptation, given the likelihood of global warming.

Event K061 Clues from Ferrar Province: Dikes and Sills in the Transantarctic Mountains about Interaction of Flood-Basalt Magmas with Tectonics at the time of Gondwana Break-up

20-Nov-06 to
16-Jan-07
Rosscollin Tor,
Trudge Valley,
Scott Base

Geology Department, University of Otago, PO Box 56, Dunedin. Dr James D L White, Phone: (03) 479 7519, Fax: (03) 479 7527, E-mail: j.white@otago.ac.nz

Large Igneous Provinces (LIPs) form by the movement of large volumes of magma from the mantle to the crust and earth's surface. Magma is distributed in both lava flows (flood basalts) and through subsurface sheets whose solidified remnants are dikes and sills. The mode of magma distribution in the plumbing system of LIPs is not well known, and this study of Ferrar Dolerite dikes and sills, well-exposed in the Dry Valleys and other parts of the Transantarctic Mountains, will help constrain interpretations of magma emplacement in this province. We will combine physical

volcanology, structural geological analysis, and focussed petrological study to determine the tectonic context of intrusion, modes of magma movement, and degree of interaction with the walls of the magma transport system. The resulting multicomponent dataset will be the first of its kind. In addition, we will assess the physical effects of these intrusions as thick and extensive tabular sheets of rock in the structural evolution of the Transantarctic Mountains. Results of the research will inform studies of other basaltic large igneous provinces, of intrusion dynamics in all types of volcanic systems, of processes that shaped the Transantarctic Mountains, and of the breakup of Gondwana.

Event K064 Thermal and Mechanical Processes beneath Cold Ice

26-Dec-06 to 06-Feb-07 **Department of Geography, University of Otago, PO Box 56, Dunedin. Assoc. Prof. Sean Fitzsimons, Phone: (03) 479 8786, Fax: (03) 479 9037, E-mail: sjf@geography.otago.ac.nz**

Minna Bluff, Strand Moraine, Wright Glacier Lower, Scott Base
This proposal seeks support for an investigation of the thermal and mechanical processes that occur beneath cold ice. The proposed research is aimed at understanding the interactions between glacier ice and its substrate by examining the composition, structure and deformation of ice at the margins of glaciers in the McMurdo dry valleys and at the edge of the McMurdo ice shelf. The specific objectives of the research in 2006/07 and 2007/08 are: to understand whether the co-isotopic signal of regelation can be concealed by coarse-scale sampling of ice; to understand how the composition of water is altered as it is frozen to the bottom of floating and grounded ice; to develop an understanding how regelation processes drive sediment entrainment. The proposed study is a development of research that has previously been focussed on the mechanical behaviour of basal ice in glaciers in the McMurdo dry valleys.

Event K064A Behaviour of Cold-Based Glaciers

Department of Geography, University of Otago, PO Box 56, Dunedin.

Shelley MacDonell (Sir Robin Irvine Scholar), Phone: (03) 479 8786, Fax: (03) 479 9037, E-mail: macsh330@student.otago.ac.nz

Glaciers are important indicators of climate change due to their intimate connection with climate patterns. In Antarctica, predictions of future climate change have focused on the large ice sheets and ice shelves, with valley glaciers on the continent being largely ignored. Consequently, sea level rise approximations are conservative. One way to rectify this situation is to monitor the hydrology of these glaciers. By considering the hydrology of McMurdo Dry Valley glaciers, questions from the Science Strategy regarding climate change predictions for the Ross Sea region can be answered, an important undertaking as we approach the International Polar Year. This proposal will take a watershed approach of hydrology in the Wright Lower Basin, connecting the glacier with the proglacial stream. The research aims to understand melt processes and drainage configurations, and to characterise glacier hydrochemistry, leading to the construction of a hydrological model.

Event K066 Latitudinal Gene Drift in Marine and Terrestrial Organisms from the Ross Sea Region

09-Nov-06 to 15-Dec-06 **Department of Biochemistry, University of Otago, PO Box 56, Dunedin. Craig Marshall, Phone: (03) 479 7570, Fax: (03) 479 7866, E-mail: craig.marshall@stonebow.otago.ac.nz**

Gondwana Station, Scott Base
Marine and terrestrial organisms have been exposed to quite different environments since Antarctica separated from the rest of Gondwana and cooled. There is evidence of significant variation in sea temperature and in the extent of ice shelves since Antarctica froze. Antarctic marine systems are thought to be potentially well-mixed allowing organisms to move from place to place relatively easily. Notothenioid fish dominate the Antarctic fish fauna and are quite speciose implying that some mechanism must exist to isolate individual populations long enough for new species to arise. It is not clear what mechanisms might be responsible for such isolation and whether

ice shelf advance or retreat, or both, may be important in sympatric isolation. In contrast, land organisms such as nematodes, typically inhabit ice-free refugia that comprise only a few percent of the area of the continent. Animals from these areas show much stronger regional variation and a different pattern of speciation to those from marine environments and it is clearer what mechanisms might operate to isolate each site. To try and understand the relationship between changes in climate and speciation, we will collect material from both marine and terrestrial animals, determine their phylogenetic histories, and compare these with what is known of changes in climate.

Event K069 Monitoring Magnetosphere-Ionosphere Coupling and Space Weather in the polar region

05-Jan-07 to
16-Jan-07
Arrival Heights,
Scott Base

Professor Brian Fraser & Professor Richard Dowden, Department of Physics, University of Newcastle, NSW 2308, Australia. Professor Brian Fraser, Phone: (+61) 2 4921 5445, Fax: (+61) 2 4921 6907, E-mail: bhhjf@cc.newcastle.edu.au Department of Physics, University of Otago, PO Box 56, Dunedin. Professor Richard Dowden

This project will provide a better understanding of the volatility of near-Earth space, a plasma region populated by ionised gas embedded in the geomagnetic field. Energy from the Sun must pass through many important regions and boundaries to reach Earth, including the magnetosphere and the ionosphere. The dynamic behaviour of this plasma system, now referred to as “space weather” is of vital importance to life on our planet, and its effects are best studied at high latitudes, e.g. the aurora. Space weather can disrupt the operation of satellites, radio and GPS navigation and power distribution systems. The results of this project will provide important input parameters to global magnetospheric circulation models currently under development for space weather forecasting. In particular, it will study the dynamics and topology of the southern high latitude cusp and polar cap, geomagnetic field regions open to direct solar influence. Ultra-low frequency (ULF) waves will be used as tracers to study plasma dynamics and magnetosphere-ionosphere coupling.

The Scott Base magnetometer and optical imager data, in conjunction with international observations from Australian bases, USA-UK-Japan-China polar cap remote sites will provide the basic dataset.

Event K081 Antarctic Inland Aquatic Ecosystems

A, B & C

08-Nov-06 to
06-Feb-07
Bratina Island,
Darwin Glacier,
Hoare Lake,
Scott Base

NIWA, PO Box 8682, Christchurch. Dr Brian Sorrell, Phone: (03) 348 8987, Fax: (03) 348 5548, E-mail: b.sorrel@niwa.co.nz

This programme will provide information on Antarctica’s inland aquatic ecosystems, focusing on ponds and lakes. It will determine how climate (temperature, wind, and irradiance) influence physical and chemical characteristics of these habitats, and how these characteristics in turn affect diversity and productivity of biological communities.

This will be done by linking climate-driven models that describe the physical and chemical processes that in turn determine key biological processes (photosynthesis, respiration, nutrient transformations) within the dominant microbial communities. Work will focus on the McMurdo Dry Valleys, Darwin Glacier and the McMurdo Ice Shelf. As part of the Latitudinal Gradient Project, we will use natural environmental gradients to provide a range of conditions within which to further develop and test these models. As part of the US Long Term Dry Valleys Ecological Research project we will also use the long-term datasets to examine inter-annual variability. The ultimate goal is to assessing the resistance and resilience of aquatic ecosystems to climate variability and other disturbance.

Event K082 Structure and Function of Ross Sea Coastal Marine Ecosystems

02-Nov-06 to
08-Dec-06
Evans Cape,
Mario Zucchelli
Station, Scott
Base

NIWA, Private Bag 14-901, Wellington. Dr Vonda Cummings, Phone: (04) 386 0300, Fax: (04) 386 0574, E-mail: v.cummings@niwa.co.nz

Characterising the structure and function of benthic communities and determining their relationships to key environmental factors is essential to an improved understanding of Antarctic ecology and wise management of the Antarctic coastal zone. This programme will investigate the environmental processes that influence community dynamics and the spatial structure of populations, and hence the potential for climate variability and anthropogenic influences to impact ecosystem structure and function. Natural gradients in environmental conditions and productivity within the latitudinal range of the Ross Sea will be used to address how the structure, diversity, trophic interactions and productivity of communities relate to site-specific physical variables. This proposal builds on our previous research (conducted from 2001/02 to 2003/04) and will enable us to link disturbance and primary production regimes to patterns of resource utilisation by benthos and the biodiversity of benthic communities over different spatial scales. This research provides fundamental information on the structural and functional biodiversity of Antarctic coastal ecosystems. It also establishes a baseline for distinguishing natural environmental variability, occurring over short ecological time and space scales, from larger scale phenomena, such as changes in ice cover and disturbance regimes associated with climate variability.

Event K084 Tropospheric Ozone Depletion and Bromine Explosions

20-Aug-06 to
27-Nov-06
Bird Cape,
Scott Base

NIWA, Private Bag 50061, Omakau. Dr Karin Kreher, Phone: (03) 440 0447, Fax: (03) 447 3348, E-mail: k.kreher@niwa.co.nz

Tropospheric ozone depletion events occur regularly in the Antarctic springtime. It has been confirmed that bromine oxide (BrO) plays an important role in this process. However, in-depth knowledge about the reactions involved is still missing. So far neither spatial nor temporal distribution of ozone depletion events can be modelled or predicted; halogen precursors have not been completely identified; and the involvement of frost flowers is unconfirmed. This programme aims to determine the relationship between sea ice surfaces, BrO production and ozone depletion. It is linked with the international programme "Air-Ice Chemical Interactions – IPY coordinated studies" and will contribute to this programme during the International Polar Year. We believe that some ozone depletion and bromine explosion events might go unnoticed at Arrival Heights due to the elevation and distance of the observatory from the sea ice. We therefore propose to perform continuous measurements of near-surface BrO and ozone concentrations and vertical profiles, and mercury using portable measurement equipment. These measurements will be performed on the sea ice to the north of Arrival Heights early in the season when BrO production is known to be greatest.

Event K085 Drivers of Global Change in the Antarctic Atmosphere

20-Aug-06 to
09-Feb-07
Arrival Heights,
Scott Base

NIWA, Private Bag 50061, Omakau. Dr Stephen W Wood, Phone: (03) 440 0426, Fax: (03) 447 3348, E-mail: s.wood@niwa.co.nz

The Antarctic atmosphere with its unique physical and chemical attributes is an important part of the global system. This research aims to improve understanding of how the Antarctic atmosphere drives and responds to global change and its interaction with New Zealand. It focuses on Antarctic ozone depletion, the effect of that depletion beyond Antarctica, and the Antarctic's influence on global greenhouse gas (GHG) concentrations. Antarctic stratospheric air, depleted in ozone as a result of anthropogenic interference, is transported to southern mid-latitudes in summer, decreasing ozone and increasing UV radiation over the New Zealand region. Although ozone-destroying chlorine is declining, it may take several years to detect a consistent decrease in

Antarctic ozone depletion. Natural variability complicates this detection and increasing GHG concentrations may delay the recovery. Changes in GHG concentrations, including ozone, affect the radiative balance of the atmosphere in ways that are not fully understood. The Antarctic provides a unique opportunity to measure global trends in atmospheric trace gases at sites isolated from anthropogenic sources, assess human impacts on a pristine environment, and quantify the Southern Ocean uptake of CO₂.

Event K087 Drivers of Global Change in the Antarctic Atmosphere

10-Oct-06 to 16-Jan-07
Arrival Heights, Scott Base
NIWA, PO Box 14 901, Wellington. Mr Gordon Brailsford, Phone: (04) 386 0308, Fax: (04) 386 2153, E-mail: g.brailsford@niwa.co.nz

The Antarctic region provides a vast area that is not influenced by man, and therefore the atmosphere is unaffected by local anthropogenic activity. The main goals of our programme are to study trace gas species in the Antarctic troposphere and lower stratosphere to better understand the way in which the global changes impact on the Antarctic region. Our studies include collections of whole air at Arrival Heights and in the free troposphere between Christchurch and Ross Island; these samples are later analysed for mixing ratio of trace gases such as methane, carbon dioxide, nitrous oxide and carbon monoxide, as well as the isotopic composition of H₂O, CH₄, CO₂, and CO. The information obtained from these analyses can assist in determining the transport of these species from other locations and the way in which they are produced or removed from the atmosphere. Our programme also includes the collection of air samples in the lower stratosphere; these samples are then later analysed to better understand the interaction of trace gas species within the Antarctic vortex, and the way in which these interactions change with the development of the ozone hole in spring. Part of this work involves the study of water vapour and its role in the formation of polar stratospheric clouds; these clouds provide sites for the destruction of ozone.

Event K089 Climate Data Acquisition – Scott Base and Arrival Heights, Antarctica

05-Jan-07 to 16-Jan-07
Arrival Heights, Scott Base
NIWA, PO Box 8602, Christchurch. Mr Andrew Harper, Phone: (03) 343 7890, Fax: (03) 343 7891, E-mail: a.harper@niwa.co.nz

The goal of this programme is to obtain a high-quality continuous climate record for Scott Base and Arrival Heights in Antarctica, and archive it in NIWA's publicly accessible climate database. Scott Base is one of 47 reference climate stations for the New Zealand region managed by NIWA, and climate observations (wind speed and direction, air temperature, relative humidity, barometric pressure, global solar radiation, diffuse solar radiation and direct solar radiation) are recorded there daily. This climate record began in 1957 and is one of the longest continuous records in Antarctica. Wind speed and direction, air temperature, relative humidity and global solar radiation are also recorded at Arrival Heights. The measurements are needed for characterising the local climate and state of the environment, identifying climate variations and changes, and in research on climate-sensitive processes and ecosystems. This programme also includes measurements from the sea level recorder installed at Scott Base.

Event K122 Adélie Penguin Population responses Mediated by Climate Change

10-Nov-06 to 02-Feb-07
ASPAs 105, 121, 124, Bird Cape, McMurdo Station, Scott Base
Landcare Research, PO Box 69, 40 Gerald Street, Lincoln 8152, Christchurch. Phil Lyver, Phone: (03) 325 6700, Fax: (03) 325 2418, E-mail: lyverp@landcareresearch.co.nz
Our programme will maintain an internationally significant long-term database by continuing the annual aerial census of three Adélie penguin populations on Ross Island (e.g. Capes Crozier, Bird and Royds) and along the Victorialand coast approximately every 3 years. In collaboration with the US Adélie penguin team, demographic rates (e.g., survival, productivity, breeding rates) and provisioning strategies (e.g., foraging behaviour, dietary composition, chick condition) will be recorded annually at the Ross Island colonies. Variation in demographic rates and provisioning strategies will be

used to predict population trajectories and plausible sea-ice and krill abundance scenarios that may be mediated by climate change. Differences between demographic and provisioning strategies across a latitudinal gradient will be compared and linked to sea-ice scenarios and/or atmospheric-oceanic patterns. Ecosystem and food-web models will be developed in collaboration with NIWA to inform Antarctic managers (e.g. Antarctica New Zealand, CCAMLR) of potential population changes related to human-related pressures such as tourism and commercial fishing in the Ross Sea.

Event K123 Environmental Protection of Soils of the Ross Sea Region

A & B Landcare Research New Zealand Ltd. Dr Jackie Aislabie, Phone: (07) 858 3700,

26-Dec-06 to **Fax: (07) 585 4964, E-mail: AislabieJ@Landcareresearch.co.nz**
23-Jan-07

Dais, Wright Valley, Bull Pass, Fleming Mt, Granite Harbour, Marble Point, Minna Bluff, Victoria Valley, Scott Base

The goal of this research is to support environmental protection and management of ice-free areas of the Ross Sea region, Antarctica by: increasing fundamental knowledge and understanding of Antarctic soils including soil distribution and climate, bacterial diversity, and vulnerability to human impacts;

We intend to complete our field soil-mapping programme of the Wright Valley in 06/07. Field activities will be focused in the Upper Wright Valley and will include determining soil vulnerability to human impact. Under the auspices of the Latitudinal Gradient Project (LGP), we propose to undertake field soil mapping in the Brown Hills/Darwin Mountains/Britannia Range region in 07/08 and collect samples for microbial and chemical analysis. Soil maps will be developed and with underlying soils data will be added to the Antarctic soils database in our On-line Ross Sea region GIS (<http://gis.massey.landcare.cri.nz/rsr/soils/>). Soil climate stations at 7 locations in the Ross Sea region will continue to be maintained for at least 10 years. Each year we need to download the climate stations and carry out routine maintenance.

Event K131 Sea Ice and Southern Ocean Processes

A & B Industrial Research Ltd. Dr Timothy G Haskell, Phone: (04) 569 0000,

20-Aug-06 to **Fax: (04) 569 0754, E-mail: t.haskell@irl.cri.nz**
16-Feb-07

Tent Island, Scott Base

This programme consists of a consortium of the Universities of Auckland, Wellington and Otago and the Crown Research Institutes the National Institute of Water and Atmosphere and Industrial Research Ltd. The programme aims to characterise the relationship between the sea ice, ocean and atmosphere of Antarctica in order to better understand and predict high-latitude coupled climate variability, and to underpin the management of Antarctica and the Southern Ocean in the context of the global climate system. It concentrates on the climate-related processes occurring within McMurdo Sound to the marginal ice zone. It covers a range of scales, from microns in structure of sea ice, to the order of thousands of kilometres in the process of sea ice dispersal in the Southern Ocean, and the relationships linking Antarctica to global climate variability and change. The programme contributes to the New Zealand Antarctic Strategy by determining processes directly relevant to the understanding of high latitude climate and its links to the rest of the globe, and consequently to better understanding and prediction of climate in New Zealand and the surrounding ocean.

Event K150 Land Information New Zealand

Land Information New Zealand (LINZ). Nic Donnelly, Geospatial Data Analyst, Phone: (04) 460 0191, Fax: (04) 498 3837, E-mail: ndonnelly@linz.govt.nz

LINZ and its predecessor agencies have operated surveying, charting and mapping programmes in the Ross Sea Region, as well as place naming administration, for some 30 years. The Department has an agreement with the United States geological Survey, which provides for co-operation in these activities and in particular joint topographic mapping, geodetic surveying and place naming programmes.

Event K160 Postgraduate Scholarships

(all scholarship winners are under other event numbers)

Postgraduate Scholarships Antarctica New Zealand, Christchurch. Shulamit Gordon, Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: s.gordon@antarcticanz.govt.nz

The four current scholarships are:

a) Sir Robin Irvine Doctoral Scholarship: awarded to Shelley MacDonnell from the University of Otago for her PhD research. See K064 for further details.

b) Helicopters New Zealand Doctoral Scholarship: awarded to Tracey Jones from the University of Waikato to study the origins and partner choices of Antarctic lichens. Associated with K024.

c) New Zealand Post Scholarship: awarded to Nita Smith from the University of Canterbury for her Masters on the velocity field of the Darwin-Hatherton glacial system. This project does not involve fieldwork.

d) Kelly Tarlton's Scholarship: jointly awarded to Angela McGaughan from Massey University (see K025 for further details) and Ed Abdool from Victoria University of Wellington. Ed's Doctorate involves the mathematical modelling of productivity and biomass along a latitudinal gradient in the Ross Sea as part of the K043 event, but does not involve any fieldwork.

Event K170 Antarctic Heritage Trust (AHT).

20-Aug-06 to
09-Feb-07

Evans Cape,
Royds Cape,
Scott Base

AHT. Al Fastier, Programme Manager. Phone (03) 358 0212. Fax 03 358 0244.

E-mail: aht@nzaht.org

AHT cares for the expedition bases associated with the early Antarctic explorers Captain Robert Falcon Scott, Sir Ernest Shackleton and Carsten Borchgrevink. AHT's Ross Sea Heritage Restoration Project (RSHRP) aims to conserve the sites and their contents for future generations. Employees and contractors will be working at Cape Royds, Cape Evans and Hut Point.

Event K172 Antarctic Heritage Trust (AHT).

02-Feb-07 to
13-Oct-07

Evans Cape,
Royds Cape,
Scott Base

AHT. Al Fastier, Programme Manager. Phone (03) 358 0212. Fax 03 358 0244.

E-mail: aht@nzaht.org

The Shackleton's Hut Artefact Conservation Programme is part of the AHT's project to conserve the great explorers' expedition bases for future generations. Working from a dedicated conservation lab, professional conservators will be based year round in Antarctica working on the programme.

Event K175 Antarctic Heritage Trust (AHT).

16-Jan-07 to
23-Jan-07

Evans Cape,
Royds Cape,
Scott Base

AHT. Al Fastier, Programme Manager.

Phone (03) 358 0212. Fax 03 358 0244. E-mail: aht@nzaht.org

Familiarisation visit for key AHT stakeholders.

Event K200 Communications Staff Visits

15-Dec-06 to
02-Feb-07
Scott Base local

Antarctica New Zealand, Private Bag 4745, Christchurch. Emma Reid,

Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: e.reid@antarcticanz.govt.nz

The purpose of this event is to familiarise new staff member(s) with Scott Base and Antarctic field operations and provide support for media, education and outreach events including the 50th Anniversary celebrations and the Prime Minister's proposed visit.

Event K210 Youth on Ice – Big Science Adventures

23-Jan-07 to
30-Jan-07
Bratina Island,
Scott Base

Antarctica New Zealand, Private Bag 4745, Christchurch. Emma Reid,

Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: e.reid@antarcticanz.govt.nz

Big Science Adventures is a Royal Society Youth on Ice initiative that challenges students to make interesting videos on New Zealand science stories. The three students

that will travel to Antarctica are the winners of a nationwide student video competition that were selected for their ability to tell science stories in remote locations. In Antarctica they will observe and profile a number of science events for public awareness and outreach and produce a film that ties in with IPY and / or Scott Base 50th Anniversary activities. A film student will accompany them.

Event K215 ANDRILL (Education) – LEARNZ

13-Nov-06 to
21-Nov-06
South McMurdo
Island, Scott
Base

**Antarctica New Zealand, Private Bag 4745, Christchurch. Emma Reid,
Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: e.reid@antarcticanz.govt.nz**

LEARNZ is an online education programme for students in New Zealand state schools producing virtual field trip experiences designed to meet New Zealand Curriculum objectives. Experiences include audio conferencing, web board, diaries, images and videos uploaded daily. This year LEARNZ will be traveling to Antarctica to develop an ANDRILL virtual experience. They will liaise directly between scientists and project personnel, and state schools back in New Zealand. providing real time involvement, interaction and experiences covering a range of scientific and operational aspects of the Antarctic Drilling project.

Event K220 University of Canterbury Graduate Certificate in Antarctic Studies

22-Dec-06 to
05-Jan-07
Windless Bight,
Scott Base

**Gateway Antarctica, University of Canterbury, Private Bag 4800, Christchurch.
Professor Bryan Storey, Professor of Antarctic Studies & Director Gateway Antarctica.
Phone: (03) 364 2368, Fax: (03) 364 2197, E-mail: bryan.storey@canterbury.ac.nz**

The goal of the Graduate Certificate in Antarctic Studies is to engage participants in a critical examination of the contemporary scientific, environmental, social and policy issues and debates facing the Antarctic region. The Antarctic field component incorporates field studies at Scott Base and its environs. Students will complete Antarctic Field Training, participate in base activities and undertake supervised studies related to geology, ecology, art, glaciology and meteorology.

Event K230 Artists to Antarctica Programme

16-Oct-06 to
30-Oct-06
Electra Mt, Evans
Cape, Marble
Point, Miers
Valley, Royds
Cape, Tent
Island, Wright
Glacier Lower,
Scott Base

**Antarctica New Zealand, Christchurch. Phone: (03) 358 0200, Fax: (03) 358 0211,
E-mail: e.reid@antarcticanz.govt.nz**

Photographer Joyce Campbell and textile artist Clare Plug will explore the relationship between art and science. Joyce will use her artistic ability and scientific knowledge to communicate and depict our relationship with an increasingly precarious environment. Clare will focus on the fall of light upon the landscape, the protective layers garnered by the frozen environment and the ongoing need for people to put in place measures to protect Antarctica's delicate ecology.

Event K235 Invited Artist Programme

13-Oct-06 to
20-Oct-06
Ross Ice Shelf,
Scott Base

**Antarctica New Zealand, Christchurch. Phone: (03) 358 0200, Fax: (03) 358 0211,
E-mail: e.reid@antarcticanz.govt.nz**

Painter Grahame Sydney will explore the different light effects in Antarctica in October with particular reference to the Ross Ice Shelf and immediate environs.

Event K236 Invited Artist Programme

16-Oct-06 to
30-Oct-06
Electra Mt, Evans
Cape, Marble
Point, Miers
Valley, Royds
Cape, Tent Island,
Wright Glacier
Lower, Scott Base

**Antarctica New Zealand, Christchurch. Phone: (03) 358 0200, Fax: (03) 358 0211,
E-mail: e.reid@antarcticanz.govt.nz**

Sculptor Neil Dawson will gather information and inspiration from observation of a range of Antarctic landscapes with particular emphasis on pressure ridges, ice caves, glaciers and crevasses for the subsequent production of a series of sculptural and other works.

Event K241 Media Initiatives Programme – Sunday Programme

30-Nov-06 to
12-Dec-06
Bird Cape,
McMurdo Ice
Shelf, Miers
Valley, Scott
Base

**Antarctica New Zealand, Christchurch. Phone: (03) 358 0200, Fax: (03) 358 0211,
E-mail: e.reid@antarcticanz.govt.nz**

Award-winning current affairs journalist Janet McIntyre will collect footage to produce science and environmental features for TVNZ's Sunday programme. This includes the completion of their ANDRILL story.

Event K242 Media Initiatives Programme – JAM Productions

Bird Cape,
Vanda Huts,
Wright Valley,
Igloo Spur,
Royds
Cape, Evans
Cape, Erebus
Mt, Scott Base

**Antarctica New Zealand, Christchurch. Phone: (03) 358 0200, Fax: (03) 358 0211,
E-mail: e.reid@antarcticanz.govt.nz**

JAM Productions will film a documentary series, fronted by TV personality Marcus Lush, profiling the history of the New Zealand Antarctic programme, and other areas of interest including science in Antarctica, and the 50th anniversary of Scott Base.

Event K243 Media Initiatives Programme – Veronika Meduna

27-Nov-06 to
12-Dec-06
Erebus Saddle,
Hoare Lake,
Victoria Valley
Lower, Scott
Base

**Antarctica New Zealand, Christchurch. Phone: (03) 358 0200, Fax: (03) 358 0211,
E-mail: e.reid@antarcticanz.govt.nz**

Veronica Meduna, one of New Zealand's most prominent science journalists, will file stories for Radio New Zealand and The Listener. Veronika will focus on the most significant science projects carried out in the Ross Sea region including ANDRILL and climate change. She will also gather material and interviews for a three-part series of documentaries to mark International Polar Year and the 50th anniversary of the New Zealand Antarctic Programme and Scott Base.

Event K250 Scott Base 50th Anniversary Prime Ministerial Visit

16-Jan-07 to
23-Jan-07
Bird Cape,
Electra Mt,
Evans Cape,
Labyrinth, Royds
Cape, Vanda
Huts, Victoria
Glacier Lower,
Scott Base

**Antarctica New Zealand, Private Bag 4745, Christchurch. Emma Reid,
Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: e.reid@antarcticanz.govt.nz**

Visit to Scott Base by a delegation of people that includes the Prime Minister and Sir Edmund Hillary who will participate in on Ice activities that commemorate 50 years of the New Zealand Antarctic programme.

Event K300 CEO Visits

27-Oct-06 to
26-Jan-07
Helo
Contingency,
Scott Base

**Antarctica New Zealand, Private Bag 4745, Christchurch. Lou Sanson,
Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: l.sanson@antarcticanz.govt.nz**

Visits associated with the Ministerial Invited Visitor programme and the 50-year Anniversary.

Event K301 IV Visit – Ministerial Visit

03-Nov-06 to
06-Nov-06
Evans Cape,
Labyrinth,
McMurdo Ice
Shelf, Royds
Cape, Vanda
Huts,
Scott Base

**Antarctica New Zealand, Private Bag 4745, Christchurch. Lou Sanson,
Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: l.sanson@antarcticanz.govt.nz**

Invited Visitor programme for Minister of Science and Minister of Climate Change.

- Event K310** **Antarctica New Zealand Board member Induction**
 01-Nov-06 to 07-Dec-06
 Bird Cape, Evans Cape, Labyrinth, Royds Cape, Vanda Huts, Scott Base
Antarctica New Zealand, Private Bag 4745, Christchurch. Lou Sanson, Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: l.sanson@antarcticanz.govt.nz
 Induction Visit for new Board for Antarctica New Zealand.
- Event K320** **IV Visit – Minister of Foreign Affairs and Trade**
 03-Nov-06 to 06-Nov-06
 Evans Cape, Labyrinth, Royds Cape, Vanda Huts, Scott Base
Antarctica New Zealand, Private Bag 4745, Christchurch. Lou Sanson, Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: l.sanson@antarcticanz.govt.nz
 Invited Visitor programme for Minister of Foreign Affairs and trade.
- Event K400** **Operations Staff Visits**
 20-Aug-06 to 23-Feb-07
 Scott Base local
Antarctica New Zealand, Private Bag 4745, Christchurch. Julian Tangaere, Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: j.tangaere@antarcticanz.govt.nz
 The purpose of this event is to provide experience and familiarity with Scott Base and Antarctic field operations for Antarctica New Zealand staff, provide for hand-over and liaison with relevant Scott Base staff, and allow necessary on-site management, audit and inspection.
- Event K401** **Scott Base Summer Staff**
 20-Aug-06 to 24-Feb-07
 Scott Base local
Antarctica New Zealand, Private Bag 4745, Christchurch. Julian Tangaere, Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: j.tangaere@antarcticanz.govt.nz
- Event K402** **Scott Base Winter Staff**
 03-Oct-06 to 13-Oct-07
 Bird Cape, Cerberus Mt, Hoopers Shoulder, JJ Thomson Mt, Newall Mt, Scallop Hill, Scott Base
Antarctica New Zealand, Private Bag 4745, Christchurch. Julian Tangaere, Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: j.tangaere@antarcticanz.govt.nz
- Event K411** **Helicopters NZ**
 07-Nov-06 to 06-Feb-07
 Ice Runway, McMurdo Station
Dennis Laird
 Helicopter support for Antarctica New Zealand sponsored operations provided by Helicopters (NZ) Ltd.
- Event K414** **Facilities Visitors**
 05-Oct-06 to 30-Jan-07
 Scott Base local
Antarctica New Zealand, Private Bag 4745, Christchurch. Kevin Rigarlisford, Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: k.rigarlisford@antarcticanz.govt.nz
 Worker visitors who perform on site training/instruction at Scott Base for staff on a yearly basis, training subjects include vehicle operation and fire crew training. K414 also includes engineering worker visitors who shall provide a mixture of on site engineering staff training and inspections of Scott Base facilities.

Event K423 Telecom

29-Dec-06 to 19-Jan-07
 Scallop Hill, Hoopers Shelter, Newall Mt, JJ Thomson Mt, Cerberus Mt, Scott Base
Antarctica New Zealand, Private Bag 4745, Christchurch. Peter Brookman, Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: p.brookman@antarcticanz.govt.nz
 Annual maintenance of transmission lines and equipment, structures & antennae.

Event K424 Engineering Visitors

20-Aug-06 to 30-Jan-07
 Scott Base local
Antarctica New Zealand, Private Bag 4745, Christchurch. Peter Brookman, Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: p.brookman@antarcticanz.govt.nz
 Engineering investigation for facility upgrades.

Event K426 Arrival Heights Project

02-Jan-07 to 26-Jan-07
 Arrival Heights, Scott Base local
Antarctica New Zealand, Private Bag 4745, Christchurch. Kevin Rigarsford, Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: k.rigarsford@antarcticanz.govt.nz
 Removal of old Lab at Arrivals Heights, K426 is a team of 4 people who will be primarily involved in the dismantlement of the old Lab and loading it into shipping containers for removal to NZ. The team will include a person from the Canterbury Museum who will assist with the removal and then be involved with the reconstruction of selected sections as an exhibit in the museum at a later date.

Event K430 Armed Forces Canteen Council

04-Oct-06 to 06-Feb-07
 Scott Base local
Antarctica New Zealand, Private Bag 4745, Christchurch. Julian Tangaere, Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: j.tangaere@antarcticanz.govt.nz
 Staff visit to oversee shop and bar operations.

Event K452 Italian Antarctic Programme

Contribution to ENEA transport pool.

Event K505 Environment Audits and Waste Stream Inspection

05-Jan-07 to 16-Jan-07
 Bird Cape, Butter Point, Evans Cape, Falconer Mt, Mid Wright Valley, Royds Cape, Scott Base
Antarctica New Zealand, Private Bag 4745, Christchurch. Neil Gilbert, Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: n.gilbert@antarcticanz.govt.nz
 Staff will monitor waste management procedures as part of an ongoing review, clean up Butter Point and Meserve Glacier, conduct field audits of selected events, including the ANDRILL project, monitor Cape Royds, Cape Evans and Hutt Point for the VISTA scheme, do further vegetation mapping at Cape Bird and review the new construction at Arrival Heights.

Event K515 Environment Audits and Waste Stream Inspection

20-Nov-06 to 01-Dec-06
 Evans Cape, McMurdo Ice Shelf, Meserve Glacier, Royds Cape, Trudge Valley, Victoria Valley Lower, Scott Base
Antarctica New Zealand, Private Bag 4745, Christchurch. Neil Gilbert, Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: n.gilbert@antarcticanz.govt.nz
 Staff will monitor waste management procedures as part of an ongoing review, clean up Butter Point and Meserve Glacier, conduct field audits of selected events, including the ANDRILL project, monitor Cape Royds, Cape Evans and Hutt Point for the VISTA scheme, do further vegetation mapping at Cape Bird and review the new construction at Arrival Heights.

Event K516 DVDP Borehole Project

01-Dec-06 to 31-Jan-07
 Lake Vida, Dry Valleys, Scott Base
Antarctica New Zealand, Private Bag 4745, Christchurch. Neil Gilbert, Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: n.gilbert@antarcticanz.govt.nz
 Environment staff are working closely with the USAP to remove the now redundant dry Valleys Drilling project boreholes. This year the focus will be on Lake Vida.

Event K600 Corporate Services Staff Visits

04-Oct-06 to 24-Feb-07
Scott Base local
Antarctica New Zealand, Christchurch. Peter Smith, Phone: (03) 358 0209, Fax: (03) 358 0211, E-mail: p.smith@antarcticanz.govt.nz
IT maintenances, Scott Base focus groups and familiarisation visit for new staff.

Event K605 Advanced Dynamics Visit

26-Jan-07 to 30-Jan-07
Scott Base local
Antarctica New Zealand, Christchurch. Peter Smith, Phone: (03) 358 0209, Fax: (03) 358 0211, E-mail: p.smith@antarcticanz.govt.nz

Event K700 Science Department Staff Visits

30-Oct-06 to 16-Nov-06
Scott Base local
Antarctica New Zealand, Christchurch. Dean Peterson, Phone: (03) 358 0209, Fax: (03) 358 0211, E-mail: d.peterson@antarcticanz.govt.nz
The event will be used by the science group to further understand the needs of the science events supported and the science facilities at Scott Base.

Event K710 Russian Science IV Visit

30-Oct-06 to 03-Nov-06
Evans Cape, Labyrinth, McMurdo Ice Shelf, Royds Cape, Vanda Huts, Scott Base
Antarctica New Zealand, Christchurch. Dean Peterson, Phone: (03) 358 0209, Fax: (03) 358 0211, E-mail: d.peterson@antarcticanz.govt.nz
Invited visitors associated with Antarctic science will be taken to different science events in the field to better understand the conditions and the research being done in Antarctica.