

The 2004/2005 Antarctic Research Season

Event K001

28-Jan-05 to 14-Feb-05

McMurdo Ice Shelf

ANDRILL

Antarctica New Zealand, Christchurch. Jim Cowie, Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: j.cowie@antarcticanz.govt.nz

ANDRILL is an international drilling project following on from the Cape Roberts Project (CRP). Antarctica NZ is the Project operator on behalf of the participating countries. Drilling is not planned to begin until the summer season of 2006/2007. However, planning and preparatory work is underway. This season the workplan is to continue assessing the CRP equipment that is stored at Scott Base, in particular items of drilling equipment and the units (containers) that made up the utilities section of the CRP Camp. This work will all be done within the immediate environs of Scott Base.

Event K002

27-Oct-04 to 07-Feb-05

Cape Hallett

Latitudinal Gradient Project (LGP)

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. This year the LGP will be located at a camp at Cape Hallett, northern Victoria Land. This will be the second season at this location. The following New Zealand events will be working at Cape Hallett this season: K018, K024, K043, K122 and K123 (see individual event entries for research summary).

Event K015

4 – 25-Jan-05

Explorer's Cove

Development and Dynamics of the Fossil New Harbour Marine Deltas

School of Geography and Environmental Science, University of Auckland,

Private Bag 92019, Auckland. Dr Paul Augustinus, Phone: (09) 373 7599 ext 87603 Fax: (09) 373 7435, E-mail: p.augustinus@auckland.ac.nz

We will continue investigation of the timing and structure of Gilbert-type prograding fossil marine deltas that are well preserved at the mouth of Wales and Commonwealth Streams, New Harbor and elsewhere along the Scott Coast. A pilot investigation of the Wales Stream delta during season 1999/2000 using GPR hinted that the structure and history of the deltas are more complex than envisaged from the surface morphology and radiocarbon dating of associated marine shell. The combination of GPR imaging of the structure of the deltas with careful OSL dating will allow non-invasive assessment of their origin as well as their time of formation and rates of change with consequences for understanding the nature of Holocene paleoclimates.

Event K018

05-Nov-04 to 09-Dec-04

Cape Hallett

Latitudinal Patterns in the Abundance of Ross Sea Meroplankton

School of Biological Sciences, University of Auckland, Private Bag 92019, Auckland. Dr Mary A

Sewell, Phone: (09) 373 7599, ext 83758 Fax: (09) 373 7417,

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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 we used a combined morphological and molecular approach to identify the common larval "types" collected from McMurdo Sound near Scott Base. This year we will extend the existing project by taking sampling for marine invertebrate larvae out of McMurdo Sound and into the Ross Sea at Cape Hallett for the second year running allowing a broader based study of Antarctic larval forms. Sampling at Cape Hallett will involve daily quantification of the distribution and abundance of the common larval forms identified in previous research and the study of "new" oceanic Ross Sea larvae.

Event K023

18 Jan 05 – 7 Feb 05

Tramway Ridge, Miers Valley

Microbial Biodiversity and Metgenomics of the Ross Desert, Eastern Antarctica

Department of Biological Sciences, University of Waikato, Private Bag 3105, Hamilton. Professor Craig Cary, Phone: (07) 838 5493, Fax: (07) 838 4324, E-mail: caryc@waikato.ac.nz

This project aims to extend our current research addressing four basic questions relating to the microbiology of the Antarctic mineral type soils 1) What is the true microbial diversity of the terrestrial biotopes? 2) What factors control microbial biomass, activity and diversity? 3) What is the impact of human activities on the introduction of non-indigenous microbial species into Antarctic environments? 4) Can metagenomic methods be applied to the discovery and recovery of valuable genes and gene products in unculturable Antarctic microbiota? Our intent is to survey soils where unprecedented physical/nutrient gradients exist using a suite of molecular genetic approaches. The introduction of molecular genetic tools to the study of microbial ecology has provided a new capability to determine the precise composition and structure of complex microbial communities where most of the members have eluded cultivation. These methods have provided surprising insight into the complexity and diversity of bacterial communities inhabiting a wide range of natural and artificial habitats. To date, these methods have yet to be applied in a comprehensive manner to the study of bacteria inhabiting Antarctic environments.

Event K024
19 Nov – 18 Dec 04
Cape Hallett

Biodiversity and Performance of Lichens and Mosses

Department of Biological Sciences, University of Waikato, Private Bag 3105, Hamilton. Professor T G Allan Green, Phone: (07) 838 4225, Fax: (07) 838 4324,
E-mail: greentga@waikato.ac.nz

The objective of LGP (Latitudinal Gradient Project) is to increase our understanding of polar ecosystems to the extent that the effects of environmental change can be predicted. This proposal contributes to this objective by determining both the biodiversity of terrestrial vegetation and the effect of environmental parameters on seasonal productivity at Cape Hallett, the first LGP site. Changes in biodiversity are expected to be one signal for environmental change. Biodiversity remains poorly described within the Ross Sea region but application of better collection techniques and better identification including molecular methods, can greatly improve our knowledge. Another signal is likely to be improved production and growth. This will be investigated by determining the active growing season by chlorophyll fluorescence techniques and recording the major environmental parameters (light, plant temperature). The response of net photosynthetic rates to these parameters will also be measured through the season and this will allow total production to be estimated. This data will also allow us to detect acclimation by the mosses and lichens. By changing the response of net photosynthesis to, for example, temperature, acclimation has the potential to confuse any modelling of seasonal production. The data from Cape Hallett will provide a base-line for the remaining LGP sites.

Event K027
27 Oct 04 - 21 Jan 05
Shell Glacier

Long-Term Impacts of Human Disturbance on Breeding Adélie Penguins

Department of Biological Sciences, University of Waikato, Private Bag 3105, Hamilton. Dr Joseph R Waas, Phone: (07) 856 2889 ext 4286, Fax: (07) 838 4324,
E-mail: j.waas@waikato.ac.nz

Little is known of the long-term consequences of human disturbance on breeding Adélie penguins, or the physiological and behavioural processes responsible for human-induced change, despite sharp increases in recreational and research visits to colonies. Sub-colonies of penguins at Shell Glacier will be exposed to one of four experimental treatments, representing different levels of human disturbance (i.e. high, moderate, low and no disturbance), to measure effects on key long-term reproductive parameters (e.g. the timing and synchrony of egg-laying, hatching success, fledging success and site fidelity within and across breeding seasons). Changes in reproductive and stress hormones will also be mapped to identify underlying mechanisms that explain treatment differences. In addition, we will assess, for the first time in penguins, a non-invasive method of tracking stress and changes in reproductive state using enzyme immunoassays of faecal samples, by using the technique in conjunction with traditional blood sampling methods. Ultimately, our work will allow us to measure human disturbance and explain biological processes that lead to human-induced change. The work will allow managers to make more informed decisions on acceptable levels of human disturbance within colonies, and will also provide managers with new non-invasive tools (e.g. faecal sampling) to monitor the influences that human visits have on Adélie penguins.

Event K028

6 Dec 04 - 16 Dec 04

Darwin Glacier

Terrestrial Biodiversity in Southern Victoria Land

Department of Biological Sciences, University of Waikato, Private Bag 3105, Hamilton.

Dr Ian Hogg, Phone: (07) 838 4139, Fax: (07) 838 4324, E-mail: hogg@waikato.ac.nz

In recent decades terrestrial biology studies have been concentrated around Ross Island and the Dry Valleys. During the late 1950s and early 1960s, a considerable number of sites were surveyed in the Ross Sea Region from the Shackleton Glacier at 85° S to Cape Hallett at 72° S. Insects and plants were reported from several of these sites which, in many cases, have not been revisited. Taxonomic and collecting techniques, including modern molecular analyses, have now advanced so much that a repeat visit to these sites can often reveal a far greater biodiversity than presently accepted. In 2003, a visit to Mt Kyffin, 830 45' S, revealed a total of 26 lichen species, several new to Antarctica, as well as arthropod and other invertebrate taxa (Collembola, Acari, Nematoda). A visit by a terrestrial biology group, focusing on lichens, mosses and invertebrates, is now proposed to the Darwin Glacier region (79° 53' S), which is the next LGP site. Specimens from these isolated sites will increase our present knowledge of biodiversity in these regions and be of great value for molecular phylogeographic research. Furthermore, these data can be used to estimate the date(s) at which these sites became isolated by the Ross Ice Shelf advance

Event K030

13-Dec-03 to 7-Jan-04

Cape Bird

Molecular Ecology of Antarctic Fauna

Institute of Molecular BioSciences, Massey University, Albany Campus,

Private Bag 102904, North Shore mail centre, Auckland.

Professor David M Lambert, Phone: (06) 350 5857 ext 41110,

E-mail: D.M.Lambert@massey.ac.nz

A central prediction of the neutral theory of molecular evolution is that the rate of evolution (k) is equal to the rate of mutation (μ). A number of recent studies of human mitochondrial DNA have documented extremely high mutation rates that are significantly higher than evolutionary rates. This lack of concordance between empirical observations and theory has sparked a major controversy. We propose to use two unique biological phenomena we have discovered in Antarctica, to advance our understanding of this central problem in molecular evolution. First, underlying breeding colonies of Adélie penguins (*Pygoscelis adeliae*) are large numbers of serially preserved sub-fossil remains, dating to 37,000 years BP. We have shown that, entombed in frozen penguin bones, is some of the best-preserved ancient DNA yet discovered. Second, we propose to examine the remains of Antarctic silverfish of the genus *Pleurogramma* found in the regurgitations of snow petrels *Pagodroma nivea*. Using both of these phenomena, we aim to test the central predication of neutral theory by comparing evolutionary and mutation rates.

Event K034

12-Nov-04 to 11-Dec-04

Mandible Cirque, Cape Washington

Stress and disease in Adelie penguin and Emperor penguins.

Institute of Veterinary, Animal & Biomedical Sciences, Massey University,

Private Bag 11-222, Palmerston North. Dr John F Cockrem, Phone: (06) 350 4483, Fax: (06) 350 5636, E-mail: J.F.Cockrem@massey.ac.nz

Adelie and Emperor penguins are the most widely distributed Antarctic penguins. South polar skuas are also widespread and, in contrast to the penguins, skuas are attracted to sites of human activities in Antarctica. We have recently begun a research programme to examine stress in Antarctic penguins.

Our goals are to provide data on responses of penguins to people in order to assist with the management of tourist visits to penguin rookeries, to understand how penguins respond to environmental stimuli that can initiate stress responses, to understand how corticosterone, the avian stress hormone, affects the penguins, and to determine whether penguins and skuas have been exposed to human and avian diseases as a consequence of contact with people. We will also investigate stress responses in relation to breeding success in Adelie penguins. Studies will be conducted at Cape Washington and at Mandible Cirque, a rookery in Northern Victoria Land not previously visited by people. The work will address fundamental questions about the responses of Antarctic birds to environmental stimuli, and provide novel information about responses to people and the incidence of disease in Antarctic birds exposed to difference levels of human contact.

Event K042

TBC

Cape Roberts

Cape Roberts Tide Gauge check

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 K043

3-Nov-04 to 7-Dec-04

Cape Hallett

Antarctic Sea Ice, Algal Productivity and Global Climate Change

School of Biological Sciences, Victoria University of Wellington, PO Box 600, Wellington. Dr Ken Ryan, Phone: (04) 472 1000 ext 8107, Fax: (04) 463 5331,

E-mail: ken.ryan@vuw.ac.nz

Sea ice exerts a unique and overwhelming influence on marine ecosystems in the Antarctic. Each year, approximately 19 million km² of Antarctic sea ice melts, creating conditions for a huge influx of algal biomass into the food web of the Southern Ocean. Any reduction in sea ice cover caused by global warming will alter the balance of this productivity and will modify the dynamics and interactions of the whole marine ecosystem. This study will provide ground truth data of total primary productivity and biodiversity in the region, and will be the first to assess the effect of global climate change on primary productivity in Antarctic coastal ecosystems. The relationship between the extent of ice cover and total primary production along an extensive north-south transect of the western coast of the Ross Sea, will be used to predict future scenarios of reduced ice at sites further south.

The work will form an integral part of the proposed "Latitudinal Gradient Project" and once completed, will provide a wide range of climatic conditions and a unique opportunity to predict future changes under various climatic models.

Event K047

8-Nov-04 to 14-Dec-04

Victoria Valley, Beacon Valley

Dating Relict Ice in the Dry Valleys

School of Earth Sciences, Victoria University of Wellington, PO Box 600, Wellington. Dr Warren Dickinson, Phone: (04) 463 6199, Fax: (04) 463 6199,

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In the last 15 years deep cores through the Antarctic ice sheet have provided a wealth of high resolution climate data (e.g. atmospheric gas composition, air temperature) covering the 500,000 years of earth history, and are providing invaluable for testing both regional and global climate models. However, the possibility of obtaining much older climate data of similar high quality is now being recognised in a few select areas where ancient glacial ice has stagnated and lies buried beneath rock debris. Beacon Valley contains the best-known relict ice, which if glacial has been dated by a volcanic ash layer as more than 8 million years old. This age and origin remains controversial. Other occurrences of relict ice have recently been discovered in Pearce, Columar, and Victoria valleys and appear to be analogous but of a different to Beacon Valley. The ongoing aim of this project is to understand the origin and paleoenvironmental significance of ice from these areas and place them in context with the Beacon Valley ice. Of particular value will be the independent dating of debris covering the ice. We will use a new method of beryllium-10 dating, which unlike exposure age methods, can extend back at least 20 million years.

Event K049

11-Oct-04 to 28-Dec-04

Evans, Piedmont/Erebus

NZ International Transantarctic Scientific Expedition – Climate Variability Along the Victoria Land Coast

Antarctic Research Centre, Victoria University of Wellington, PO Box 600, Wellington. Ms Nancy Bertler, Phone: (04) 463 5233 ext 8391, Fax: (04) 463 5186, E-mail: nancy.bertler@vuw.ac.nz

International polar ice coring programmes (e.g. GISP and Vostok) have provided powerful new insights into Earth's climate back 400,000 years from the diverse inventory of atmospheric information stored both within the ice and trapped air bubbles. To understand and predict the local response to anthropogenically induced global warming seen in these "global" ice cores, the focus of ice core research in Antarctica is moving to the acquisition of "local" ice cores that overlap with and extend the instrumental records of the last 40 years back several thousand years. This has been a key motivation behind the US-led International Transantarctic Scientific Expedition (ITASE) of which New Zealand is now a member. The project's objective is to 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 to ITASE. Moreover the ice core records will provide a baseline for climate change in the region that will contribute to the NZ-led multinational 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.

Event K052

11-Jan-04 to 25 Jan 05

Garwood Valley

Natural Spatial Subsidies in Continental Antarctic soil

School of Biological Sciences, Private Bag 4800, Christchurch. Dr Ashley Sparrow, Phone: (03) 364 2958, Fax: (03) 364 2590, E-mail: ashley.sparrow@canterbury.ac.nz

Organisms in Antarctic dry valley plant-soil systems are very stressed and, because of low intensity of indigenous productivity, rely on resources transported from external sources by wind or water (spatial subsidies). The magnitude and effect(s) of such subsidies on these ecosystems are largely unexplored, but are likely to significantly influence community structure, ecosystem function and responsiveness to environmental change. We are conducting experiments (established in 2001/2 and 2002/3) in the Garwood Valley where lake-derived resources (microbial mats and water-surface foams derived from algae and cyanobacteria) enter the soil system by aerial redistribution. We are quantifying the spatial variability amongst the landscape units in the valley in terms of microbial composition and functioning of the soil system, and the level of resource inputs. In a factorial experiment, we are directly applying microbial mat and foam collected from the lakeshore, and contrasting their effects on the soil system with treatments of simpler substrates (e.g. glucose). We are measuring how the soil system develops after substrate addition, including community composition and diversity, microbial activity, and key decomposer processes including carbon and nitrogen release patterns. These experiments are framed as tests of a new model of landscape function in the dry valleys.

Event K053

3-Nov-04 to 5-Jan-05

McMurdo Ice Shelf/Koettlitz Glacier

Ice Shelf Sensitivity and Change

Department of Geography & Gateway Antarctica, University of Canterbury,

Private Bag 4800, Christchurch. Dr Wendy Lawson, Phone: (03) 364 2920,

Fax: (03) 364 2907, E-mail: w.Lawson@geog.canterbury.ac.nz

Ice shelves are potentially highly sensitive indicators of climate change, because they have a limit of thermal viability that, when exceeded, leads to their collapse. The pattern of recent dramatic collapse of ice shelves on the Antarctic Peninsula has been closely linked to the pattern of regional climate change in the last 50 years, and evidence indicates that collapse has occurred at other periods in Earth history that were not influenced by anthropogenic factors. However, a greater understanding of ice shelf response processes is required before their behaviour can accurately be interpreted in terms of external change.

The aim of this research is to continue an examination of ice shelf response processes by establishing the modern dynamics of the McMurdo Ice Shelf. The McMurdo Ice Shelf has been chosen as a generic site for systematic research into ice shelf response, and also as an ice shelf that is subject to local - as well as global - human impacts. In addition, the research fills an identified gap in knowledge that affects the understanding of interaction of ice between East and West Antarctica.

Event K055

1-Dec-04 to 14-Dec-04

Arrival Heights

Dynamics and Ionisation in the Antarctic Middle Atmosphere

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

The goal of the programme is to study the seasonal and intra-seasonal behaviour of the wave-driven circulation in the middle atmosphere, particularly its dependence on major disturbances from the troposphere and stratosphere which result in the transport of energy and momentum by waves to the higher altitudes. The programme is based on continuous monitoring of winds in the mesosphere using a ground-based radar at Scott Base. The importance of large "planetary-sized waves" on the circulation above Antarctica was shown to dramatic effect last winter when these phenomena were responsible for the small Antarctic ozone hole in September 2002. The September 2002 ozone hole was half the size it was in 2000. The measurement of these large scale phenomenon benefits considerably from co-operative observations by our own radar near Christchurch, and by US colleagues at the South Pole, Arrival Heights and Tekapo. We also use satellite data for the region between Antarctica and NZ.

Event K056

27-Oct-04 to 25-Nov-04

Teall Is, Gneiss Pt, L. Vida, Terra Nova Bay

Influence of Moisture on Rock Weathering Processes

Geography Department, University of Canterbury, Private Bag 4800, Christchurch. Ms Christine Elliott, Phone: (03) 366 7001 ext 7913, Fax: (03) 364 2907,

E-mail: c.elliott@geog.canterbury.ac.nz

The weathering of rock is a fundamental landscape process and the important role that moisture plays in weathering, although recognised, has not yet been quantified. The primary objective of this research is to investigate the role that moisture plays in the weathering of rock along the Victoria Land Coast, Antarctica. Data on rock strength, surface and subsurface rock temperatures and moisture content were gathered between October and January at four locations during the 2002/03 & 2003/04 seasons. These show that there are significant differences in both rock temperature and moisture between locations as well as between the beginning and end of the season at each site. A series of laboratory simulations will be conducted on rock samples from each location and the effects of moisture isolated from other factors. An empirically based mathematical model will then be developed that will predict changes in weathering rate depending on changes in moisture in the rock. Any future climate change will affect precipitation as well as temperature and this model will enable weathering rates under differing moisture scenarios to be predicted. The fragile nature of Antarctica's ecosystems makes the predictions of weathering rates in this environment particularly important.

Event K057

20-Oct-04 to 9-Dec-04

Fishing Sth of Cape Armitage

Temperature and Cardiovascular Physiology of Antarctic Fish

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

Antarctic fish are extremely stenothermal, having upper lethal limits only a few degrees above their habitat temperature. Temperature changes are already having effects on the distributions of animals in the Southern Ocean, yet there is little information available on the effects of increased temperatures in their physiology. The central theme of this project is the cardiovascular and respiratory physiology of Antarctic notothenoid fish, particularly as it relates to small, sub-lethal increases in temperature. Parameters to be examined include oxygen uptake at the gills, oxygen consumption by the fish, the presence of hypoxia and its effects on the heart, and the ability of the heart itself to provide the driving force for blood flow. Determination of this combination of physiological variables will allow insights into the role of the cardiovascular system in determining upper thermal limits.

Event K061

1-Dec to 21-Dec-04

Terracotta Mtn, Mt Gran

Magma-Supply Dynamics of the Ferrar Large Igneous Province

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

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Large Igneous provinces (LIPs) form by the movement of large volumes of magma from the mantle to the crust and earth's surface. Distribution of the magma takes place both in surface lava flows (so-called flood basalts) and through subsurface sheets whose solidified remnants are dikes and sills. The mode of magma distribution in the surface plumbing system of LIPs is not well known, and the proposed study will use physical features of Ferrar Dolerite dikes and sills, which are well exposed in the Dry valleys and other parts of the Transantarctic Mountains, to constrain interpretations of magma flow in this LIP. More specifically, the work will quantify vesicle characteristics, orientation of crystals, coarseness of crystallinity, and contact relationships (e.g. contact geometry, host-rock fragmentation). Anisotropy of magnetic susceptibility will also be investigated; it has the potential to augment other flow-direction indicators, and has been successfully applied to other dikes and sills. In addition to magma-flow directions, this approach will allow assessment of injection style (single or multiple). The combined dataset will powerfully constrain interpretations of emplacement and eruption dynamics for the intrusive, extrusive and pyroclastic rocks of the Ferrar and other LIPs, and hence of their environmental effects and potential hazards in the unlikely event of near-future continental LIP eruptions.

Event K062

15-Nov-04 to 17-Dec 04

Mt Morning, Minna Bluff, Skelton Glacier

Magmatism of the McMurdo Volcanic Group

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

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E-mail: Alan.Cooper@stonebow.otago.ac.nz

Sedimentary basins of the Ross Sea are terminated in Southern McMurdo Sound by a massif comprising the volcanic centres of White and Black Islands, Minna Bluff and Mts Discovery and Morning. Although regional geochronology suggests a volcanic history from 15.4 Ma to the present day, the detailed evolution of each of these centres, both in terms of age and the nature of the erupted products is known only at a reconnaissance level. Progressive growth of 20-25km diameter, 2000m high volcanic cones loaded the Ross Sea lithosphere creating flexural-moat basins. This depositional accommodation space evolved into substantial sedimentary basins (>500m) that now preserve a sediment fill recording tectonic, volcanic and climatic events throughout the Neogene. ANDRILL proposes to drill these sediments and interpret from them the glacial and climatic evolution of the Ross Sea Region, and its likely influence on Global climate change. Essential to this interpretation is basic information relating to the stratigraphy and lithological constitution of the proximal volcanic centres.

Event K063

4-Jan-05 to 25-Jan-05

Capes Bird, Royds, Crozier

Effects of Variation in Marine Productivity on Reproduction in Adélie Penguins

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

Dr Lloyd Davis, Phone: (03) 479 7654, E-mail: adelie@stonebow.otago.ac.nz

Adelie penguins (*Pygoscelis adeliae*) exhibit a unique form of behaviour known as the feeding chase, whereby a parent is chased by its crèche-aged chicks before feeding them. Typically, these chases take the chicks outside the boundaries of their sub-colony, making them vulnerable to predation by skuas. The brood-reduction hypothesis proposes that feeding chases lead to preferential feeding of one chick when food resources are scarce; whereas, the contradictory brood maximization hypothesis suggests they serve to distribute food evenly among chicks, thereby thwarting the effects of sibling competition. The recent grounding of two immense icebergs (B-15A and C16) near Ross Island has created a natural experiment, making it difficult for penguins breeding there to get enough food for their chicks. If the brood reduction hypothesis is correct, it will benefit the penguins - but if the brood maximisation hypothesis is right, it will exacerbate the likelihood of breeding failure. By comparing feeding chases of penguins at cape bird, Ross Island, with those under normal feeding conditions, we can (i) determine the function of feeding chases in Antarctic Pygoscelid penguins (ii) help assess the consequences of the grounded bergs for the Ross island penguins, and (iii) potentially provide management options to help mitigate the effects of such events in the Antarctic marine ecosystem.

Event K064

17-Nov-04 to 17-Dec-04

Victoria Upper/Wright Lower

Behaviour of Cold-Based Glacier

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This proposal seeks support for an investigation of behaviour of cold-based glaciers in the McMurdo dry valleys. The proposed research has developed from previous work that focussed on the composition, deformation and mechanical behaviour of basal ice. Although this previous work has yielded a detailed understanding of the composition and behaviour of basal ice we have yet to understand how cold based glaciers interact with liquid water, ice and frozen sediment at glacier margins. In addition, we have yet to reach a satisfactory understanding of the behaviour of ice-debris mixtures that occur in basal ice. The objectives of the research in the 2004/2005 and 2005/2006 seasons are:

1. To understand the geometrical relationships between liquid water, lake ice, glacier ice and frozen sediment at glacier margins
2. Understand the processes involved in the formation, deformation and possible entrainment of aprons that develop at glacier margins;
3. Develop a greater understanding of the mechanical behaviour of basal ice.

Event K065

7-Jan-05 to 9 Feb 05

Southern McMurdo Ice Shelf

The Physiography, Flow Characteristics, and Vulnerability of the Southern McMurdo Ice Shelf, Antarctica.

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

Andrew Clifford, Phone: (03) 479 7519, Fax: (03) 479-7527,

E-mail: travellingwilbury@hotmail.com

A detailed survey of part of the southern McMurdo Ice Shelf (SMIS) is proposed, using ground penetrating radar (GPR), GPS and direct field observation techniques. The prime area of interest is a topographic bulge in the ice shelf located part-way between the SW tip of Black Island and the northern shore of Minna Bluff. Partly investigated during the K001 2003/2004 field program, this bulge is thought to indicate a zone of grounding for the SMIS, with implications for the flow dynamics of the whole ice shelf. Through mapping this feature by running transects with GPR and GPS, its physical characteristics will be determined and its effect on the SMIS flow regime will be analysed. GPS occupation of a network of survey markers established in the K001 2002/03 and 2003/04 field seasons is also proposed, with a view to increase the timespan, and therefore reliability, of this SMIS movement data set. The geophysical data will be supplemented by direct field observations of the ice shelf surface and of the coastal moraines of Minna Bluff.

Event K068

14-Oct-04 to 25-Nov-04

Cape Armitage/Cape Evans/Cinder Cones

An Integrated Approach to Understanding the Effects of Increased Ultraviolet-B Radiation on Antarctic Invertebrate Larvae

Department of Marine Science, University of Otago, PO Box 56, Dunedin.

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Ozone depletion over Antarctica is forecast to result in an Ozone hole until ≈ 2040 . The concurrent increase in UV-B radiation can influence the Antarctica Marine community, and research quantifying these effects is essential for predicting if Antarctic marine populations remain viable during the next half century. We aim to extend our 2002 and 2003 research on the effects of increased UV-B on Antarctic marine invertebrate larvae under Antarctic sea ice. Our research is in four parts:

- Direct monitoring of UV-R penetration into the sub-sea ice marine environment
- Bioassay (using sea urchin embryos) the effects of UV-B in situ under varying sea ice conditions and between years under high and low column ozone
- Create UV-R spectral weighting functions and quantify UV-R sensitivity in larvae
- Examine kinetics and physiological mechanisms of UV-R induced damage and repair.

These, combined, will allow us to quantify present-day effects of UV-B on invertebrate larvae, make predictions on impacts of increased UV-B on Antarctic larvae, and provide a greater understanding of the physiological basis of susceptibility of Antarctic larvae.

Event K069

11-Jan-05 to 18-Jan-05

Arrival Heights

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

Professor Brian Fraser & Professor Richard Dowden

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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 K073

8-Nov-04 to 30-Nov-04

SB Local

Examining the Values of Visitors to the Ross Sea Region

Social Sciences, Tourism & Recreation Group, Lincoln University, PO Box 84, Canterbury. Dr

Gary Steel, Phone: (03) 325 3838 ext 8784, Fax: (03) 325 3857, E-mail: steelg@lincoln.ac.nz

Individuals making ethical decisions are strongly influenced by the social and organisational context in which decision-making takes place. Antarctica is an environment in which environmental ethics are highly valued; where individuals are removed from their usual organisational and social setting; and where most work is conducted in small, intense, and isolated social groups. Isolated small groups tend to develop unique and strong social norms. Group norms in such closed groups may differ from social norms of other similarly structured groups and/or from organisational rules or standards. This project will investigate influences on decision-making about decision-making involving environmental ethics by individuals in field-teams and base parties over three Antarctic seasons. The proposed methods are well established and recognised within social science research for their rigour and effectiveness. The outcome will contribute to a greater understanding of environmental ethical decision-making in groups in Antarctica. Strategies may be developed on how to establish effective ethical guidelines and training and on how to maximise compliance of working parties and Antarctic tourists with accepted environmental standards.

Event K081

18-Oct-04 to 28-Jan-05

Bratina Island, Wright/Taylor/Victoria Valleys

Antarctic Aquatic Ecosystems (Inland)

NIWA, PO Box 11-115, Hamilton. Dr Ian Hawes, Phone: (07) 856 7026, Fax: (07) 856 0151, E-mail: i.hawes@niwa.co.nz

This programme will provide information on Antarctica's inland aquatic ecosystems, focusing on ponds, lakes and estuaries. The programme will determine how climate-related environmental processes (temperature, wind, irradiance) influence the physical and chemical characteristics of aquatic habitats, and how these characteristics in turn affect the diversity and productivity of biological communities. We will develop climate-driven models that describe the physical and chemical processes within aquatic ecosystems. We will determine the structure, diversity and dynamics of the biological communities within these systems, and develop a mechanistic understanding of the linkages between biology, chemistry and physics. We will do this by linking simple models describing how key biological processes (photosynthesis, respiration, nutrient transformations) within the dominant microbial communities, are affected by physical and chemical drivers. Work will focus on sites in the McMurdo Dry Valleys and the McMurdo Ice Shelf. As the programme develops over the next five years we will use natural gradients across the latitudinal range of the Ross Sea, as part of the Latitudinal Gradient Project, to provide a range of conditions within which to further develop and test these models, with an ultimate goal of assessing the resistance and resilience of aquatic ecosystems to climatic variability and other disturbance.

Event K082

27-Oct-04 to 12-Nov-04

Cape Evans

Antarctic Aquatic Ecosystems (Coastal Marine)

NIWA, PO Box 11-115, Hamilton. Anna Schwarz, Phone: (07) 856 7026,

Fax: (07) 856 0151, E-mail: v.cummings@niwa.co.nz

This programme will provide fundamental information on the structural and functional biodiversity of Antarctic coastal ecosystems. It deals with the climate-related environmental processes that influence the community dynamics and spatial structure of populations, and hence the potential for regional climate variability to impact on ecosystem structure and function. We use natural gradients in environmental conditions and productivity within the latitudinal range of the Ross Sea to address how the structure, diversity, trophic interactions and productivity of communities relate to site-specific physical variables. Integrating this knowledge with information on key ecological processes will enable us to tease apart local variation from broad scale pattern. We will determine the source and magnitude of primary production, patterns of resource utilisation by macrobenthos and the biodiversity of benthic communities over different spatial scales. Characterising the structure and function of benthic communities and its link to site-specific productivity is essential to an improved understanding of Antarctic ecology and creates a baseline for distinguishing natural environmental variability, occurring over short ecological time and space scales, from larger scale phenomena such as global warming.

Event K085

20-Aug-04 to 7-Feb-05

Arrival Heights

Drivers of Global Change in the Antarctic: Atmospheric Remote-Sensing

NIWA, Private Bag 50061, Omakau. Dr Stephen W Wood, Phone: (03) 440 0426,

Fax: (03) 447 3348, E-mail: s.wood@niwa.co.nz

This research is to investigate of the Antarctic atmosphere's role in global change, its response to that change, and its impact on it surroundings. Springtime Antarctic ozone depletion is due to anthropogenic change in the stratosphere. This depletion has impacts on UV radiation in the Antarctic and, due to atmospheric circulation, at places in the mid-latitudes such as New Zealand in the summer. Although ozone-destroying chlorine has begun to decline, ozone recovery may be delayed 1–2 decades due to climate change. Testing model-based predictions with Antarctic observations will give early insight into ozone recovery. Changes in greenhouse gases, including ozone, affect the radiative balance of the atmosphere in ways that are not yet fully understood. The Antarctic provides a unique opportunity to determine global trends of atmospheric trace gases at sites isolated from anthropogenic sources. We propose to continue our programme of ground-based remote sensing of ozone and other important trace gases in the atmosphere at Scott Base and Arrival Heights. This involves continued collaboration with overseas groups from Denver, New York and Heidelberg, Germany.

Event K087

20-Aug-04 to 28-Jan-05

Air Sampling

Drivers of Global Change in the Antarctic: Atmospheric Air Sampling

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

7-Jan-05 to 18-Jan-05

Arrival Heights

Climate Data Acquisition – Scott Base and Arrival Heights, Antarctica

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 now 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 now also includes the recently installed sea level recorder at Scott Base.

Event K122

10-Nov-04 to 28-Jan-05

Cape Bird, Cape Hallett

Adélie Penguin Population Dynamics

Landcare Research, Private Bag 6, Nelson. Dr Peter Wilson. Phone: (03) 548 1082, Fax: (03) 546 8590, E-mail: wilsonpr@landcareresearch.co.nz

We are investigating the factors (biotic and abiotic) that control population size and colony distribution of Adélie penguins (*Pygoscelis adeliae*) to determine the demographic mechanism of colony growth (or decline). The aim is to understand the effects of climate change on Antarctic marine organisms by determining the mechanisms regulating population size at higher trophic levels. Currently, this research is being carried out in the southernmost cluster of Adélie colonies in the Ross Sea. The latitudinal gradient of penguin colonies in the Ross Sea provides important environmental variation for understanding population dynamics, and a new initiative is to collect data from Cape Hallett in the northern Ross Sea. In collaboration with a US team, we propose to test the hypotheses: (1) demographic parameters, including those related to a natural philopatry, do not differ among the colonies in the Ross Sea; (2) timing of breeding differs at the colonies depending on environmental factors; (3) the northern position of the wintering area is critical to overwinter survival.

Event K123

3-Dec-04 to 25-Jan-05

Cape Hallett, Dry Valleys

Environmental Protection of Antarctic Soils

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

Fax: (07) 585 4964, E-mail: AislabieJ@Landcareresearch.co.nz

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, microbial diversity, and vulnerability to human impacts; and
- Developing mitigation strategies for management and remediation of hydrocarbon spills on soils.

This programme is linked to the Latitudinal Gradient Project (LGP). Initial investigations will focus on Cape Hallett in Northern Victoria Land, with subsequent field studies further south. At each site along the gradient we will describe the soils, collect samples for microbial and chemical analysis, and measure soil respiration. Soil maps will be developed for the LGP sites and the Wright Valley, and soil vulnerability to human impacts determined. Soil climate stations at 7 locations in the Ross Sea region will continue to be maintained for at least 10 years. At Cape Hallett we will investigate the potential for hydrocarbon degradation in soils and groundwater. Soils data will be added to our Antarctic soils database.

Event: K131

27-Oct-04 to 30-Nov-04

McMurdo Sound traverse

Sea Ice and Southern Ocean Processes

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

Fax: (04) 569 0754, E-mail: t.haskell@irl.cri.nz

A research consortium consisting of the Crown Research Institutes Industrial Research Ltd and the National Institute of Water and Atmosphere together with the Universities of Auckland, Otago and Victoria propose a programme of research 'Sea Ice and Southern Ocean Processes'.

This programme is of direct relevance to southern hemisphere climate, and consequently to the interest and well-being of New Zealand and other southern hemisphere nations. The programme has three complementary and intersecting objectives:

1. Thermal properties and growth processes in sea ice, which focuses on aspects of sea ice that determine how it controls the relationship between the ocean beneath and the atmosphere above.
2. Ocean wave / sea ice linkages relevant to climate, where the aim is to determine how the sea ice interacts with the sea borne wave field, especially in areas of spatial variability and abrupt transitions.
3. Southern Ross Sea oceanography, which focuses on circulation in Antarctic fjords, turbulence under the sea ice and internal waves in McMurdo Sound. Conventional and novel techniques include NMR, thermal and optical characterisation, electrical resistance and modelling of wave propagation in heterogeneous media.

Event: K141

22-Oct-04 to 9-Feb-05

SB Local

Malaysian Antarctic Programme

Malaysian Antarctic Research Programme, Kuala Lumpur, Malaysia, Azizan Samah, Phone: 0060 3 796 74638, Fax: 0060 3 796 75457, E-mail azizans@um.edu.my
Supporting the Malaysian Antarctic Programme.

K142

24 Nov - 11 Dec 05

Victoria Valley, Packard Glacier

Frozen Dunes: an indicator of climate variability, McMurdo Dry Valleys, Antarctica

School of Geography, Planning and Architecture, The University of Queensland, Brisbane, Australia. Dr. Hamish McGowan, Phone +61 7 3365 6651, Fax +61 7 3365 6899, E-mail h.mcgowan@uq.edu.au

This study has two key objectives: 1) it seeks to shed new light on local, regional and synoptic scale atmospheric processes and their variability in the McMurdo Dry Valleys/Ross Sea region. This area has long been viewed as sensitive to low amplitude climatic shifts. We believe that evidence of climate variability in this region may be preserved in the aeolian landforms of the lower Victoria Valley - in particular the barchan dunes adjacent to the terminus of the Packard Glacier. As a result, we intend to determine the rate of morphological change in the dune field and its association to different weather patterns and climate variability in the Ross Sea region; 2) Through field based study of aeolian processes in the Victoria Valley we aim to determine the influence of extreme cold temperatures and the presence of snow and ice on sand transport by the wind. This information is essential for the interpretation of Pleistocene 'sand-covers' such as those found across much of northern Europe, Canada and the United States of America, and aeolian dune systems observed on the surface of Mars.

Event K150

Post-Graduate Research Scholarships

Antarctica New Zealand, Christchurch. Dr Dean Peterson, Phone: (03) 358 0200, Fax: (03)358 0211, E-mail: d.peterson@antarcticanz.govt.nz

The three scholarships are:

- a) **Sir Robin Irvine Scholarship:** awarded to Andrew Clifford of University of Otago for a Masters project aimed at investigating the influence of a remnant volcanic crater identified under the Southern McMurdo Ice Shelf with the use of ground penetrating radar. [See K065].
- b) **New Zealand Post Scholarship:** awarded to Andrew Martin of Victoria University of Wellington for his Doctoral work on the role of bacteria on Antarctic sea ice. [Associated with K043]
- c) **Kelly Tarlton's Scholarship:** awarded to Esme Robinson of Canterbury University for her Masters work on the adaptability of Antarctic fish to changes in water temperature. [Associated with K057]
- d) **Latitudinal Gradient Project Scholarship:** awarded to Erica Hofstee of Waikato University for her Masters research at the Cape Hallett LGP site on the soils and hydrology of the area. [Associated with K123]

Event: K200
15 to 29-Dec-04
Windless Bight

University of Canterbury Graduate Certificate in Antarctic Studies

Gateway Antarctica, University of Canterbury, Private Bag 4800, Christchurch.

Professor Bryan Storey.

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 eleven days of 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: K210
11-Jan-05 to 18-Jan-05
SB Local/Discovery Hut

Project K - Youth on Ice

Project K – Joanne Wilkinson

Four Project K graduates from around the country will complete a project relating to the two remaining original buildings from the International Geophysical Year (1957-59), which are part of Scott Base. The project includes aspects of history, environmental stewardship, science, and international Antarctic involvement.

Event K220
3 to 8-Nov-04

Familiarisation Visit

Andrew Baker. Kelly Tarlton's Underwater World and Antarctic Encounter
Familiarisation visit.

Event K300
TBC
Scott Base Local

Familiarisation Visit for Prime Ministerial Group

Antarctica New Zealand, Christchurch. Lou Sanson, Phone: (03) 358 0200,
Fax: (03) 358 0211.

Familiarisation visit for Prime Minister.

Event: K301
22 to 25-Nov-04
Scott Base Local

Invited Visitor Familiarisation Group

Antarctica New Zealand, Christchurch. Lou Sanson, Phone: (03) 358 0200,
Fax: (03) 358 0211.

Familiarisation visit for key stakeholders.

Event: K303

TBC

Scott Base local

Invited Visitor Familiarisation Group

Antarctica New Zealand, Christchurch. Lou Sanson, Phone: (03) 358 0200,

Fax: (03) 358 0211.

Familiarisation visit for key stakeholders.

Event K304

TBC

Antarctic Heritage Trust Invited Visitors

Antarctic Heritage Trust, Christchurch. Nigel Watson. Phone (03) 358 0200

Familiarisation visit for key stakeholders.

Event K310

17 to 30-Nov-04

Scott Base local

Media Programme

Dominion Post Newspaper

To profile K340 Sir Edmund Hillary and various science and environmental activities and events.

Event K311

19-Nov-04 to 2-Dec-04

Scott Base Local

Media Programme

Mark Sainsbury - TVNZ

To profile K340 and film documentary footage on Sir Edmund Hillary for the International Polar Year. To film various science and other events for news coverage.

Event K312

19-Nov-04 to 2-Dec-04

Scott Base Local

Media Programme

Cliff Joiner - TV3

To profile K340 and film various science and other events for news coverage.

Event K320

3-Dec-04 to 14-Dec-04

Scott Base Local

Artists to Antarctica Programme

David Trubridge.

To use the experience to develop a design ethic and vocabulary related to the environment of Antarctica. To visit the historic huts and ice structures. To develop a series of works on these structures for survival to exhibit in NZ and internationally.

Event K321

18-Jan-05 to 1-Feb-05

Scott Base Local

Invitational Artists to Antarctica Programme

Dick Frizzell

To use the experience to develop a series of artworks to exhibit in New Zealand and internationally.

Event K322

3-Dec-04 to 14-Dec-04

Scott Base Local

Artists to Antarctica Programme

Bernadette Hall and Kathryn Madill

To use the experience to develop artworks and publications as part of the Artists to Antarctica Programme.

Event K323

3-Dec-04 to 14-Dec-04

Scott Base Local

Artists to Antarctica Programme

Kirsten Haydon

To use the experience to develop a series of jewellery objects and installation artworks to exhibit in New Zealand and internationally.

Event K331

25-Nov-04 to 30-Nov-04

Commemorative ceremonies for DC-10 crash

Peter Beck, Dean of Christchurch will be heading the 25th anniversary commemorative church ceremony at Scott Base for the DC-10 crash.

K340

25-Nov-04 to 2-Dec-04

Scott Base local

50th Anniversary visit by Sir Edmund Hillary

Antarctica New Zealand, Christchurch. Lou Sanson, Phone: (03) 358 0200,

Fax: (03) 358 0211, E-mail: l.sanson@antarcticanz.govt.nz

To profile the upcoming 50th anniversary of the establishment of Scott Base, the Trans-Antarctic Expedition, the International Geophysical Year, the joint NZ/US Hallett Station and open the new Field Centre.

Event K400

20-Aug-04 to 22-Feb-05

Antarctica New Zealand Staff Visits

Antarctica New Zealand, Christchurch. Julian Tangaere, Phone: (03) 358 0200,

Fax: (03) 358 0211.

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

5-Oct-04 to 20-Feb-05

Scott Base Summer Support Staff

Antarctica New Zealand, Christchurch. Julian Tangaere, Phone: (03) 358 0200,
Fax: (03) 358 0211, E-mail: j.tangaere@antarcticanz.govt.nz

Event K402

5-Oct-04 to 15-Oct-05

Scott Base Winter Support Staff

Antarctica New Zealand, Christchurch. Julian Tangaere, Phone: (03) 358 0200,
Fax: (03) 358 0211, E-mail: j.tangaere@antarcticanz.govt.nz

Event K403

25-Nov-04 to 30-Nov-04

Antarctica New Zealand Board of Directors Visit

Antarctica New Zealand, Christchurch. Lou Sanson, Phone: (03) 358 0200,
Fax: (03) 358 0211.

Visit to Scott Base by the Antarctica New Zealand Board of Directors.

Event K411

3-Nov-04 to 28-Jan-04

Helicopter support

Antarctica New Zealand, Christchurch. Julian Tangaere, Phone: (03) 358 0200, Fax: (03) 358
0211, E-mail: j.tangaere@antarcticanz.govt.nz

Helicopter support for Antarctica New Zealand sponsored operations provided by Helicopters
(NZ) Ltd.

Event K412

15 to 29-Oct-04

RNZAF Antarctic Field Training

Antarctica New Zealand, Christchurch. Julian Tangaere, Phone: (03) 358 0200,
Fax: (03) 358 0211, E-mail: j.tangaere@antarcticanz.govt.nz

Antarctic field training for RNZAF 40 and 5 Squadron aircrew.

Event K413

14-Dec-04 to 4-Jan-04

RNZN (USCG Attachment)

Antarctica New Zealand, Christchurch. Julian Tangaere, Phone: (03) 358 0200, Fax: (03) 358
0211, E-mail: j.tangaere@antarcticanz.govt.nz

Providing RNZN personnel with experience of US Coastguard icebreaker operations in the
Antarctic.

Event K414

6 to 22-Oct-04

Worker Visitors - Non-engineering

Antarctica New Zealand, Christchurch. Julian Tangaere, Phone: (03) 358 0200,

Fax: (03) 358 0211, E-mail: j.tangaere@antarcticanz.govt.nz

Short term visits by contracted support specialists.

Event K423

7-Jan-05 to 14-Feb-05

Communications Inspections & maintenance

Antarctica New Zealand, Christchurch. Julian Tangaere, Phone: (03) 358 0200,

Fax: (03) 358 0211, E-mail: j.tangaere@antarcticanz.govt.nz

Annual inspection, maintenance and installation of communications equipment at Scott Base and field repeaters.

Event K424

15-Oct-04 to 21-Jan-05

Worker Visitors – Engineering

Antarctica New Zealand, Christchurch. Julian Tangaere, Phone: (03) 358 0200,

Fax: (03) 358 0211, E-mail: j.tangaere@antarcticanz.govt.nz

Short term visits for maintenance, construction or consultancy projects.

Event K425

20-Oct-04 to 28-Jan-05

Construction of Warm Store/ Field Store Facility

Antarctica New Zealand, Christchurch. Julian Tangaere, Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: j.tangaere@antarcticanz.govt.nz

A 1400m² combined warm store/field store facility will be constructed on a site immediately north of the Scott Base garage. When commissioned in September 2005, this facility will provide centralised, heated storage and controlled cold storage for foodstuffs, and heated storage for engineering, housekeeping supplies, and field equipment. The facility will include a dedicated area for preparation of science events for the field, a dedicated freezer for storage of science samples, cargo receipt and dispatch facilities, field equipment maintenance areas, field training briefing room and office space for Scott Base stores and field staff. In addition, there will be a drying room suitable for washing and drying field gear, a fitness centre and a field waste handling facility. Workers will erect the shell of the building during summer of 04/05 and a crew will spend the winter fitting out the interior of the building.

Event K430

6-Oct-04 to 7-Feb-05

Scott Base

Armed Forces Canteen Council

Antarctica New Zealand, 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 K440

7-Jan-05 to 4-Feb-05

Antarctic Heritage Trust Historic Sites Management

International Antarctic Centre, Christchurch. Nigel Watson, Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: n.watson.aht@antarcticanz.govt.nz

Employees and contractors will undertake the annual conservation programme at the historic sites on Ross Island and undertake planning work for the Trust's restoration project. This includes maintenance of the hut structures, completion of site surveys, documentation and assessment of artefacts, conservation treatment and environmental monitoring. Activities are scheduled for Hut Point, Cape Evans and Cape Royds.

Event K450

25-Oct-04 to 14-Dec-04

LINZ

Office of the Surveyor-General, Wellington. Graeme Blick.

Phone: (04) 460 0110, E-mail: g.blick@linz.govt.nz

Land Information New Zealand (LINZ) and its predecessor agencies (the Department of Lands & Survey until 1987 and the Department of Survey and Land Information until 1996) 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 provided for co-operation in these activities and in particular joint topographic mapping, geodetic surveying, and place naming programmes. The logistics for these activities have been provided mainly through the US programme in recent years, and there is a need to move to a more balanced situation. The objectives for this season are to: - Service the tide gauge at Cape Roberts; - Remove old, unused drum beacons; - Support the TAMDEF (Trans-Antarctic Mountains Deformation) programme with the US UNAUCO project.

Event K451

11-Jan-05 to 1-Feb-05

Australian Antarctic Division Familiarisation Visit

Damian Flynn, Phone: 00 61 3 62 323 280, E-mail: damian.flynn@aad.gov.au

Visit of Australian Antarctic Division Expeditioner Clothing and Field Equipment Officer.

Specifically looking at air transport, field training, field equipment, logistics and Search & Rescue.

Event K452

Italian Programme

Contribution to ENEA transport pool.

Event K453 - 454

TBC

Visits by other National Antarctic Programmes

Support official delegations from the Belgian and Chinese Antarctic Programmes.

Event K500

10-Dec-04 to 18-Jan-05

Environmental Management and Monitoring Projects

Rebecca Roper-Gee, Antarctica New Zealand, Christchurch. Phone: (03) 358 0200, Fax: (03) 358 0211, E-mail: r.ropergee@antarcticanz.govt.nz

Environmental review of Antarctica New Zealand operations and supported activities including monitoring for compliance with the Antarctica (Environmental Protection) Act 1994. Ongoing clean up efforts at the former site of joint NZ-US Cape Hallett Station are also planned.

Event K505

21-Jan-05

to 1-Feb-05

Antarctic Treaty Inspection Party

Neil Gilbert, Antarctica New Zealand, Christchurch. Phone: (03) 358 0200,

Fax: (03) 358 0211, E-mail: n.gilbert@antarcticanz.govt.nz

Visit of officials from Treaty Nations to conduct inspections on bases at Vostock, South Pole and Scott Base.