

# Scott Base

Antarctica New Zealand

77°50'96.6"S 166°46'37.0"E

Type: Station

Operational period: Year-round

## Location

Pram Point, Ross Island Antarctica. Scott Base has been New Zealand's permanent base in Antarctica since 1957. The Base provides services and accommodation for the many scientific research parties and groups who visit Antarctica during the summer. The Base is located 3932 km (2114 nautical miles) from Christchurch, New Zealand and 1500 km from the South Pole. The Antarctic mainland is 70 km across McMurdo Sound from Scott Base.

## Biodiversity and natural environment

The topography of Pram Point and the southern tip of Hut Point Peninsula slopes gently southwards to where the land meets the sea or sea ice. The soils are derived from basaltic lava, and consist of loosely compacted stony gravelly sand. Permafrost generally occurs at a depth of approximately 300 mm. The ice free terrestrial environment of the southern tip of Hut Point Peninsula has been modified significantly since 1956 as a result of activities associated with the operation of both Scott Base and McMurdo Station. Despite significant ground disturbance over sixty years of operations at Scott Base, a recent environmental assessment of Pram Point found the area to support diverse biological communities including mosses, lichens, algae and soil invertebrates. Their distribution is sparse but widespread, and predominantly found in areas with low disturbance and higher water availability. South polar skua (*Catharacta maccormicki*) and Weddell seals (*Leptonychotes weddellii*) are regular visitors to Scott Base with Weddell seals occurring in significant numbers (~ 100-200 animals) during mid-summer on the sea ice in front of Scott Base. Adélie penguins (*Pygoscelis adeliae*) and Emperor penguin (*Aptenodytes forsteri*) are occasionally seen in the vicinity of Scott Base. Minke whales (*Balaenoptera acutorostrata*), Killer whales (*Orcinus orca*) and Leopard seals (*Hydrurga leptonyx*) have also been sighted in McMurdo Sound and occasionally come close to shore in front of Scott Base when the sea ice has broken out.

CLIMATE	
Climate zone	Coastal Antarctica
Permafrost	Continuous
Mean annual wind speed (km/h)	19.1
Max wind speed (km/h)	177.8
Dominant wind direction	NE
Sea Ice Break Up	January
Snow free period	None
Total annual precipitation (mm)	
Precipitation type	
Mean annual temperature (°C)	-19.8
Mean temperature in February (°C)	-11.3
Mean temperature in July (°C)	-29
ENVIRONMENT	
Region	Continental Antarctica
Antarctic Environmental Domain: S – McMurdo – South Victoria Land geologic	
Antarctic Conservation Biogeographic Region: 9 South Victoria Land	
Altitude of facility (m)	10
Type of surface facility built on	Scoria permafrost
Long term monitoring	Yes
Waste management	Yes
Hazard(ous) management	Yes
Fuel spill response capability	Yes



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## History and facilities

Sir Edmund Hillary's leadership in 1957 set a high standard of endeavour and marked the beginning of the development of a solid science support programme. His overland trip to the South Pole, backing the Commonwealth Trans-Antarctic Expedition, was a daring and innovative journey. The proposal for a New Zealand base in Antarctica was put to the New Zealand Government in 1953. The building of the base began in 1956 to support the Trans-Antarctic Expedition and International Geophysical Year of 1957-1958. Aircraft and ship operations and infrastructure are supported by the United States Antarctic Program (USAP) through the joint logistic pool arrangements.

## General research and databases

The science supported by Antarctica New Zealand fits within three research themes outlined in the Antarctic and Southern Ocean Science Strategy. Scientific research from a wide variety of disciplines is supported within these themes and it is recognised that much of the research is applicable to more than one of these themes. See more at: [www.antarcticanz.govt.nz/science/](http://www.antarcticanz.govt.nz/science/).

## Features in the facility area

Coast, Hill, Ice shelf, Low artificial light pollution, Low humidity, Melt streams, Mountain, Other Biological, Rock, Sea, Sea ice, Seal colonies, Shoreline, Snow, Sustrugi.

## Main science disciplines

Atmospheric chemistry and physics, Climate change, Climatology, Ecology, Environmental sciences, Fishery, Geocryology, Geodesy, Geology, Geomorphology, Geophysics, GIS, Glaciology, Limnology, Mapping, Marine biology, Oceanography, Paleoclimatology, Paleoecology, Paleolimnology, Sedimentology, Soil science, Terrestrial biology.



Photo: C. Cary, Antarctica New Zealand Pictorial Collection



Photo: A. Powell, Antarctica New Zealand Pictorial Collection

FACILITIES INFRASTRUCTURE	
Area under roof (m <sup>2</sup> )	4000
Area scientific laboratories (m <sup>2</sup> )	400
Type of scientific laboratories: General purpose and clean staging areas for scientific groups; Customised facilities in portable container laboratories that can dock into main building; Small wet laboratory facilities	
Conference room (capacity)	30
Logistic area (m <sup>2</sup> )	250
Number of beds	86
Showers	Yes
Laundry facilities	Yes
Power supply type	Fossil fuel, Renewable
Power supply (V)	240
Power supply (hours per day)	24
Hydroponics facilities	Yes
Number of staff on station (peak/summer season)	27
Number of scientists on station (peak/summer season)	51
Number of staff on station (off peak/winter season)	11
Number of scientists on station (off peak/winter season)	0
Max number of personnel at a time (staff, scientists and others)	86
Specific device/Scientific equipment: MF Radar, Ionosonde, Dobson Ozone Spectrophotometer, Thermo Electric Instrument (TEI), Jobin Yvon spectrometer (JY), Antarctic Diode Array Spectrometer (ADAS), Antarctic Diode Array Spectrometer II (ADASII), Bruker Fourier Transform Interferometer, Chlorine Monoxide Microwave Radiometer (CLOE), Air sampler, Geomagnetic instruments, Worldwide Lightning Location Network (WWLN), Antarctic-Arctic Radiation Belt (Dynamic) Deposition VLF Atmospheric Research Consortium (AARDDVARK)	
Scientific services possible: Scientific services are supporting research related to long-term monitoring/observations	
Long-term monitoring/observations: Includes Ross Sea penguin census, atmospheric measurements including ozone concentration, climate data and geophysical measurements. See more at: <a href="http://www.antarcticanz.govt.nz/science/our-science/science-in-progress/">www.antarcticanz.govt.nz/science/our-science/science-in-progress/</a>	
MEDICAL FACILITIES	
Area of medical facility (m <sup>2</sup> )	10
Staff with basic medical training or doctor (Summer)	6
Staff with basic medical training or doctor (Winter)	2
Capability: Basic	
Equipment: Limited to basic first aid equipment and care facilities as the USAP support higher medical care for Antarctica New Zealand personnel if required	
Distance to hospital (km)	3
Closest emergency facility in Antarctica (km)	3
Closest emergency facility external (km)	4000
Medical research capabilities	
Medical screening requirements	Yes
VEHICLES AT FACILITY	
Sea transportation:	
Land transportation: Bulldozers, All-Terrain Tracked vehicle, snow groomers, snowmobile, ATVs, wheeled loaders, telehandler, 4WDs, trucks	
WORKSHOP FACILITIES	
Mechanical, Light Engineering and Carpentry workshop	
COMMUNICATIONS	
Computer, E-mail, Internet, Satellite phone, VHF	
TRANSPORT AND FREIGHT	
Access	Air, Ship
Transport to facility: 4WD	
Number of airstrips	0
Length (m) of longest runway	
Width (m) of longest runway	
Number of flight visits per year	
Period of flight visits per year:	
Helipad	Yes
Number of ship visits per year	
Period of ship visits per year:	
Ship landing facilities:	