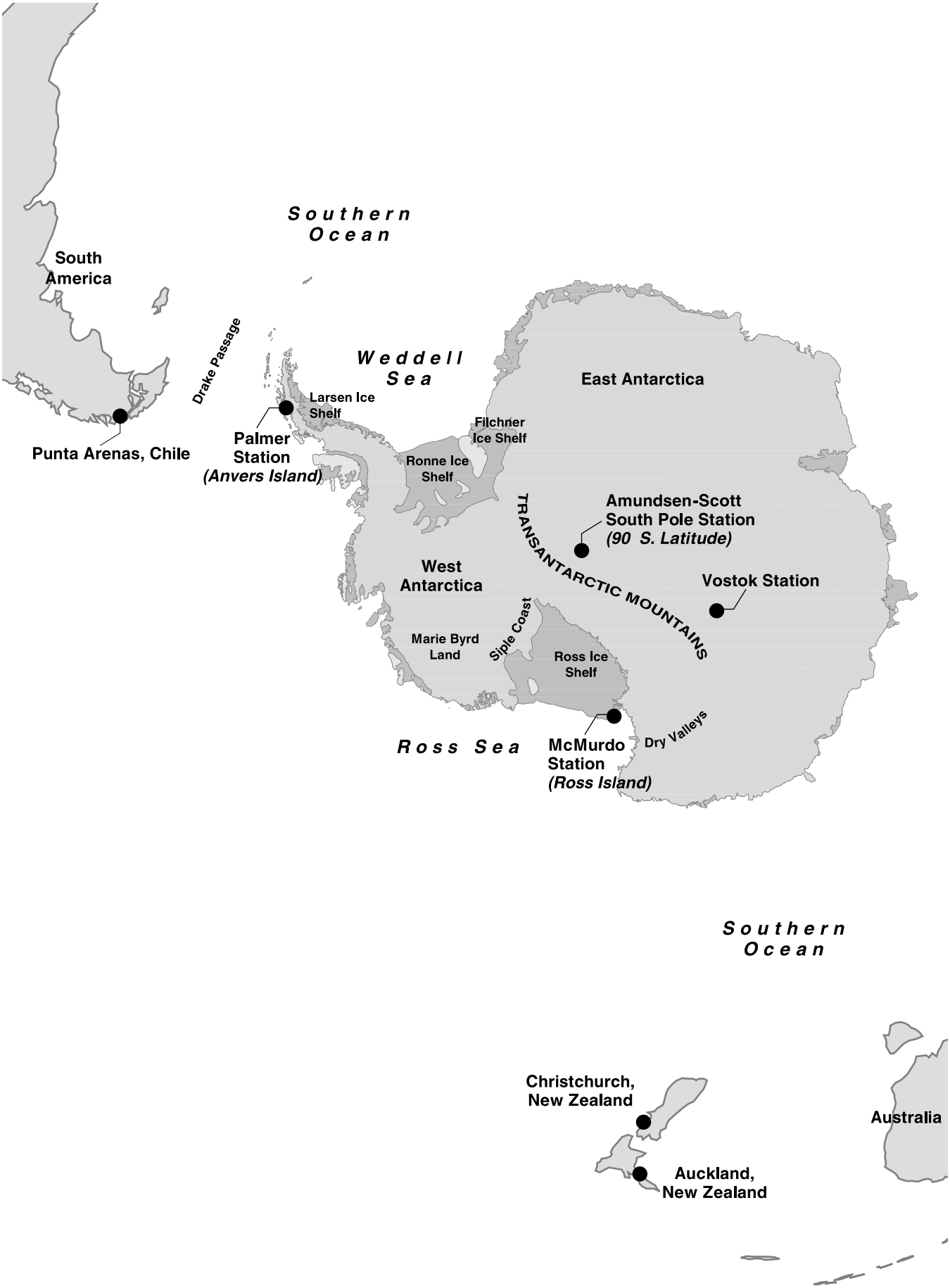
United States Antarctic Program

# Participant Guide

## 2010-2012 Edition

NSF 10-062

NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230


Southern Ocean
South America
Drake Passage
Weddell Sea
East Antarctica
Larsen Ice Shelf
Filchner Ice Shelf
Punta Arenas, Chile
Palmer Station
(Anvers Island)
Ronne Ice Shelf
Amundsen-Scott South Pole Station
(90 S. Latitude)
TRANSANTARCTIC MOUNTAINS
West Antarctica
Vostok Station
Siple Coast
Marie Byrd Land
Ross Ice Shelf
Dry Valleys
Ross Sea
McMurdo Station
(Ross Island)
Southern Ocean
Christchurch, New Zealand
Australia
Auckland, New Zealand

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## The United States Antarctic Program

Welcome to the U.S. Antarctic Program.

The *U.S. Antarctic Program Participant Guide* was completely revised and updated for 2010-12. I think you will find it useful to read the entire publication well in advance of your deployment date. The book provides very practical information on the U.S. Antarctic Program, preparation for deployment, transport of people and cargo, and living and working in Antarctica. The *Guide* contains answers to the many questions that arise during an initial deployment, and is available online at **www.usap.gov**. I hope you will complete and return the evaluation card at the back of the book.

The U.S. Antarctic Program is committed to the safety and health of all participants regardless of affiliation or length of deployment. The harsh conditions in Antarctica represent obvious challenges to safe operations. Some tasks are potentially hazardous. Medical care on the Ice is limited. Reducing the risk of injury and illness depends on a combination of systematic risk assessment, hazard elimination or control, appropriate use of personal protective equipment, and safe work practices. Please pay close attention to the training on living and working safely in Antarctica. Report unsafe conditions promptly.

Your safety and the safety of those around you will depend on your conduct on the Ice. Alcoholic intoxication in the harsh Antarctic environment can be particularly dangerous and cannot be tolerated.

Note as well that you are responsible for full compliance with measures to protect the Antarctic environment. Failure to meet these obligations may result in sanction under U.S. law.

All of us responsible for U.S. Antarctic Program support wish you a productive and safe deployment.

Karl Erb, Director
Office of Polar Programs
National Science Foundation

# Some Antarctic Basics...

## Antarctica...

This continent is the highest, driest, coldest, windiest, and emptiest place on earth. An ice sheet covers approximately 98% of Antarctica. At its thickest point the ice sheet is 4,776 m (nearly 3 mi) deep. This ice is approximately 90% of all the world's ice (by volume) and is 70% of all the world's fresh water. There are many penguins and abundant sea life along the coast – but there is little life on the continent, and there are no indigenous people.

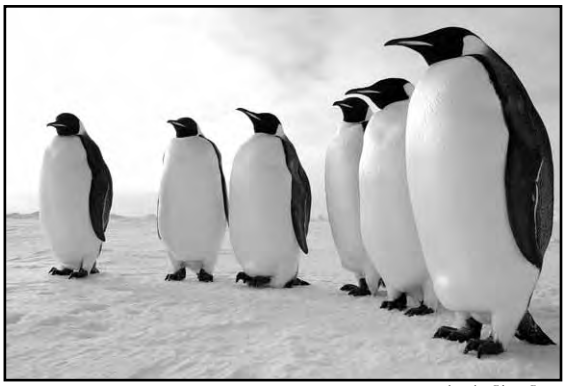

*photo by Glenn Grant*

*Emperor penguins near McMurdo Station.*

## Temperatures...

The mean annual temperature at South Pole Station is minus 49°C (-56°F). During the austral summer, temperatures at McMurdo Station may reach as high as 10°C (50°F), while at South Pole Station, the summer temperature may reach minus 18°C (-0.4°F). Palmer Station has a milder climate, with summer temperatures reaching as high as 13°C (55°F).

## Daylight and Darkness...

Simply put, much of the area above 66.5 degrees South enjoys one long day and one long night each year – with weeks of sunrise and sunset in between. There are spectacular displays of aurora australis (southern lights) during the winter darkness.

## Ownership...

No nation owns Antarctica. The Antarctic Treaty, which has been signed by 48 countries, reserves the area south of 60 degrees South as a zone for the peaceful conduct of research. Treaty nations coordinate and cooperate to maximize research results and minimize logistics requirements.

## Size and Distance...

The continent is roughly 14 million sq. km. (5.4 million sq. mi.). The United States is smaller at 9.36 million sq. km. (3.6 million sq. mi.). The area of sea ice around Antarctica varies from 4 million sq. km. (1 million sq. mi.) in summer to 20 million sq. km. (7.7 million sq. mi.) in winter. The distance from Washington, D.C., to McMurdo Station is approximately 14,830 km. (9,920 mi.).

## Science...

Antarctica provides excellent conditions for scientific research on such topics as global climate change, ozone changes, UV radiation, earth sciences, glaciology, astronomy, oceanic and atmospheric circulation, marine ecosystems, meteorite studies and biology, among others.

## History...

The existence of Antarctica was only a hypothesis until it was first sighted in 1820-21. No one set foot on the continent until 1895. The South Pole was first reached in 1911 and a year-round research station was established in 1956. Antarctica's history is packed full of extraordinary stories of heroism and survival.

# Welcome...

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Congratulations on joining the U.S. Antarctic Program. As a participant in this national effort, you are one of only 3,000 people who deploy each year to ships, stations and field camps to conduct or support research projects in Antarctica and the Southern Ocean.

Along with the honor of participating in this program, comes responsibility and stewardship. This guide is designed to assist you in meeting those responsibilities while achieving your personal and professional objectives as a U.S. Antarctic Program participant. These responsibilities include actions required of you to assure the nation's compliance with the Antarctic Treaty and to help you comply with U.S. public law and program procedures. Noncompliance can result in substantial civil or criminal penalties.

Safety, environmental protection and your health are of paramount importance. Continued vigilance and action in these areas are essential to maintain a safe and productive environment for work in Antarctica.

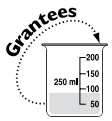
This **U.S. Antarctic Program Participant Guide** is revised every two years. If you have recommendations on how to improve it, please submit your suggestions using the evaluation card found at the back of this book.

Scott Borg, Director
Division of Antarctic Sciences
Office of Polar Programs

William Colston, Director
Division of Antarctic
Infrastructure and Logistics
Office of Polar Programs

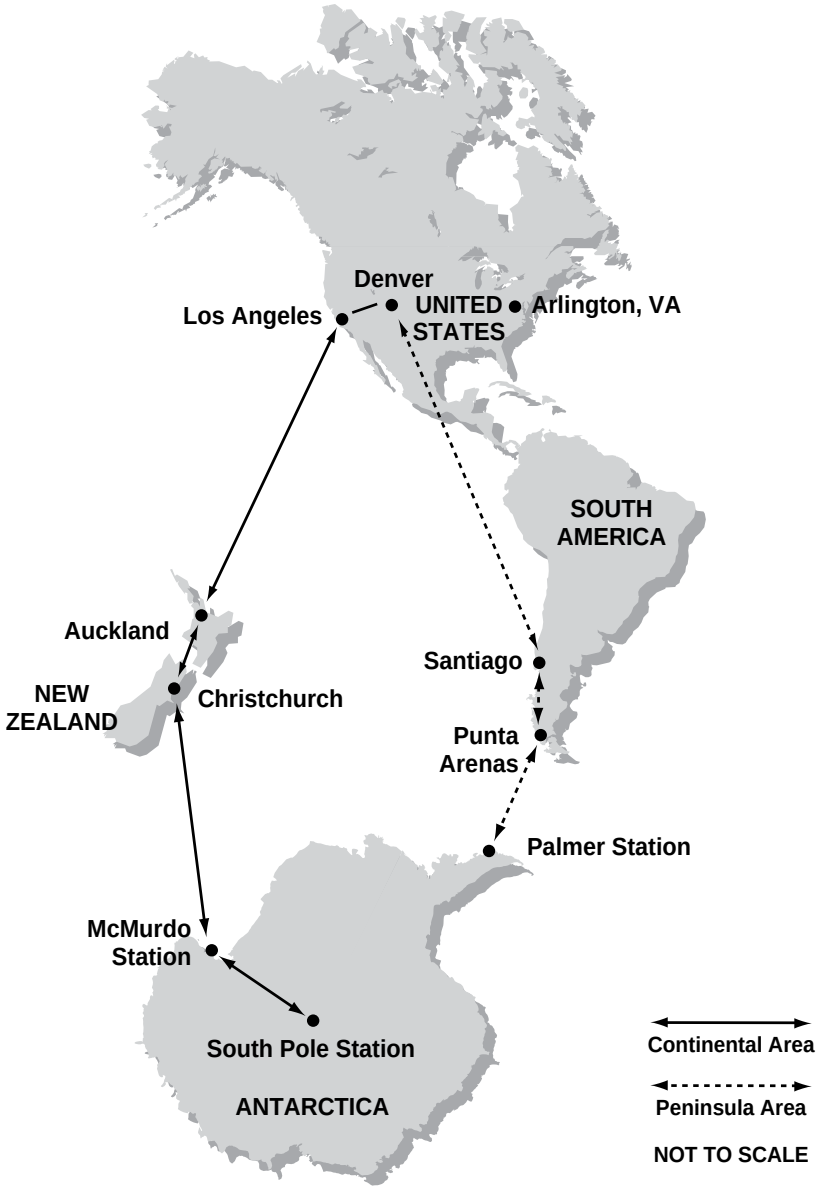
This **Participant Guide** is the initial source of information for U.S. Antarctic Program participants. It covers McMurdo, Palmer and South Pole stations, field camps and the research vessels. The information will help you prepare for your Antarctic experience and point you toward other sources. Be sure to work closely with your **point-of-contact** for more detailed information and the particular requirements related to your objectives.

**Icons** are used throughout this handbook. The **Information** icon directs you toward other publications and sources of related information. The **Grantees** (scientists) and **RPSC Employees** icons indicate information that applies especially to these groups.



All U.S. Antarctic Program participants – including grantees, RPSC employees, visitors and military – should use this handbook for general reference only. Authoritative guidance is provided in grant instruments, employment contracts or other legally binding documents.

# USAP Logistics



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## CHAPTER 1:

# United States' Role in Antarctica

*The flags of the 12 original signatory nations of the Antarctic Treaty are displayed at Amundsen-Scott South Pole Station.*

*photo by Glenn Grant*

Today's U.S. role in Antarctica derives from American expeditions to the region and diplomatic initiatives that have taken place almost since the birth of the United States. This history led to a continuous U.S. presence in the region since the 1950s and to a consistent U.S. policy toward Antarctica that has been reaffirmed repeatedly over the decades, most recently by high-level reviews in 1994, 1996 and 1997. Current federal policy suggests continuation into the foreseeable future of a strong U.S. government capability to support antarctic scientific research.

## HISTORY

### U.S. Expeditions, 1775-1948

The first Americans to work in the Antarctic were sealers and whalers who discovered many subantarctic islands and were first to explore parts of the great peninsula jutting out of the Antarctic mainland toward South America. Among them was the youthful Nathaniel Palmer, who may have been the first person to see Antarctica. Sailing the 47-ft. sloop *Hero*, Palmer almost certainly viewed the Antarctic Peninsula from a distance of about 5 km on November 16-17, 1820. (Historians have not settled the question of who discovered Antarctica.) James Eights, a geologist from Albany, New York, became the first U.S. scientist to work in Antarctica. In 1830, aboard the *Annawan*, Eights made investigations in the South Shetland Islands and westward along the Antarctic Peninsula. Eights Coast, 90 to 100 degrees West longitude, is named for him.

Expeditions sponsored by several nations approached the antarctic continent early in the 19th century. Among the leaders was Charles Wilkes, a U.S. Navy lieutenant who commanded an expedition in 1839 and 1840 that was the first to prove the existence of the continent. His expedition mapped 2,400 km. of antarctic coastline in the Indian and Australian quadrants.

For the next 70 years U.S. interest in Antarctica, outside of periodic whaling voyages, lay dormant. In 1928-1930 and 1933-1935, Admiral Richard E. Byrd led two privately sponsored expeditions, one of which included the first flight over the South Pole, and U.S. interest rose

dramatically. Another American, Lincoln Ellsworth, conducted a series of privately financed expeditions in the 1930s. Ellsworth's most memorable contribution was his transcontinental flight from Dundee Island off the Antarctic Peninsula to the Bay of Whales on the Ross Sea. The U.S. Antarctic Service Expedition (1939-1940), under the leadership of the Navy, maintained bases at Marguerite Bay and Bay of Whales.

Airplane flights and traverses continued the geographic and scientific reconnaissance that Byrd had started. The United States' Operation Highjump in 1946-1947 was the largest single expedition ever to explore Antarctica, involving 13 ships, numerous airplanes and more than 4,700 men. Aerial photography was used extensively to record unexplored areas. The next year, the Navy's Operation Windmill used helicopters to complete some of the work begun during Highjump. Also that year, Finn Ronne led a privately sponsored U.S. Antarctic expedition, which reoccupied the Marguerite Bay base for a year and pushed exploration of the Antarctic Peninsula southward.

*photo by William McPherson*

*Dr. Paul Siple was one of 18 men (and one dog) who spent the first winter at the South Pole in 1957 as part of the International Geophysical Year. Siple was the lead scientist during the IGY.*

## International Geophysical Year

The 1957-1958 International Geophysical Year (IGY) emphasized polar exploration and included research by 12 nations at 67 stations in Antarctica. For the first time, year-round stations were maintained in the continental interior, and the distribution of stations was sufficient to permit synoptic studies. It was the greatest coordinated scientific assault on Antarctica ever mounted.

The IGY is an antarctic milestone. It produced the first understanding of the broad relationships of the continent's ice topography, the discovery of many new major geographical features, and a revelation of the significance of the atmosphere above the continent. The United States established seven IGY wintering stations: four on the coast (Little America, Hallett, Wilkes and Ellsworth), two inland (Byrd and South Pole) and a logistics base (McMurdo Sound). It made 6,000 km. of traverses, operated 10 to 12 ships each season, and flew 23 Navy and 8 Air Force airplanes. The U.S. National Committee for the IGY of the National Academy of Sciences administered U.S. participation. The National Science Foundation (NSF), a federal agency established in 1950 to support basic research and education in the sciences and engineering, administered funding for the U.S. science projects, and the Navy and the Air Force supported these efforts logistically.

## Antarctic Treaty

No nation owns Antarctica. A passport is not required to enter, though you will need one en route to Antarctica. Perhaps because of this lack of ownership and freedom of entry, nations interested in Antarctica have developed a framework, the Antarctic Treaty, for cooperation and management of antarctic concerns.

The Antarctic Treaty entered into force in 1961, and its original 12 nations include those that were active in Antarctica during the IGY. The treaty is a remarkable achievement whose primary success has been to reserve the area south of 60 degrees South latitude as a zone of peace: it prohibits measures of a military nature, including fortifications, and it prohibits nuclear explosions and the disposal of radioactive waste. It gives treaty parties the right to inspect all areas of Antarctica, including stations, installations, equipment, ships and airplanes, to ensure continuing adherence to the treaty.

The treaty encourages scientific investigation in Antarctica and, to promote international cooperation, provides for annual exchange of plans, personnel, and scientific observations and results. The United States, a leader in both the establishment of the treaty and in its continued operation, cooperates extensively with the other treaty nations in scientific research and operational support. See The Antarctic Treaty in Appendix A to read the original text.

Treaty nations hold consultative meetings routinely. Measures supplementing the treaty have been enacted at such meetings. The Agreed Measures for the Conservation of Antarctic Fauna and Flora, recommended at the third consultative meeting in 1964, resulted in passage in the United States of the Antarctic Conservation Act of 1978. A Convention on the Conservation of Antarctic Seals entered into force in 1978, and a Convention on the Conservation of Antarctic

Marine Living Resources entered into force in 1982. Special consultative meetings during the 1980s led to a 1991 protocol for comprehensive environmental protection and a ban on mining. The environmental protocol entered into force in 1998.

Many nations are now members of the Antarctic Treaty. In addition to diplomatic interchange carried out under the Antarctic Treaty by the Department of State and its counterparts in other nations, leaders of the various national antarctic program offices (NSF's Office of Polar Programs and its counterparts abroad) directly coordinate and exchange views and plans by means of a Council on Managers of National Antarctic Programs (COMNAP) and the Standing Committee on Antarctic Logistics and Operations (SCALOP).

In 2001, Antarctic Treaty consultative parties established a secretariat in Buenos Aires, Argentina, for support of Antarctic Treaty activities. Besides assisting with preparation for annual meetings, the Secretariat also is responsible for information related to the Treaty System and the Protocol. Its web site, **www.ats.aq**, includes a database describing science and operations for each nation in Antarctica and information about the operation of the treaty.

## UNITED STATES ANTARCTIC PROGRAM

The results of research performed during the IGY were so interesting scientifically that the United States and the other IGY nations decided to continue their Antarctic work. The NSF was given responsibility for the U.S. research effort, and in 1959 established the U.S. Antarctic Research Program (USARP). Mapping, biology and ocean sciences were added to the already active disciplines of geology and geophysics, glaciology, meteorology and upper atmosphere physics. The Department of Defense was tasked to support the scientific effort, and established a unit, Operation Deep Freeze, to perform this work.

After 1971, the NSF was assigned overall responsibility for U.S. activities in Antarctica. The term U.S. Antarctic Program (USAP) came into broader use to designate both the U.S. Antarctic Research Program and operational activities, including Operation Deep Freeze, that support the research program and other features of the U.S. presence in Antarctica.

Research is pursued in aeronomy and astrophysics, glaciology, integrated system science, ocean and atmospheric sciences, earth sciences, and organisms and ecosystems, so that an understanding of Antarctica's natural features and processes can be developed, and the high latitude location of Antarctica can be utilized for study of near-earth and extraterrestrial processes. Results of U.S. antarctic research performed since the IGY have had a great role in developing understanding of Antarctica, its role in global change, and its ecological and environmental processes, and have placed the United States in a position of scientific and diplomatic leadership in Antarctica.

Programs to integrate research and education have become a part of the U.S. Antarctic Program, as they have in other programs the NSF supports. There is also an Artists and Writers Program facilitating works of art to increase public understanding of antarctic research and the continent.

### U.S. Antarctic Policy

Our nation's policy for Antarctica has been consistent over the years. It is based on four principles:

1) Nonrecognition of territorial claims.
2) Retention of the right to participate in any future uses of the region.
3) Use of Antarctica for peaceful purposes only.
4) Free access for scientific investigation and other peaceful pursuits.

The nonrecognition of territorial claims dates to 1924, when Secretary of State Charles Evans Hughes wrote that discovery of lands unknown to civilization "does not support a valid claim of sovereignty unless the discovery is followed by an actual settlement of the discovered country." In

## 2009 – 2010 USAP Statistics

- Approximately 3,000 participants worked at U.S. Antarctic stations.
- Approximately 90% of the participants traveled through New Zealand.
- Participants originated from 48 states, with Colorado, Alaska and California being the most represented.
- Approximately 80% went during the austral summer season and 20% wintered.
- Approximately 34% were female and 6% were minorities.
- More than 800 scientists did research on more than 125 different science projects in Antarctica.

1934, the assistant secretary of state added: "I reserve all rights which the United States or its citizens may have with respect to this matter." President Franklin D. Roosevelt reaffirmed the United States' stance in 1939: "The United States has never recognized any claims of sovereignty over territory in the antarctic regions asserted by any foreign state." And in 1947 Dean Acheson, the under secretary of state, wrote that the United States "has not recognized any claims of any other nations in the area and has reserved all rights which it may have in the area."

As early as 1948, drawing on its leadership in antarctic and world affairs, the United States had proposed an international trusteeship. The seven original claimant nations and the United States (and other nations, if they wished) would have agreed "not to seek a division of the territory in the area, but to join with the others." The eight nations would make joint explorations and would have free access over the area.

For a decade the idea did not catch. Then the IGY renewed ties, and in May 1958, President Dwight D. Eisenhower invited the 11 other antarctic IGY nations to come to Washington to draft an Antarctic Treaty. He wrote: "The United States is dedicated to the principle that the vast uninhabited wastes of Antarctica shall be used only for peaceful purposes …. We propose that Antarctica shall be open to all nations to conduct scientific and other peaceful activities there." Referring to the IGY, the president wrote: "Our proposal is directed at ensuring that this same kind of cooperation for the benefit of all mankind shall be perpetuated."

Secretary of State John Foster Dulles referred to the extensive activities of U.S. expeditions to the Antarctic and set forth the basic position and proposal of the United States in these words:

> *In view of the activities of the United States and its nationals referred to above, my Government reserves all of the rights of the United States with respect to the antarctic region, including the right to assert a territorial claim or claims.*
>
> *It is the opinion of my Government, however, that the interests of mankind would best be served, in consonance with the high ideals of the Charter of the United Nations, if the countries which have a direct interest in Antarctica were to join together in the conclusion of a treaty which would have the following peaceful purposes:*
>
> *A. Freedom of scientific investigation throughout Antarctica by citizens, organizations, and governments of all countries, . . . .*
>
> *B. International agreement to ensure that Antarctica be used for peaceful purposes only.*
>
> *C. Any other peaceful purposes not inconsistent with the Charter of the United Nations.*
>
> *It is believed that such a treaty can be concluded without requiring any participating nation to renounce whatever basic historic rights it may have in Antarctica, or whatever claims of sovereignty it may have asserted. It could be specifically provided that such basic rights and such claims would remain unaffected while the treaty is in force, and that no new rights would be acquired and no new claims made by any country during the duration of the treaty.*

The nations met, the Antarctic Treaty was written, and all the proposed provisions were in it. The treaty entered into force in 1961. The Antarctic Treaty became the keystone of U.S. antarctic policy. See Appendix A.

In October 1970, President Richard M. Nixon stated U.S. policy for Antarctica to be:

> *To maintain the Antarctic Treaty and ensure that this continent will continue to be used only for peaceful purposes and shall not become an area or object of international discord.*
>
> *To foster cooperative scientific research for the solution of worldwide and regional problems, including environmental monitoring and prediction and assessment of resources.*
>
> *To protect the antarctic environment and develop appropriate measures to ensure the equitable and wise use of living and nonliving resources.*

The president added:

> *Science has provided a successful basis for international accord, and the Antarctic is the only continent where science serves as the principal expression of national policy and interest.*

In 1970 and again in 1976, National Security Decision Memoranda 71 and 318 reaffirmed the "importance of maintaining an active and influential U.S. presence in the Antarctic" that is "responsive to United States scientific, economic, and political objectives."

In February 1982, President Ronald Reagan reaffirmed the prior policy and noted that the presence in Antarctica shall include "the conduct of scientific activities in major disciplines" and "year-round occupation of the South Pole and two coastal stations." See Appendix B.

In 1990, the Antarctic Protection Act (Public Law 101-594) banned mineral resource activities by U.S. citizens.

A 1993 decision by a U.S. appeals court established that the National Environmental Policy Act (Public Law 91-190) applies to U.S. government activities in Antarctica. This decision requires the formal evaluation of any activities that may have environmental impacts.

The 1994 Presidential Decision Directive NSC-26, U.S. Policy in the Arctic and Antarctic Regions, states four U.S. policy objectives in Antarctica: protecting the environment; protecting opportunities for scientific research; maintaining Antarctica as an area of international cooperation for peaceful purposes; and conserving living resources in the oceans surrounding Antarctica.

In 1996, the president's National Science & Technology Council concluded that U.S. national and scientific interests are well served by continued involvement in scientific activity in the Antarctic. The policies laid out in the 1982 Presidential Memorandum 6646 continue to be appropriate. The council's 83-page report, United States Antarctic Program, is on the NSF's Internet web site at **www.nsf.gov/pubs/1996/nstc96rp/start.htm**.

In 1997, an external panel assembled by the NSF in response to a recommendation of the 1996 report concluded, "We believe the U.S. Antarctic Program is well managed, involves high-quality science, and is important to the region as well as to the United States." The panel's report led to a congressional commitment of support for the present array of three U.S. Antarctic Program year-round stations and for major modernization of the U.S. research station at the geographic South Pole. The 94-page report, The United States in Antarctica, can be found on the NSF web site at **www.nsf.gov/pubs/1997/antpanel/start.htm#pdf**.

## ANTARCTIC PROGRAM STRUCTURE

Cooperation of multiple entities is coordinated by the NSF in support of the U.S. Antarctic Program.

### National Science Foundation

The NSF has overall funding and management responsibility for U.S. activities in Antarctica. This responsibility involves several functions:

- Annual preparation of plans and budget for consideration -within the executive branch, and for review and appropriation by Congress.
- Developing scientific goals for Antarctica, obtaining advice as needed from the scientific community, and communicating these goals to the scientific community.
- Receipt of proposals for research and education projects from U.S. universities, other research institutions, and federal agencies; evaluation of these proposals for relevance to program goals, scientific merit, and logistics feasibility; and granting of funds (as available) to these institutions for performance of the projects in Antarctica and completion of analysis upon return.
- Detailed planning of logistics, and transmitting logistics requirements and necessary funds to elements of the Department of Defense and to the United States Coast Guard.
- Facilities management, design, planning, engineering, construction and maintenance.
- Development and management of a contract with a commercial firm, currently Raytheon Polar Services (RPSC), for operation of antarctic stations and research ships and related services including construction.

- Development and implementation of a comprehensive safety, environment, and health program for U.S. activities in Antarctica.
- Arrangement of cooperative scientific and logistics programs with other Antarctic Treaty nations.
- Designation of a senior U.S. representative in Antarctica and on-site management of the field programs in Antarctica.
- Serving as a clearinghouse and source of information regarding antarctic records, files, documents, and maps maintained within agencies and nongovernmental organizations.

The staff in the NSF's Office of Polar Programs (NSF/OPP) has day-to-day responsibility for these functions. The address is: National Science Foundation, 4201 Wilson Boulevard, Suite 755, Arlington, VA 22230. Useful telephone numbers are:

| | |
|---|---|
| Office Director | 703-292-8030 |
| Antarctic Sciences | 703-292-8033 |
| Polar Environment, Health and Safety | 703-292-8031 |
| Antarctic Infrastructure and Logistics | 703-292-8032 |
| Information | 703-292-8014 |
| Permits | 703-292-8030 |
| Facsimile machine | 703-292-9080 |
| Web site | **www.nsf.gov** |

*photo by Elaine Hood*

*A U.S. Antarctic Program helicopter owned and operated by PHI, Inc., carries science cargo to a field camp.*

## Support Contractors

The NSF prime antarctic support contractor, RPSC, provides support functions related to the program. The scope of work that RPSC is responsible for includes:

- Supporting science and operating research labs.
- Procuring, arranging for transport, warehousing and issuing equipment and supplies.
- Designing, procuring and constructing facilities.
- Operating and maintaining stations, research vessels, and numerous field camps.
- Arranging medical clearance and travel of parties.
- Managing transportation of passengers and cargo.
- Arranging annual resupply and fuel of McMurdo by Military Sealift Command contract ships.
- Providing marine terminal operations.
- Complying with safety, health, and environmental requirements.

The point-of-contact for RPSC may be reached at 303-790-8606, fax 303-790-9130. The address is: 7400 S. Tucson Way, Centennial, CO 80112-3938.

Other organizations are also contracted by NSF, RPSC and the Department of Defense to perform specific tasks. Two of these include PHI, Inc., for helicopter support and Kenn Borek Air for fixed-wing aircraft support.

## Department of Defense

The Department of Defense (DoD) provides military logistics, reimbursed by the NSF, as part of the U.S. Antarctic Program, as directed by Presidential Decision Memorandum 6646, and in accordance with the NSF-DoD Memorandum of Agreement. This support includes:

- Shipborne cargo between the U.S. West Coast and McMurdo Station (Military Sealift Command).
- Shipborne fuel delivery to McMurdo Station (Military Sealift Command).
- Airlift (C-17) between Christchurch, New Zealand, and McMurdo (Air Mobility Command).
- LC-130 Hercules (ski-equipped) airlift in Antarctica and between Antarctica and New Zealand (109th Air Wing, Air National Guard).

- The annual resupply cargo ship is loaded and unloaded by the Navy Cargo Handling and Port Group.
- Weather forecasting, air traffic control, ground NAVAID electronics maintenance, RF spectrum management, and DoD messaging (SPAWAR Office of Polar Programs).
- Information Security/Information Assurance management and government oversight support (SPAWAR Office of Polar Programs).
- Electronic systems engineering including design, procurement and installation (SPAWAR Office of Polar Programs).

The Commander, Joint Task Force Support Forces Antarctica (CJTF SFA), is responsible for DoD forces deployed in support of Operation Deep Freeze. This person is normally located in Hickam AFB, Hawaii.

The Deputy Commander JTF-SFA (DCJTF) executes the DoD mission and manages DoD assets on behalf of CJTF-SFA and is present in either New Zealand, Antarctica or Hawaii. The commander of the 13th Air Expeditionary Group (13 AEG/CC) commands all DoD aviation operations and is normally present at McMurdo. At different times, the DCJTF will act as the 13 AEG/CC.

*photo by Peter Somers*

*A U.S. Air Force C-17 hauls passengers and cargo, such as this large tractor, from Christchurch, New Zealand, to McMurdo Station, Antarctica.*

## Department of Homeland Security

The Department of Homeland Security (United States Coast Guard) has provided icebreaker services, reimbursed by the NSF. These services have included:

- Channel breaking the fast ice of McMurdo Sound in advance of the annual fuel and resupply ships.
- Escorting supply ships into and out of McMurdo Station.
- Refueling Marble Point.
- Providing other assistance, including science project support, as required.

## Department of the Interior

The Department of the Interior's Aviation Management Division (DOI/AMD) provides procurement assistance, contract administration, and inspection for commercial aircraft services contracted to the U.S. Antarctic Program. The department's Geological Survey provides mapping control in Antarctica, compiles and publishes geologic and topographic maps, and administers Antarctic place-name decisions.

## Department of State

The Department of State is responsible for the formulation of foreign policy and the provision of foreign policy direction relating to the development and implementation of an integrated U.S. program for Antarctica; for the conduct of foreign relations regarding Antarctica; and for legal matters relating to the interpretation and implementation of the Antarctic Treaty. The Department of State chairs the Antarctic Working Group, which is a subgroup of the Interagency Working Group on Global Environmental Affairs. The Antarctic Working Group formulates policy guidance for U.S. activities under the Antarctic Treaty. Its members represent the Department of State (chair), the NSF, the Department of Defense, and other agencies as appropriate.

## International Cooperation

Within the context of the Antarctic Treaty, extensive international cooperation takes place in Antarctica to accomplish both science projects and logistics more effectively. Some past and current examples are exchanges of personnel among projects and stations, cooperative planning and execution of large-scale science projects, and the exchange or shared use of logistics assets such as ships and airplanes. Recently, the NSF has collaborated with Russia and Sweden to provide ice breaking services to McMurdo Station. The United States has pursued cooperative projects with most Antarctic Treaty consultative nations.

The NSF encourages U.S. scientists to propose collaborative research with foreign colleagues using U.S. facilities and/or facilities of other national Antarctic programs.

Two examples of this international cooperation are COMNAP and SCALOP. The COMNAP web site, **www.comnap.aq**, links to many of these international programs and organizations.

The **Scientific Committee on Antarctic Research (SCAR)** also helps to coordinate scientific activity in Antarctica. SCAR is a part of the International Council of Scientific Unions. It is a nongovernmental body established to further the coordination of scientific activity in Antarctica, with a view to framing scientific programs of circumpolar scope and significance. SCAR organizes symposia, prepares annual reports to ensure the regular exchange of information about scientific programs, develops long-range plans, and responds to special requests from the Antarctic Treaty consultative meetings. Most treaty consultative nations are represented on SCAR. Experts in various disciplines from several countries are organized into groups that consider needs for scientific plans and areas of conservation. The SCAR web site is **www.scar.org**.

The Polar Research Board, National Academy of Sciences, represents the United States on SCAR and provides liaison between the United States and foreign scientific communities. Their web site is **www.nas.edu**.

## SCIENCE PROPOSALS AND GRANTS

The mission of NSF/OPP is to promote and support excellence in scientific research and education in and about the polar regions in accord with national policies and NSF's mission. In its administration of the U.S. Antarctic Program, the OPP receives proposals from scientists or groups of scientists who wish to conduct research projects in Antarctica. Each proposal is reviewed by the appropriate staff scientist and at least three other scientists selected for their expertise in one or more areas of the proposal. These "peer reviewers" are the source of the greatest volume and, of course, the most detailed scientific advice to the program. Although generally focusing on the details of a particular proposal, their reviews also shed light on broader questions of scientific merit and priority by virtue of comments relating the proposal to its general field of science.

Any scientist is considered eligible to be selected as a reviewer; most agree to do so when asked. Their opinions are given candidly and without compensation, and are held in confidence, except that verbatim copies are given to the proposer without revealing the name of the reviewer. These contributions are indispensable in setting priorities among projects and in maintaining high standards for the projects selected. For some disciplines, the NSF selects panels of experts from the research community to further evaluate proposals to assist in decision making.

The NSF also obtains advice regarding the performance of antarctic research in other ways. An Advisory Committee for Polar Programs provides "advice, recommendations, and oversight concerning support for research and research-related activities in the polar regions." It meets twice each year to review specific programs and recommend procedural or other improvements.

A Committee of Visitors, operating on a continuing three-year cycle, augments the advisory committee to assess program-level technical and managerial matters pertaining to proposal decisions.

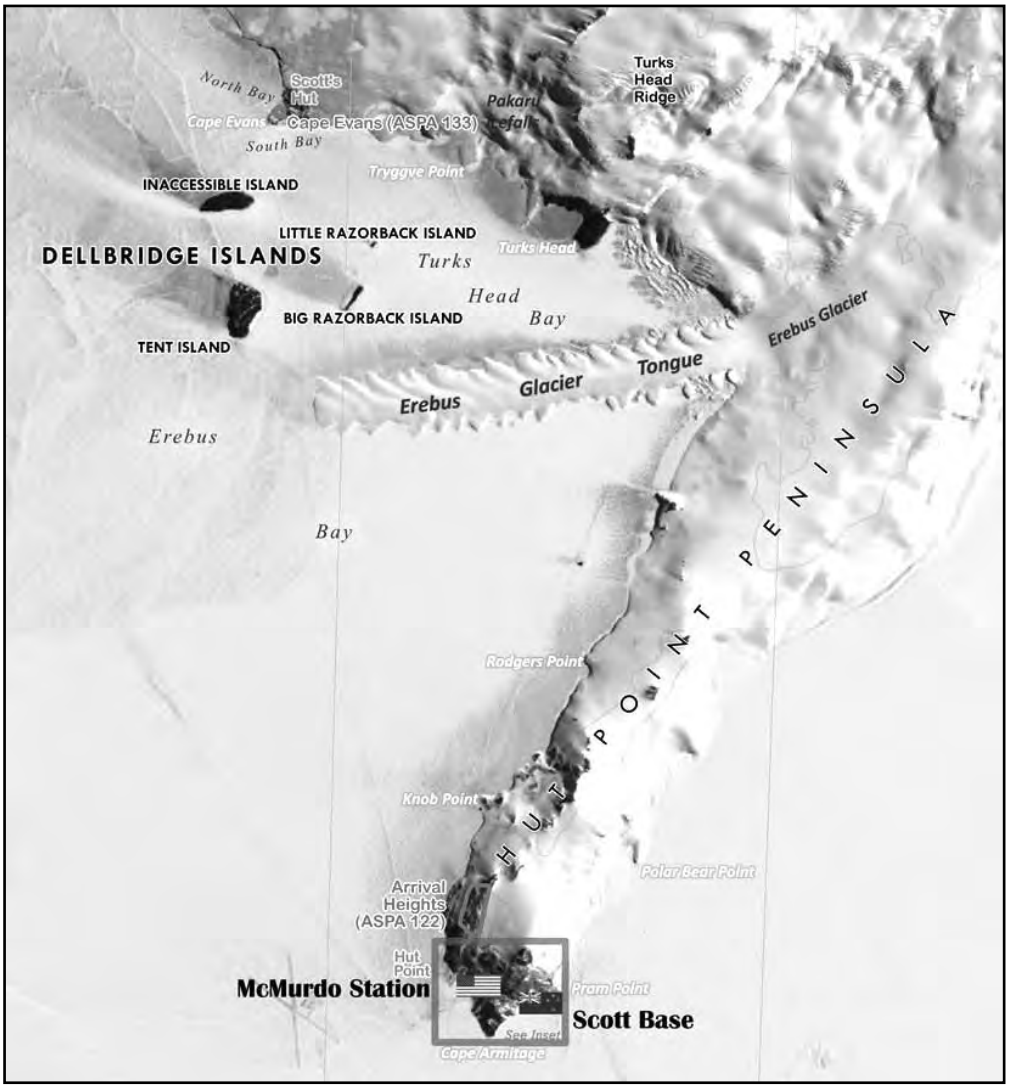
The NSF web site, **www.nsf.gov**, provides more information about the U.S. Antarctic Program and NSF goals, plans, budgets and activities. "About the NSF," for example, has the president's budget request to Congress for NSF, a discussion of how the agency is responding to the Government Performance and Results Act, and the NSF Strategic Plan. "Awards Data" on the NSF Web site contains a searchable database of grants, including abstracts and award amounts. "Crosscutting Programs" describes Foundation programs to support focused research in selected multi-disciplinary areas and to integrate research and education. These award areas provide significant opportunities for antarctic investigators. The "Polar Research" section describes research facilities in polar regions and antarctic and arctic research areas supported by the NSF.

The American Geological Institute Web site contains the world's most complete antarctic bibliography with abstracts at **www.coldregions.org**.

The U.S. Antarctic Data Coordination Center, **www.usap-data.org**, collects descriptions of data sets compiled by U.S. Antarctic Program participants for entry into the international Antarctic Master Directory.

The Antarctic Geospatial Information Center, **www.agic.umn.edu**, is developing highly detailed antarctic geospatial digital maps, available for scientists and the public to use.

The U.S. Geological Survey has a searchable database of antarctic place names, maps and photographs at **http://usarc.usgs.gov**. Scientists and others working in Antarctica who have reason to name previously unnamed natural features are encouraged to use the material on the "Geographic Names" portion of this Web site to recommend that the Advisory Committee on Antarctic Names, U.S. Board on Geographic Names, officially name such features. The U.S. Geological Survey, NASA, and the British Antarctic Survey have coordinated, with funding from the NSF, to provide the Landsat Image Mosaic of Antarctica (LIMA) at **http://lima.usgs.gov**. ■




www.agic.umn.edu

*The Antarctic Geospatial Information Center is developing highly detailed antarctic digital and print maps such as this one of Ross Island.*

## CHAPTER 2:

# Before You Leave Home

*Participants walking at Amundsen-Scott South Pole Station.*

*photo by Glenn Grant*

You will travel through at least one foreign country, and in the Antarctic, you will be living in a region that does not provide many of the modern conveniences to which you may be accustomed. Planning ahead is essential and will contribute greatly to your effectiveness and comfort. Please read the following information carefully. Your supervisor, science team leader or RPSC point-of-contact will answer any additional questions you may have.

## PROGRAM REQUIREMENTS

### Medical and Dental Examinations

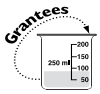
You must pass rigorous medical and dental examinations before going to the Antarctic.

Antarctica is an extreme, remote environment, and medical facilities on the continent are limited. U.S. Antarctic Program facilities are equipped and staffed to provide routine ambulatory care that would be expected in a U.S. clinic, and have the capability to stabilize and manage a range of emergency medical and dental conditions before transporting patients off the continent. However, medical evacuations take a lot of time and effort and place others at risk, even when the weather allows travel. Remote field camps and research vessels pose additional difficulties. Therefore, the physical qualification (PQ) process administered by RPSC seeks to screen out people with conditions that cannot effectively be managed on the Ice or aboard ship.

This PQ process applies to all grantees, RPSC employees, contractors, military personnel or guests of the NSF. Members of another nation's Antarctic program may be cleared through their country, but must provide RPSC their country's/program's clearance documentation, and carry a copy of their medical records with them if they are to be stationed near and supported by U.S. medical facilities. A resident of a nation that does not have an Antarctic field program will be required to pass the U.S. Antarctic Program screening program. The U.S. Antarctic Program also maintains reciprocity with the U.S. Arctic Program.

Deployment clearance begins when RPSC is notified that you are a candidate to deploy to Antarctica, either through the Support Information Package (SIP) for grantees, hiring paperwork for contract employees, or other documents. The medical department sends each candidate an e-mail with information how to access medical forms and instructions online. Upon request, they will mail a packet containing instructions, medical and dental examination forms, laboratory test package and/or instructions, release forms, a personal information form, and a copy of this guide. Medical and dental forms and instructions, along with the personal information forms, are available at **www.usap.gov/TravelAndDeployment/contenthandler.cfm?id=764**.

**Please read all of the instructions.** The information in the packet will answer most of your questions about how to schedule needed exams and return the completed information back to RPSC in the envelopes provided. If you have further questions, or special circumstances, please contact your POC, manager, or call the medical department. Contact information for the medical department is included in your deployment packet.

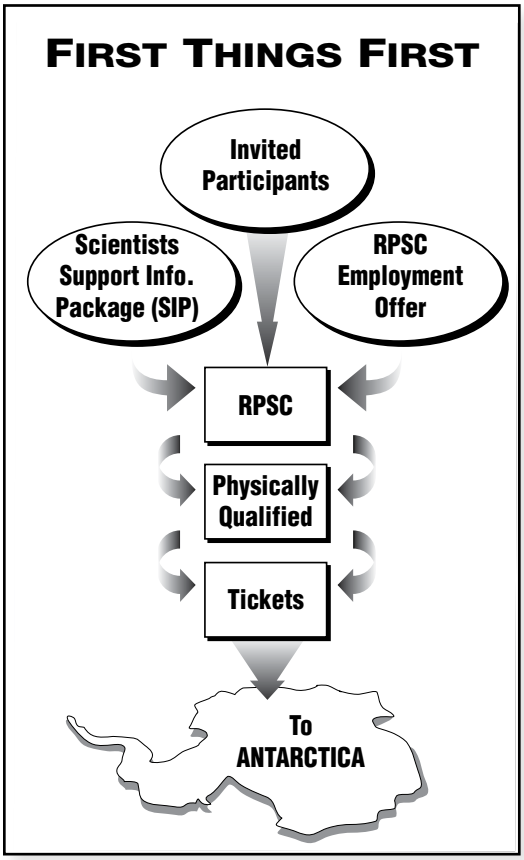



**Grantees** may be reimbursed or charge authorized examination, immunization and test costs to their NSF grant. Work with your principal investigator (PI) for procedures.

**RPSC Employees:** If participants have their own insurance that covers some/all of the costs of the exam as "annual physicals," they should submit expenses to their insurance first. RPSC will reimburse the participant for approved out-of-pocket expenses.

**NOTE:** Treatments to resolve dental conditions or other items required to meet U.S. Antarctic Program screening criteria may not be reimbursable. Please check with your health coverage or RPSC medical before scheduling exams or additional work that is not listed on your original checklist.

You or your doctor/dentist should mail the completed documentation to RPSC medical in the envelopes provided. If your providers have questions concerning the deployment exam, required labs and/or tests, direct them to the Dear Doctor and Dear Dentist letters in the packet for detailed instructions. **Note that original dental X-rays are required**. The required laboratory samples (blood and urine) may be drawn during your doctor's exam or at a separate specimen-drawing appointment. Remember to fast at least 10 hours before the samples are collected. If a laboratory sample box is included in your packet, use the enclosed sample containers and have your physician mail them to the contracted laboratory using the materials in the medical kit. If your medical packet includes a Lab Corp requisition, you can go directly to a Lab Corp facility to have the blood drawn. The contracted lab will bill RPSC directly for these tests. You will not pay (or be reimbursed) for anything beyond the specimen collection (venipuncture costs).




Candidates are responsible for scheduling their examinations early to ensure that complete information is provided to RPSC **no less than 8 weeks** prior to their planned departure for Antarctica. You should start the process as early as possible in case additional testing is required for your clearance. Ensure that all contacts at RPSC and elsewhere know how to contact you at all times (phone and/or e-mail) in case additional information is required. Airline tickets will not be issued until you are PQ'd. Tickets are normally sent two weeks before your departure date. The best rule is to submit your information as early as possible to allow time for problems or re-testing.

Medical and dental examinations must be current to within six months of your deployment. While a PQ is considered valid for 12 months afterward, the physician reviewer may require additional information or review to maintain PQ status. This is particularly true for personnel cleared for summer deployment who are staying for the Antarctic winter season.

All medical information, laboratory results, X-rays, dental exams, releases, and personal information forms are the property of the U.S. Antarctic Program and will not be returned to candidates. Make copies of information you desire to keep. Medical records generated from these documents will be sent to the clinic staff at the appropriate U.S. Antarctic Program facility to be referenced. For privacy, the only other people authorized access to these records are the medical personnel at RPSC or NSF headquarters who have valid need to use them for quality control purposes. You may request copies of your medical records that are maintained by the U.S. Antarctic Program, but reproduction charges may apply.

**Waivers.** Candidates who do not meet U.S. Antarctic Program criteria and are determined "Not Physically Qualified" (NPQ) may request a waiver, which the NSF will review. Ask RPSC medical for instructions on submitting a waiver request. Be aware that additional testing or treatment needed for a waiver may not be reimbursable. Also note that the waiver process can take up to eight weeks, and your position may be offered to an alternate if you cannot make your deployment date while awaiting the results. Submit your information early and completely to allow time for any problems that might arise.

## Immunizations

All participants must have had a tetanus vaccination current within the last 10 years and an annual seasonal influenza vaccine (available in late September) prior to deployment. Other vaccinations may also be required. A pneumovax for participants who are age 64 or older, or who have special medical conditions, is highly recommended.

If you are planning travel after your deployment, in tropical South America, for example, you may need other immunizations. Consult your physician or the Center for Disease Control (CDC) at 800-232-4636 or at **www.cdc.gov/travel/default.aspx** for current recommendations on the areas you plan to travel.

If vaccinations or medicines (malaria chemoprophylaxis, for example) are required prior to your travel, you must purchase them before leaving home and take them to the clinic upon arrival on station. The vaccination will be administered to you at the end of the season.

No immunizations are required for return to the United States. Under international health regulations, other countries may require international certificates of vaccination against yellow fever.

More information on health considerations is covered in Chapter 6.

## Privacy Act Compliance

All medical information gathered from you by the NSF or its contractor is maintained in accordance with the Privacy Act of 1974 (Public Law 93-579). The law provides that you may have access to your own records, that you may make copies of them, and that you may provide RPSC information to correct or dispute records you feel are inaccurate.

NSF's authority to collect medical, dental, and psychological information derives from its authority to prescribe rules governing its operations as set forth in section 1870(a) of title 42 of the U.S. Code. If you do not provide the information requested, you may be disqualified from the U.S. Antarctic Program.

## Extreme Cold Weather (ECW) Clothing and Emergency Contacts

As part of your planning package, you will receive a **Personal Information Form** that solicits information necessary for advance preparation of your Extreme Cold Weather (ECW) clothing, which will be issued to you on loan when you pass through Punta Arenas, Chile, or Christchurch, New Zealand. It also asks for your next of kin or other contacts for use in the event of an emergency. Copies of this form are kept on file by RPSC. For more on ECW clothing, see Chapter 5.

## Travel Arrangements

RPSC Deployment Specialists Group (DSG) begins work on your ticketing and itineraries early in the qualifying process. You may be consulted in advance to establish your deployment date, but your itinerary and tickets will not be released and delivered to you until you have PQ'd.

The DSG does not issue tickets with originating travel from outside the United States unless specifically approved in advance by the NSF. Such participants provide their own ticketing from their country of origin to their PI's institution in the United States.

You will travel through New Zealand, Chile, or other countries en route to Antarctica, using airline tickets provided by the U.S. Antarctic Program.

International Air Transportation Fair Competitive Practices Act of 1974 (better known as the Fly America Act) requires the use of U.S. carriers (coach class) whenever available when RPSC is the ticket buyer. The DSG supervisor reserves, purchases, and issues your tickets for direct air travel from your home airport to New Zealand or Chile. This information is taken directly from travel information submitted by you, your supervisor or your PI. Any deviation from the direct route must be authorized in advance by the NSF program manager or RPSC management. To get the best fare, airline tickets take at least three weeks to process. Any personal travel is your responsibility.

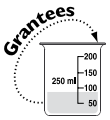
Travel through Argentina is coordinated on an individual basis through the RPSC Logistics Supervisor, Peninsula Area.

When the tickets are delivered to you, make sure the date and time of travel are what you expected. Make sure the name printed on your tickets corresponds to the one in your passport (i.e., no nicknames). If your tickets have discrepancies, contact RPSC DSG (1-800-688-8606, prompt 2). Also, if you received permission for excess baggage, ensure that the excess baggage coupons are included in your ticketing package.

Every effort is made to obtain flight dates as requested, but this is not always possible. Whenever possible, RPSC schedules travel to avoid Sunday and holiday arrivals. Remember that during the southbound trans-Pacific flight you cross the International Date Line, losing a day. For example, if you leave the United States on Tuesday, October 8, you arrive in New Zealand Thursday morning, October 10.

Your **Airport of Departure (AOD)** is the location you designate as your residence on either the SIP or your employment agreement, and is the city to which you will be returned. You will not be able to change your AOD once your tickets have been issued. The only exception would be proof of a change of residence that occurred during your deployment and approved prior to re-deployment by RPSC management.

## Expenses




**Grantees:** Your PI or team leader can give you information on what expenses are covered by your grant and any special training or meetings that may be required.

**RPSC Employees:** You will be required to attend a deployment orientation once per year. This orientation will be held in the United States or Christchurch, N.Z. The orientation is intended to familiarize you with the U.S. Antarctic Program as well as RPSC policies.

Please bring the following to the orientation if you have not already provided them:

- Your financial institution's routing number for direct deposit.
- A voided check for direct deposit.
- Your beneficiary's name, address and social security number, so that you may enroll or make applicable updates online for savings bonds/401k.
- Name, address and phone numbers for the person designated to handle your financial issues, receipts, etc.
- Official passport to establish identity, even if a copy was already submitted.

Your hiring manager will notify you what pre-deployment expenses will be reimbursed. Take all receipts with you to Antarctica, as you will be completing the reimbursement forms there. Once you have achieved active 'employee' status you must fill out an online expense report called WebTE. Contact the finance POC at the Antarctic station where you are working for more information on how to access the Web site.

## PASSPORTS, VISAS AND PERMITS

### Passports

You must have a valid passport before leaving the United States. Obtaining a passport is your responsibility, and typically takes at least six weeks. To apply for a passport, you must present two photos and a certified copy of your birth certificate to a Department of State Passport Office. Notarized birth certificates are no longer accepted. Updated information can be found at **http://travel.state.gov**.

If you are a federal employee, your agency must obtain an official passport by contacting the Department of State. **Bearers of official passports require visas in some countries that may not require visas of regular passport bearers**. Note, particularly, that the technicalities of entering Argentina put bearers of official passports at a disadvantage when embarking upon or debarking from U.S. antarctic vessels in Argentina.

If you already have a passport, make sure that it is not scheduled to **expire** during your overseas stay. This is especially important for wintering personnel. Your passport should be valid at least **six months** beyond the intended stay.

It is a good idea to keep a photocopy of your passport (including pages containing visas) in a separate place in the event that your passport is lost. Assistance with the replacement of passports lost in New Zealand/Antarctica can be done via the Christchurch Travel Office. **Never** risk mailing your passport from Antarctica.

**RPSC Employees** will be reimbursed up to $150 for actual costs incurred related to passport issuance. Please see the deployment packet for details.

### Visas

In addition to a passport, many countries require a visa. The requirements of the three countries through which most U.S. Antarctic Program travelers pass are explained below. Any **necessary visa should be obtained before leaving the United States** by contacting the embassies of the countries to be visited. Failure to do so may complicate or delay your travel. The U.S. Antarctic Program does not pay for or provide assistance in obtaining visas. If your New Zealand or Chilean visa application requires an itinerary and letter of participation in the USAP, please contact the DSG at 1-800-688-8606, prompt #2, or via e-mail at deployment@usap.gov, and the required documentation will be provided.

**New Zealand.** A visitor's permit is required for all holders of U.S. passports and will be issued at the airport upon arrival in New Zealand. The total time spent in both New Zealand and Antarctica is recorded by New Zealand Immigration as time spent in New Zealand. If your visitor's permit expires while you are in Antarctica, you have 14 calendar days after your return to New Zealand to apply to Immigration for an extension. If you leave New Zealand before the expiration of 14 calendar days, you will not need to extend your visitor's permit.

**RPSC will provide all RPSC-ticketed participants with an official letter requesting a 12-month visitor's permit. This letter will be located within your ticket jacket. When entering New Zealand, you must provide this letter with your passport to the Customs agent. Failure to do so will provide you with a standard three-month permit.**

**Chile.** If you will be traveling on a tourist (private citizen) U.S. passport, you do not need a visa to enter Chile. Tourist cards are issued by the airlines in Chile. They must be surrendered to Customs upon departing the country. Bearers of U.S. government passports do need a visa, available from the Chilean Embassy, 1732 Massachusetts Ave., N.W., Washington, D.C. 20036 (202-785-1746). Send a letter stating the purpose of your visit; enclose your passport and a return envelope. For more information, go to **www.chile-usa.org**.

**Argentina.** If you will be traveling on a tourist (private citizen) U.S. passport, you do not need a visa to enter Argentina. Bearers of U.S. government passports do need a visa, available from the Argentine Embassy, 1600 New Hampshire Avenue, N.W., Washington, D.C. 20009 (202-238-6460). Send a letter stating the purpose of your visit; enclose your passport and a return envelope. For more information, visit **www.embassyofargentina.us/en/home/news.htm**.

**Australia.** Many U.S. Antarctic Program participants travel through Australia for business or pleasure, and this requires a visa for U.S. (tourist) passport holders if a layover exceeding a basic connection occurs. Usually this can be accomplished electronically at a ticket counter, but you may be required to submit an application and send your passport to the Embassy of Australia, 1601 Massachusetts Avenue, N.W., Washington, D.C. 20036 (202-797-3000). For more information, visit **www.usa.embassy.gov.au**.

**Visas for noncitizens.** Foreign nationals residing in the United States are responsible for obtaining the appropriate visas from their country before leaving for Antarctica. Contact the embassy of the country through which you will pass to learn requirements.

If you are not a citizen of the United States, you will need a two-entry visa (one for initial entry and one for return from Antarctica) for New Zealand or for South American countries through which you will pass. **It is your responsibility to check with an official of your country well before the planned departure; the U.S. Antarctic Program will not act on your behalf**.

Resident aliens in the United States should determine any other regulations that govern absence from the United States by checking with the U.S. Immigration & Naturalization Service. Lack of compliance with regulations can cause loss of accrued residence time benefits that are applicable toward citizenship and/or re-entry. It can take several months, and even require a visit to the consulate, for non-U.S. citizens to get these visas.

**U.S. visas for foreign nationals.** If you are a foreign national not residing in the United States, and will be traveling to the United States after you have been to Antarctica, please review this important visa information. All foreign nationals must be able to prove that they have compelling ties in their home country (e.g., family, job, property) to which they must return upon completion of the studies, exchange program, or business in the United States.

Applicants for visas should apply at the American embassy or consulate with jurisdiction over their place of permanent residence. Although visa applicants may apply at any U.S. consular office abroad, it may be more difficult to qualify for the visa outside the country of permanent residence. Review the Department of State Visa Services Internet Information at **http://travel.state.gov** for exchange visitor visa and student visa information and requirements.

Contact the Embassy Consular Section in the traveler's country to determine any additional visa procedures, timeframe required to set up an appointment for interview, and to schedule an appointment for an interview. An interview is required for most visa applicants. The waiting time for an interview appointment for most applicants is a few weeks or less, but for some embassy consular sections it can be considerably longer. Some applicants will need additional screening, and will be notified when they apply. Contact the Embassy Consular Section via the Internet at **http://travel.state.gov**. For a few countries, foreign travelers will need to contact the consular section by telephone. For both initial and continuing exchange visitors or students, after receiving program sponsor approval and documentation, applicants should apply for his/her visa as soon as possible, to the U.S. Embassy Consular Section in his/her country of residence.

## Permits and Approvals

NSF grantees may need to obtain permits for transporting samples, for entering protected areas, shipping samples and radioisotopes, etc. These permits can take at least 65 days to get and cannot be obtained from Antarctica. Your SIP contains the actual applications and describes what is required and where to file the applications.

**NOTE:** NSF is required to have copies of all active permits on file. The process of obtaining permits and copying the NSF office is described in detail in Chapter 4.

**Diving qualifications.** Some science projects in Antarctica require scuba or surface-supplied diving. There are a number of unique risks associated with polar diving, including extreme cold, ice in many forms, potentially dangerous marine life, low light and visibility, contaminated water, and others. On account of these risks, Antarctic diving demands special training, experience and an on-site orientation for divers; proper equipment; and a thorough and realistic dive plan.

All diving under NSF auspices in Antarctica requires prior approval from the NSF. To obtain approval, a dive plan must be submitted that is consistent with the *NSF/OPP Standards for the Conduct of Scientific Diving*, available from your POC. The PI's home institution diving safety officer or equivalent must provide comments on and approval of any request to dive in Antarctica. Final authorization will be made by the NSF/OPP diving safety officer. Prior to approval, he may indicate the necessity for additional training or may require changes to the original dive plan. Dive plan forms and individual diver information sheets are available in the Dive section of POLAR ICE.

A variety of diving equipment, including scuba tanks and backpacks, weight belts, buoyancy compensators, and compressors, among other items, is available at McMurdo and Palmer stations and aboard USAP research vessels. PI's must specifically request the use of any NSF/OPP equipment in their SIP during the preseason planning stage. Recreational diving is not permitted.

**Grantees:** The *Antarctic Scientific Diving Manual* (NSF 99-22) contains information on certification, dive sites, environment, operations, emergencies, reference tables, etc. Guidelines for research diving can be found in the *NSF/OPP Standards for the Conduct of Scientific Diving*. Contact your POC for copies of these documents.

**Firearms.** The use of firearms is prohibited without advance permission from the NSF/OPP. Request permission by letter, stating:

- Purpose of the firearm
- Make and caliber of the firearm
- Type and amount of ammunition

Upon completion of your fieldwork, you must report the disposition of firearms and excess ammunition to the NSF/OPP. This information will be reported to the other Antarctic Treaty nations, as required by the Antarctic Treaty.

**New Zealand agriculture.** Like most nations today, New Zealand has restrictions on what may and may not enter the country. Goods are restricted if they are known to carry pests or diseases that could endanger native plants and animals. Travelers are required to declare all restricted goods when they enter New Zealand. Some examples of restricted goods are dairy products; fish, fruit and vegetables (fresh/dried/frozen/cooked); genetically modified organisms (GMOs); herbs and spices; noodles and rice; nuts; bamboo, cane and basket ware; cut/dried flowers and leaves; seeds; wooden artifacts; camping equipment; feathers, bones, horns and tusks; furs and skins; soil and water; unprocessed wool and animal hair. All restricted items will be examined on arrival, and if found to comply with current requirements, will be permitted to enter. People who knowingly bring restricted items into New Zealand and do not declare them will be prosecuted and will be subject to severe penalties.

Some goods prohibited from entry into New Zealand include honey; eggs and egg products; meat and meat products; unpopped popcorn; plants (live/dried); straw; shells and coral; ivory; turtle and tortoise shells.

## CUSTOMS

Your baggage will be inspected by Customs officers and may be screened by dogs that are specially trained to detect controlled substances and agricultural products including fruits, plants and food. In addition, thorough searches of luggage and individual clothing items, as well as body searches, are routinely conducted by the Customs authorities at the time of entry. Importation and possession of controlled drugs without prescriptions, marijuana, weapons (especially firearms and switchblade knives), pornography, and certain animal/agricultural products are strictly prohibited when entering New Zealand. Violators will be instantly fined $200NZ or more. For current information regarding New Zealand Customs, visit www.maf.govt.nz/biosecurity. Transportation of the above-mentioned items aboard U.S. military ships and airplanes is also prohibited by federal law.

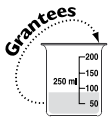
Travelers are able to carry **personal effects** in their normal luggage. Personal effects are articles a traveler may reasonably require for personal use during the journey such as cloth-

ing, footwear, watches, brushes and toiletries. Personal effects can also include jewelry (but not unmounted semi-precious or precious stones). Personal effects also are duty-free items purchased either prior to your departure or upon your arrival; are for your own private use or intended as gifts; are not imported for commercial purposes or for use in your business and/or profession; and are not imported for other persons at their request.

There are limits on quantities of tobacco and alcohol that can be brought into many countries. Please refer to these web sites for current customs regulations:

New Zealand: www.customs.govt.nz
Chile: www.aduana.cl

In addition to the personal effects concession, each passenger is entitled to the Visitor Concessionary Entry of other items that a visitor normally carries. This includes items such as a laptop computer, cameras, binoculars and an iPod. These goods must be for personal use, and the goods will be taken with the passenger when he/she leaves the country.




**RPSC Employees:** RPSC will not provide personal property insurance.

**Grantees:** Grantees should have insurance for project equipment as determined by the PI. The costs of insurance should be included in the budget request.

**NOTE:** The purchase of duty-free items in New Zealand prior to boarding a military airplane is prohibited. Duty-free articles are usually delivered to passengers upon check-in for commercial international flights; however, due to security measures associated with boarding a military airplane bound for Antarctica, it is not possible for representatives from a duty-free shop to deliver goods to you.

## Customs and Your Equipment

If you will be taking or shipping technical equipment to Antarctica through another country, prepare in advance to avoid two possible costs, paying import duty or posting bond to a foreign country (even though your equipment is only passing through) and paying duty when you bring the equipment back into the United States.

Technical equipment includes any valuable items of foreign make (other than the personal effects concession mentioned above), such as scientific equipment or numerous computers or professional cameras, which you plan to take with you to Antarctica. If these items are not registered with U.S. Customs or you do not have proof of previous payments for such items, you may have to pay import duties on them upon your return to the United States. You cannot be reimbursed for such costs. Customs regulations also require that prescription drugs be hand-carried and not placed in checked baggage. Carry a copy of each prescription provided by your personal physician. See Chapter 3 for further information on prescription medications.

Scientific or technological equipment (including personal computers, spare parts or other equipment carried for RPSC) that you carry as part of your personal luggage is likely to be charged a customs duty and/or tax, or impounded if such a duty or tax is not paid. If you do not have a receipt or the item was a gift, Customs will determine the value. NSF contractor representatives will not cover charges for customs duties or taxes. All scientific or technological equipment should be shipped from the United States and Antarctica as cargo (all cargo is designated NSF and hence is exempt from duty and taxes).

Valuable equipment such as laptops and cameras must have a serial number and should be registered in advance with U.S. Customs.

Customs registration must be made in person, and you must possess the articles and serial numbers to be registered. Registration can be made at any international airport in the United States that originates overseas flights (e.g., Los Angeles, Miami). Also, Coastal Customs Registration Centers are located in the World Trade Center, Los Angeles.

It is suggested that you prepare a list of items (with serial numbers and/or appropriate documentation) prior to your arrival at the registration center. This information can then be easily transcribed to the customs registration forms available only at the centers.

There are several methods of protecting against payment of unwarranted duty:

**Registry with U.S. Customs.** To ease re-entry and before leaving the United States, you can

photo by Cliff Leight

*Weather instruments and Global positioning systems are placed on the ice near Pine Island Glacier.*

register equipment such as cameras with U.S. Customs by completing U.S. Customs Form 4457. Contact Customs at any U.S. international airport.

**Letter from your institution.** When carrying science equipment as accompanied baggage, list it on your institution's stationery and include a statement that the material will be used for research at a U.S. government antarctic station. Keep the list with the material to ease clearance through Customs in Argentina and Chile. This letter is not enough when going through New Zealand.

**Temporary importation of your equipment into New Zealand.** A customs law is in effect for nonmilitary U.S. Antarctic Program participants entering New Zealand. Grantees, contractors and other visitors carrying high-tech and scientific equipment (not including laptop computers) as part of their luggage must carry a New Zealand Customs form stating (1) that the goods will not be left, sold or disposed of in New Zealand without the written permission of New Zealand Customs, (2) that the goods listed will be finally exported from New Zealand within 12 months of their first landing, and (3) a list of the equipment and its value. Appropriate forms must be obtained from the RPSC travel supervisor in Denver before you depart for New Zealand and must be returned to the RPSC travel supervisor upon return to your home institution.

**NOTE:** Technical event participants fall into a special category. Contact the RPSC Deployment Specialists Group.

**Carnet de Passage.** Visitors from the media and other organizations who are guests of the U.S. Antarctic Program rather than science participants are not issued NSF letters for their professional equipment. To avoid paying the customs duty, anyone carrying professional equipment including cameras and other recording devices must have a carnet. NSF representatives will not help you get a carnet and will not pay customs duty for you.

If you have a carnet, you do not also need to register items with U.S. Customs. Obtain the Carnet de Passage for Temporary Admission before you leave for Antarctica. In the United States, the U.S. Treasury has appointed the U.S. Council for International Business to issue carnets. Issuing offices are located in California, Florida, Illinois, Maryland, Massachusetts, New York and Texas. For addresses, contact:

| | |
|---|---|
| US Council for International Business | www.uscib.org |
| 1212 Avenue of the Americas | tel. 212-354-4480 |
| New York, New York 10036 | fax 212-575-0327 |

## PERSONAL MATTERS

Before you leave for Antarctica, take care of your personal affairs. Designate someone you trust as your **stateside representative.** It can be difficult to handle financial or other personal affairs from Antarctica. Because mail delivery to Antarctica is not always reliable or timely, you **should NOT forward your mail** or change your address to Antarctica. You will be able to communicate with your stateside representative by telephone and e-mail.

### Personal Finances

Take enough money with you to meet all eventualities. Most foreign banks will not cash personal checks or cashier checks drawn on your home bank. NSF representatives in New Zealand will not advance funds nor will they vouch for a personal check.

**NOTE:** Make sure that your ATM and credit cards do not expire while you are away from home.

International credit cards (e.g., MasterCard, Visa) are generally accepted in New Zealand and South American countries. Countries sometimes offer better exchange rates for travelers checks than they do cash.

You will probably need at least $500 for a round trip between the United States and Antarctica. This amount will vary with personal spending habits, length of stay and travel delays. Allow additional funds for the purchase of personal items (soap, razor blades, souvenirs, etc.) in Antarctica. There are two ATM machines at McMurdo Station but none at the other facilities.

**Banking in New Zealand.** Banks in New Zealand will exchange U.S. cash and travelers checks into New Zealand currency. You can also withdraw funds from banks using your Visa and Mastercard credit cards, if you have previously established a Personal Identification Number (PIN) with your bank. ATMs marked with 'Plus' or 'Cirrus' accept credit cards (with a PIN number) as well as ATM and debit cards and are located in both the Auckland and Christchurch airports as well as in the main square of Christchurch.

If you need additional money in New Zealand after you get to Antarctica, there are two ways to transfer money :

1. Have your U.S. bank send by certified air mail a bank draft drawn on the Bank of New Zealand to:

   c/o NSF Contractor Representative, N.Z.
   HOLD IN CHRISTCHURCH FOR [name; project # or RPSC]
   c/o Private Bag 4747
   Christchurch Airport
   Christchurch 8140
   New Zealand

2. Arrange for your U.S. bank to send funds by telegraphic transfer (this can take 72 hours) in your name to:

   Bank of New Zealand
   Christchurch Airport Branch
   Christchurch International Airport
   New Zealand
   Hold for [participant's full name]

   BNZ Christchurch Branch's code is SWIFT-BK NZ NZ 22.

The transaction should be marked, "Hold funds against identification for [your full name] who will call on return from Antarctica." These arrangements are more easily made with larger U.S. banks that have international connections. If you deal with a small bank, we suggest you discuss the subject of transferring funds with them before you depart for Antarctica.

**Banking in Chile.** In Santiago, Chile, money exchange is available only in the international terminal (not the domestic terminal). Please be aware that there will probably not be time to exchange money upon your arrival and before your departure, but U.S. currency can be used for taxes and fees (see Chapter 5 for more information). Banks in Punta Arenas, Chile, are closed half of Saturday and all of Sunday, so plan accordingly. ATMs marked with 'Plus' or 'Cirrus' accept credit cards (with a PIN number) as well as ATM and debit cards.

**Joint bank accounts and debt payments.** If you will need to draw funds from a bank account while you are in Antarctica, you may wish to have the account established jointly with another person to permit the other person to withdraw the funds as required. The joint tenant of the account can legally withdraw any and all funds whenever he/she wants.

Arrange for the regular payment of insurance premiums and any other term debts that you may have while in Antarctica.

Mail service from McMurdo and South Pole stations is **not** available during the austral winter, and is erratic in the summer season. You are advised not to rely on the mail service to pay bills from Antarctica (see Postal Services in Chapter 6). McMurdo's winter period is February to October, and South Pole's is February to November.

**Absentee ballot.** If you wish to vote in any local, state or federal elections by absentee ballot, you must arrange to receive an absentee ballot from your voting authorities. Keep in mind the uncertainties of mail in and out of Antarctica. Wintering personnel usually have to forego

participation in elections held during periods of station isolation. Voting by radio or by teletype is not permitted by state election officials. Be sure to check absentee voting requirements of your home precinct before you leave for Antarctica. This is your responsibility.

**Annual leave.** Employees of some organizations may be subject to loss of accrued annual leave while in Antarctica. Consult your personnel officer regarding use of leave before departure. Some federal employees may not carry-over excess leave time while in Antarctica.

**National Guard or Reserve.** If you are a member of the National Guard or Reserve, see your commanding officer to make arrangements for your absence.

## Income Tax

Make sure that you will not incur penalties through failure to file tax returns or to pay your taxes. For federal income tax returns, due April 15, you may request an extension for filing from the district director of the Internal Revenue Service. However, interest is charged on the unpaid balance of your tax beginning April 15.

You can file your income taxes online or give someone power of attorney to act as your agent in filing your income tax returns (federal, state and local). IRS district directors have forms for this purpose, or you may have a lawyer draw up the document. Remember that if your agent fails to file the return, you are still the one who has to pay the delinquent tax penalty.

The IRS does not consider Antarctica extraterritorial, so U.S. tax law applies. For further information, you can contact the IRS. District directors are in each state at the same address where you normally file tax returns. For more information, go to **www.irs.gov**.

**RPSC Employees:** State and federal income taxes are withheld from all RPSC employee paychecks.

## Power of Attorney

You may wish to establish a general or a special power of attorney before leaving home. A general power of attorney permits your agent to act for you in ordinary business and commercial transactions: to endorse and write checks, to sign documents and bills of sale on your behalf, and so forth. A special power of attorney restricts the agent's authority to functions specifically described. For example, you might empower your agent only to sell a particular piece of property for not less than a stated price.

Some institutions, such as savings banks, may refuse to accept a power of attorney; they require you to make special arrangements with them before others may withdraw your funds. Individuals may be reluctant to deal with your agent under a general power of attorney if the authority for a particular transaction is not specifically set forth, or if your agent's authority is otherwise in doubt. Consult a lawyer before drafting a power of attorney. A power of attorney automatically expires at the time of your death and defers to information contained in your will.

## Wills

A will ensures distribution of your estate as you desire and not arbitrarily, as state laws require if there is no will. You are urged to consider having one prepared before you depart for Antarctica.

## Notary Services

No universally recognized notary services are available in Antarctica. Therefore, you cannot count on being able to execute or revoke legal documents requiring notarization. Make every effort to settle outstanding legal matters before you leave for Antarctica.

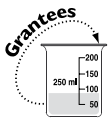
## Insurance

**Notification of Injuries and Evacuations.** If you are injured while working in Antarctica or if you are taken to New Zealand or South America for a medical consultation or evacuation, the U.S. Antarctic Program management will not notify your family of the injury if you are physically capable of contacting your family members on your own. In the event you are physically unable

to notify your family members, U.S. Antarctic Program management will contact your emergency contact (not necessarily at your request).

In the event of a major accident that will make news headlines (e.g., plane or helicopter crash), U.S. Antarctic Program management will advise the emergency contact of those participants involved.

**Personal property and cargo insurance.** A loss of personal property in Antarctica through fire, theft, or any other means should be protected by individual personal property insurance. It is your responsibility to obtain this coverage. The U.S. government normally does not assume liability for damage to or loss of personal property unless there is clear evidence of negligence by government personnel acting in the scope of their employment. Although every effort is made to care for cargo (personal or scientific), the U.S. Antarctic Program is not responsible for any damage that may occur.




**Grantees:** Make sure you have adequate insurance for your stay in Antarctica. An NSF grant for work in Antarctica does not provide insurance coverage. Check with your employer or a financial consultant to find out what insurance you have and to decide what you should have. Consider the following areas:

*Health insurance.* Civilian personnel receive free medical care in Antarctica, but, if necessary and possible, you will be evacuated from the continent and perhaps hospitalized at a foreign or US hospital. There, you will be **responsible for costs** of hospitalization, medical care, laboratory fees, and any other charges. Before leaving the United States, examine your health coverage and buy insurance if you need it. Grantees are asked to read Appendix D on page 89 regarding medical insurance.

*Worker's Compensation.* If you will be working for a PI as a volunteer, remember that worker's compensation coverage may not be provided.

*Life insurance.* Grantees and their team members are urged to have adequate life insurance. Federal employees' Civil Service policies remain in effect during antarctic duty. Examine your insurance coverage before departure to ensure you are adequately covered. The NSF does not provide life insurance for its grantees in Antarctica. In making arrangements for insurance, keep in mind that antarctic flights are generally considered non-scheduled military airplane operations. Check with your institution to see whether its group policies for employees provide coverage or exceptions for travel and work in remote regions.

*Travel insurance.* Some insurance companies offer air travel insurance for scheduled commercial and Air Mobility Command flights. This insurance is available at most commercial airports and Air Mobility Command terminals. It generally does not cover you during flights from New Zealand or other countries to Antarctica or during flights in Antarctica.

Grantees should have insurance for project equipment as determined by the PI. The costs of insurance should be included in the budget request.

**RPSC Employees:** Employees will be eligible to enroll in various insurance options including medical, prescription drug, vision care, dental, life insurance, accidental death and dismemberment, long-term disability and short-term disability. The following coverage levels are available: employee, employee and spouse/same sex domestic partner, employee and children, employee and family. The cost of the coverage for contract employees and their dependents is shared between the employee and RPSC. Benefits are reviewed annually and may change after the publication of this book.

If you are required by the station medical doctor to leave Antarctica for medical treatment, you are responsible for your medical bills unless the injury or illness is deemed work-related.

*Worker's Compensation.* Any RPSC employee who is injured while in Antarctica may be covered under worker's compensation. Within three days of the accident (regardless of the seriousness), a Medical Injury Report Form must be completed by your supervisor or medical staff and turned in to the designated person at the station or vessel. If you feel you will need treatment after redeployment from Antarctica, you will need to contact Human Resources on station or in Denver prior

## Credit Cards

- Visa and Mastercard can be used at the McMurdo and Palmer stores, but not at the South Pole.
- Minimum credit card purchase is $10.

**ATM**

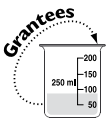
- Only available at McMurdo Station.
- No fee charged by Wells Fargo ATM, but your bank may charge a fee.
- Money is distributed in $20 bills.

to leaving Antarctica or a vessel to establish a claim. If the injury can't be treated on station or on the vessel (determined by the doctor), you may be sent off the continent/vessel to be evaluated by another doctor in Christchurch or Punta Arenas. Keep in mind that worker's compensation covers only injuries. Bodily malfunctions (e.g., appendicitis, kidney stones) are not covered by worker's compensation. Your insurance policy through RPSC or insurance through an outside carrier may cover these types of ailments.

**NOTE**: It is highly recommended that each employee carry some kind of medical insurance that will provide coverage while traveling out of the country after deployment. If you elected to enroll in the RPSC medical insurance, the COBRA program will be available upon completion of your contract. If benefits were not elected, COBRA will not be an option. Plan ahead.

## Cash, Meals and Lodging in Antarctica

**ATM machines** are available at McMurdo Station, but not at the other facilities. There is a finance representative at all U.S. Antarctic Program stations who will cash the following: U.S. money orders, travelers checks, certified checks, and cashier checks. Participants working on the research vessels should be aware that there is no finance representative aboard the ships, and that they should plan ahead to ensure they have an adequate supply of cash.




**Grantees:** At McMurdo Station, the RPSC finance representative located in Building 155, will cash grantee's personal checks (from U.S. banks) for up to $500 per month, in addition to the various kinds of checks mentioned above.

At the South Pole, grantees can cash checks for up to $500 per month. Use of credit cards is not available at Pole.

Palmer Station's check-cashing procedure is the same as that at the South Pole Station, though grantees also have the option of using credit cards there.

**It is important to note that check-cashing transactions, including those written for purchases at the store, cannot exceed $500 per month USAP-wide.**

**RPSC Employees** may not cash personal checks at stations or on research ships.

At McMurdo, RPSC employees should rely on either the ATM machines or the finance representative to cash U.S. money orders, travelers checks, certified checks and cashier checks.

At Palmer and South Pole stations there is no ATM available. RPSC employees may obtain cash via a remote cash disbursement (RCD). Employees select the amount to be deducted from their pay after they reach Antarctica. These RCD funds are distributed at routine intervals while on station.

**NOTE:** Wintering personnel should arrange in advance to have enough cash at the end of the winter for use on the way home (see 'Personal Finances' in this chapter for ways to pre-position cash in New Zealand).

**NOTE:** Subcontracted Technical Event personnel may not cash personal checks. They should plan ahead and bring a supply of travelers checks or cash.

**Meals and lodging.** At U.S. Antarctic Program stations, aboard the research ships *Laurence M. Gould* and *Nathaniel B. Palmer*, aboard a Coast Guard icebreaker, or in the field, you do not pay out of pocket for meals or lodging. If you are traveling with foreign expeditions, be prepared to pay meal charges aboard their ships.

## RPSC Compensation and Benefits

RPSC payroll checks are **not** sent to Antarctica. All employees are required to have a U.S. bank account for the electronic direct deposit of payroll funds. RPSC employees should refer to the Terms of Agreement received in their Offer Letter Packet for detailed information about **travel funds, hours, your performance-based completion bonus, marine compensation, etc.**

In Antarctica, particularly at the inland stations and camps, there are essential employment conditions. The typical work week is 54 hours Monday through Saturday. **At times, everyone will be expected to work a longer-than-usual workweek, assist others in the performance**

*photo by Robyn Waserman*

*All participants are expected to work as long and hard as necessary to support science, maintain the stations and to see to the well-being of all personnel.*

**of their duties, and/or assume community-related job responsibilities.** Everyone will do his or her share of the menial tasks, such as floor scrubbing, washroom cleanup, dishwashing, snow shoveling, etc. Due to the challenges that work in Antarctica presents, no guarantee can be made regarding the duties, location or duration of work. This is not an attempt to paint an overly bleak picture that will discourage all but the stout-hearted. Rather, it is an effort to present work and wages realistically. **The objective is to support science, maintain the station, and see to the well-being of all station personnel. All are expected to work as long and hard as necessary in attaining this objective.** At the same time, experience shows that good management and a cooperative spirit will result in ample time for social activities and the pursuit of personal hobbies and projects. ■

## CHAPTER 3:

# How and What to Pack

*photo by Elaine Hood*

*USAP participants use a drill to determine the depth of the annual sea ice near McMurdo Station. Learning how to test ice thickness is required training for anyone driving across the annual sea ice.*

There will be several stops on your journey to Antarctica. Various transportation providers (U.S., foreign, vessel, military) have differing baggage allowances and restrictions. Please adhere to the limitations set forth by each carrier. In New Zealand or Chile, you will pick up ECW clothing. You may require personal items for the various climates, work and activities. Planning and prioritizing are very important. Read this chapter carefully.

## BAGGAGE ALLOWANCES

### Commercial Carriers

You will travel from your airport of departure to Christchurch, New Zealand, or Punta Arenas, Chile, on commercial carriers. Due to recent changes within the airline industry, it is important that you review the airline's baggage limitations prior to boarding your flights. Baggage allowances on flights from Christchurch to McMurdo differ from the commercial allowance.

At the time this book went to press, the baggage allowances were:

**Winfly participants:** up to 2 bags, 32 kg/70 lbs each, plus your carry-on.
**Summer participants:** up to 2 bags, 32 kg/70 lbs each, plus your carry-on.
**Winter participants:** up to 3 bags, 32 kg/70 lbs each, plus your carry-on.
Personnel flying to **Punta Arenas:** up to 2 bags, 23 kg/50 lbs each, plus carry-on.

Each airline carrier has differing rules for both carry-on and checked baggage, so it is in your best interest to review the airline's Web site to ensure no surprises at check-in. If charged a fee, RPSC will reimburse RPSC and NANA employees within the baggage allowance only if receipts are provided. **Updates regarding travel are posted on the airline carrier's Web site and should be consulted before departure.**

RPSC Employees

### Flights from Christchurch to McMurdo Station

All pesonnel have the same luggage weight allowances. **A maximum of 68 kg/150 lbs**, in addition to your carry-on, is allowed on this leg of your journey.

**NOTE:** Realize that the weight of the ECW gear issued to you in Christchurch will be counted as part of your baggage. The ECW clothing weighs about 10 kg/22 lb. You are required to wear (or have on your person) the following items on the flight:

| | |
|---|---|
| Balaclava or knit hat | Bunny boots or FDX boots |
| Mittens or gloves | Snow goggles |
| Red parka or Carhartt | Wind pants or Carhartt overalls |

The rest of the issued clothing (about 3 kg/7 lb) can be packed in your checked baggage.

### Excess Baggage

Participants should check the Travel and Deployment section of the U.S. Antarctic Program Web site at **www.usap.gov** for details on excess baggage. Excess baggage approval for both *to* and *from* Antarctica is required in advance of deployment. **The program will not reimburse costs unless they are pre-approved.**

**Current Travel Information**

**www.usap.gov/usapgov/TravelAndDeployment**

### Personal Baggage Insurance

Baggage insurance is provided if RPSC issues your airline tickets. If a claim needs to be processed, contact the DSG. Loss protection is limited and supplemental **personal property insurance is recommended**.

Loss protection is only provided for during commercial flight segments. Should a loss occur during transit to/from the airport, while in a hotel, during your stay in Antarctica, etc., it is the participant's responsibility to retain personal property insurance coverage.

### Research Vessels and Palmer Station

There are no weight restrictions for personal baggage on the research vessels, although space is at a premium onboard.

### Mailing Personal Packages

If you need to take more than the allowed weight of baggage to McMurdo or South Pole stations, you can mail boxes to yourself at the **Army and Air Force Post Office (APO)** address in Antarctica. The APO addresses are listed in Chapter 6. You should be aware, however, that NSF priorities dictate that all science cargo and flat mail take priority over any personal packages. Your personal packages may be substantially delayed.

Once you are in Antarctica, you can have mail sent to you. However, the APO in Christchurch will not accept packages for shipment unless they are received via the Postal Service. This means you cannot order items via the Internet from Antarctica for courier delivery (e.g., FedEx) to the APO. Neither the Post Office, nor USAP offices in Christchurch, will accept such deliveries.

**The APO cannot be used to support any type of commercial activity.**

Near the end of the season, many program participants realize that they've accumulated more than they will be allowed to have with them on their flight north. This excess must be sent in the mail. It is important to pay attention to announcements about mailing deadlines and procedures for mailing personal packages from Antarctica. The timelines and options differ according to the station and the time of year.

### APO Privileges

Upon your arrival in Christchurch, the RPSC representative will give you a card that entitles you to use the APO facility. This benefit provides a tremendous cost savings if you need to mail boxes to the United States from New Zealand. The card is good for only 10 days from your arrival in Christchurch. Any mail received by the APO after the valid 10-day period will be returned to sender.

APO service is **not available for Palmer Station** participants. See Chapter 6 for instructions on mailing boxes and flat mail to Palmer Station and the research vessels.

## PERSONAL PRESCRIPTION MEDICATIONS

It is the responsibility of all participants to obtain a supply of their regular prescription medications to cover the time that they will be deployed. The station medical facility **cannot** refill prescription medication. Participants will not be allowed to winter-over unless they have enough of their regular medications to last through the winter season.

*photo by the National Science Foundation*

*The South Pole medical clinic.*

**Participants working at McMurdo Station, South Pole Station or area field camps.** The New Zealand custom laws only allow for three months of prescription medications and one month of controlled prescription medications to be hand carried through New Zealand. Therefore, if you will be deployed for a longer period of time, you must make arrangements for additional medication to be mailed to the station medical clinic through the APO mail system.

The medications will need to be in properly labeled pharmacy containers to be passed through the APO system. It is important that you hand carry the initial three months of medication (one month for controlled medications) in order to provide enough time for the mail to reach you in Antarctica. When you get your prescription medications filled, ask the pharmacist to put three months of medication (or one month of controlled medications) in one labeled container and the remainder in a separately labeled container. If you are not sure if your medication is controlled (Class II or III), ask the pharmacist when you get the prescription filled.

Mail the containers with the remainder of the medication to the medical clinic at the station where you will be deployed. Most health plans only allow one month of medication to be dispensed at a time. If you have difficulty in getting the amount that you need for your deployment, contact Medical at RPSC for assistance: 1-800-688-8606. They can coordinate with your health plan to help you obtain the sufficient quantity of your prescription to last your entire deployment.

Mail the medication to the APO address listed below. Packages destined for summer participants should be mailed after Labor Day or they will be returned. You can receive your medication at the medical clinic.

**McMurdo Station:**
Medical Clinic
McMurdo Station
PSC 469 Box 700
APO AP 96599-1035

**South Pole Station:**
Medical Clinic
South Pole Station
PSC 468 Box 400
APO AP 96598-1035

Remember that you will have to clear Customs in New Zealand to re-enter the country on redeployment, and the same restrictions on the quantity of medications will apply. If you have an excess amount on redeployment, mail the excess amount to yourself at home before leaving Antarctica.

**Participants working at Palmer Station.** Chilean customs laws do not restrict the amount of personal medications hand-carried through Chile and participants that are deploying through Chile can hand-carry the amount of medication that they need for the deployment.

If you have any questions about the procedure described above for transporting your prescription medications to Antarctica, contact the RPSC Medical Department at 1-800-688-8606, option 3 on the menu. **Carry a copy of each prescription provided by your personal physician.**

## HOW TO PACK

Personal comfort in Antarctica is important. So is environmental protection. When choosing items to make your stay more comfortable, buy and take with you items that are as environmentally friendly as possible. Try to use biodegradable soaps and shampoos, which will have less impact on the local environment. You need not do without little luxuries in Antarctica as long as you take the time to select items with the least environmental impact and package them frugally.

Eliminate the use of aerosols. The propellants in some aerosols can deplete the ozone layer, and aerosol cans create a disposal problem. Find substitutes for aerosols such as roll-on deodorants, shaving creams in a tube, and other non-aerosol products.

Eliminate as many plastic and throwaway containers as possible. This will help reduce the volume of solid waste disposal in Antarctica. Repackage products that come in throwaway containers into containers you are more apt to take home with you.

Do not use packing peanuts as they blow away easily.

If possible, use the backpacker's rule – pack it in, pack it out. Please cooperate with the established recycling program.

### Don't Pack a Pest

Non-native species, such as seeds and fungi, now occur in Antarctica, carried in by people who have not cleaned their clothing/shoes before arrival. Inspect and clean all items that may have soil, plant material or other organic material on them. Such items include backpacks, boots, pant cuffs, Velcro®, polar fleece and other gear.

Please read the *Don't Pack a Pest* online brochure at www.usap.gov/TravelAndDeployment/documents/packapest_brochure_final.pdf.

## WHAT TO PACK

Below is a brief narrative and list of some items you may be considering for your personal list of what to pack. The items listed are meant as a guide only, and should be adjusted to individual needs and preferences. Wintering personnel, for example, should increase the quantities, while official visitors and others who are scheduled for only a few days in Antarctica will require less. **Your POC can give you specific advice about what you might need depending on your length of stay and the antarctic facility at which you will reside.**

There may be some special or brand name products, such as vitamins, your favorite cold remedy, aspirin, and/or toiletries that you may require during your deployment. The station store at each facility carries a limited supply of toiletries, gift items, film, batteries, snacks, soda, etc. Your supervisor or team leader can give you a good idea of what items are stocked in the store at the station where you will be working. Planning on purchasing items from the station store during your stay will help reduce the amount you have to pack in to Antarctica.

**Toilet articles.** Antarctica is very dry and it is recommended that you use hand lotion and lip balm. The station store carries a limited selection of these items along with other toiletries, so it is recommended participants bring their own lotions and soaps. There is no store aboard the research ships.

**Pain relievers** such as aspirin and cold capsules (non-prescription) are usually available for purchase at station stores. Quantities and brand names are unpredictable, however, and it is suggested that you bring your preferred pain relievers to Antarctica. Also, if you re-pack them to conserve space, retain their original labels.

### Unwanted in Antarctica!

**PROHIBITED**

**Polystyrene packing.** These beads, chips and peanuts are dispersable and pose a threat to wildlife.

**House plants and soil.** Introduction of nonindigenous species is prohibited.

**Hazardous and toxic substances.** Many common consumer products are on this list.

**DISCOURAGED**

**Aerosols.** Pressurized containers of deodorant, hair spray and shaving cream. These items become hazardous waste because of their ingredients or because they are pressurized.

**Disposable batteries** such as mercury, alkaline and lithium cells. Consider buying rechargeables and a recharger. Try to select devices that use a common battery size.

**Magazines, catalogs, newspapers and junk mail.** The library has reading material, and news and sports are available on TV (McMurdo only) and the Internet. Do not forward your mail to Antarctica.

**Non-reusable plastic** containers, such as shampoo and lotion bottles. Take extras back home with you.

**OTHER RECOMMENDATIONS**

**Buy biodegradable** soaps and shampoos.

**Buy pump sprays,** sticks (deodorant) and tubes (shaving cream), not aerosol containers.

**Repack** your personal products. Camping outfitters sell various containers. Ziplock bags are good for aspirin, vitamins and prescription drugs (keep the labels).

**Cushion items** with clothing. Reuse boxes and packing materials you receive in the mail.

**Donate** clean and reusable personal items to the stations' recycling centers known as the "Skua" area.

## Personal Items to Consider Taking

### CLOTHING ITEMS:

- Boots or shoes; work, climbing, hiking, insulated as needed for your work
- Glasses; eye and sun, extra pair, record of prescription
- Gym clothes and shoes for athletics
- Holiday attire
- Jacket; pile and windbreaker
- Neck gaiter
- Pajamas/robe
- Pants/jeans
- Shirts; light wool or cotton flannel, long-sleeve (machine washable)
- Slippers for indoor wear
- Sock liners; polypropylene or Thermax
- Socks; heavy
- Sweaters; heavy and light
- Swimsuit (for sauna)
- Towel and washcloth
- Underwear, thermal top/bottom
- Underwear, regular
- Flip flops for shower

### MISCELLANEOUS:

- Alarm clock
- Batteries, rechargeable/charger
- Camera/camera batteries
- Coffee mug (nonbreakable)
- Day pack
- Hair dryer
- Hobby, craft items (small)
- Laundry bag
- Lock, combination or key
- MP3 player/extra headphones/ AC adaptor
- Musical instrument/spare parts
- Prescription medications
- Sewing kit
- Skis; skate/cross country
- Plastic food containers with lids
- Toiletry articles; toothpaste, dental floss, comb, razor, shave cream, deodorant, soap and skin lotion for dry skin, tampons, a carrying case
- Vitamins
- Water bottle
- "Ziplock®" bags

**Indoor clothing** choices are up to you. You bring your own regular indoor clothing, including underwear, socks, shirts, pants and shoes. No dry cleaning services are available. The use of polyester double knit fabric is not recommended as it is not sufficiently warm. Base the quantity of clothing you bring on recommendations from your POC, the length of stay in Antarctica and the type of work you will be doing.

**Special clothing** (climbing boots, cold-weather gear, etc.). If you are experienced in cold weather conditions, you may add your own cold weather gear for field use. Be sure these items are clean and free of soil or plant material before packing them (check the Velcro®). Some research grants include funding for additional clothing that is not part of the standard ECW clothing issue.

**Sheets.** The U.S. Antarctic Program supplies linens, pillows and blankets for the beds.

**Laundry.** Washing machines and dryers are conveniently located and are free to use. Laundry detergent is also provided free in the laundry room in each dorm and is also sold in the station store.

**Layering.** The temperature both inside buildings and outside can vary dramatically. The best way to manage these changes is by layering your clothing. This will allow you to shed or add layers quickly and easily. Several thin layers are more effective than one bulky layer.

**Electric power.** As in the United States, the U.S. antarctic stations use 110-volt power supply systems. No converters or adaptors are needed.

Power in Argentina, Chile and New Zealand uses 230-volt, 50 hertz, power supply systems. In order to use U.S.-purchased appliances, such as hair dryers and razors, you will need to bring your own power converter and plug adapter (laptops and iPods have a built-in converter, but you will still need a plug adaptor for the wall socket).

The research vessels have both 220- and 110-volt power.

**Semi-formal attire** such as a jacket/tie or a skirt/dress is suggested for special occasions. Thanksgiving and Christmas are celebrated with a more formal and special meal than the daily routine. Many participants choose to dress up a bit more for these events.

**Feminine hygiene** supplies are available at the station store. Brand selection is limited, but necessary supplies are normally available. Women may wish to bring items and brands they prefer.

**Towels and washcloths.** The U.S. Antarctic Program does **not** provide towels and washcloths in Antarctica, although it does provide towels on the R/V *Laurence M. Gould* and R/V *Nathaniel B. Palmer*. Also, many hotels in New Zealand and South America do not provide washcloths. It is recommended that a small towel and washcloth be part of your hand carry.

## Wintering?

Consult your hiring POC in Denver to get packing suggestions related to your specific job.

**Sunscreen.** Carry and use a sunscreen with an SPF number of 15 or greater. Ensure that it provides both UVA and UVB coverage, and that the product expiration date does not occur during your stay. In summer, the sun is up 24 hours a day, and its reflection off snow and ice multiplies the potential for sunburn.

**Sunglasses.** Sunglasses or goggles are critical. Your ECW clothing issue will include ski-type UV protective goggles. Participants should bring two pairs of 100% UV protective sunglasses in case one pair is lost or damaged. Frames should be plastic rather than metal to avoid freezing to the skin. Consider wrap-around temples, side shields, nose guards or other features to protect from harsh sunlight and reflections off the snow. If you wear prescription glasses, you should

also bring prescription sunglasses with the above recommended features. Eye protection is your responsibility.

**RPSC Employees** will be reimbursed up to $175 for prescription sunglasses every other year.

**Prescription eyeglasses and contact lenses.** If you wear glasses, carry a record of your prescription to Antarctica. You should take a spare pair with you. The cost of eyewear replacement is your responsibility, and the means to obtain replacements is limited. It is also suggested that you carry contact lenses on your person to avoid possible damage from freezing.

Contact lenses have been found to work fine in the Antarctic. Lens cleaning supplies are available at the station store at McMurdo in limited quantities and brands. Regular saline and sensitive saline solutions for soft contact lenses are available. Heat-type solution is not available. You may wish to bring enough personally desired items to last your entire stay.

**Recreation gear** (e.g., skis, musical instruments). The variety and availability is different at each facility. You may wish to send your own recreational gear depending on the facility and your length of stay. Your POC can give you specific information. Be sure all recreational gear is clean prior to packing.

**MP3/CD player.** Participants are expected to bring their own players, music and extra headphones. Avoid battery use by bringing an AC adaptor to plug it into the wall.

**Attire en route.** While dress may be informal en route to and in both New Zealand and South America, you are requested to remember that you are representing the United States and the NSF and that your appearance (and conduct) will be noted. Avoid inappropriate conduct during travel.

**New Zealand.** Weather conditions change rapidly. Cold temperatures and rain can be expected even during the spring and summer months. Lightweight rain gear, as well as a warm sweater or jacket, are recommended.

**Chile.** The climate in Chile is changeable and can be quite cold, especially in Punta Arenas. Lightweight rain gear plus a warm sweater or jacket are recommended.

**Antarctic clothing.** You will be issued ECW clothing as you pass through New Zealand or Punta Arenas. Special arrangements will be made if you are taking other routes to Antarctica. This clothing will include outer garments necessary for warmth and dryness, pile jackets and pants, gloves, thermal boots, and other items. Depending on your work, you may also be issued special safety gear (e.g., hard hats, goggles) upon arrival at your work site.

Proper clothing fit and functionality are important to achieve maximum protection. You should check each individual item to ensure that it fits correctly, that the zippers work, and quantities are correct. If you expect to gain weight while in Antarctica, which is common, select clothing that fits loosely. You will stay warmer if you wear several thin layers than if you wear one thick layer.

The clothing issued to you is U.S. government property. You are required to return it in New Zealand or South America during redeployment, even if you think it may be of no further use. You are responsible for maintenance of issued clothing in your possession. Some issued clothing, especially parkas, is subject to theft, and you should take care to prevent loss. Abnormal damages or unreported loss of clothing will result in your being billed for repair or replacement costs. Report immediately the theft of any U.S. government property to the NSF representative or the station manager. It is illegal for you to mail government property from Antarctica. It is illegal for individuals to buy or sell government property, including clothing.

Strict regulations regarding required ECW attire on flights and cruises to and from Antarctica will be explained during clothing issue in Christchurch or Punta Arenas.

**NOTE:** Understand that while the U.S. Antarctic Program will provide you with what you need for outdoor clothing, par-

photo by Elaine Hood

*Each of the three stations' stores carries a limited supply of souvenirs and personal items. The McMurdo store, shown above, is the largest.*

ticipants should bring their own long underwear, heavy socks, etc., to wear. Ask your POC for more information.

## What Not To Pack

**Plants, seeds and animals.** The Antarctic Treaty, which all participants must adhere to, prohibits the importation of any seeds, plants (except food plants under controlled conditions for use in the greenhouse), or animals to Antarctica. Be sure to clean your clothing prior to packing it so you can prevent inadvertently importing organic material. For example, be sure there are no seeds on Velcro, mud on boots or grass inside cuffs. It is prohibited to remove any materials such as wood, bone, eggshells, feathers, and plant or animal parts, unless specifically authorized by permit issued from the NSF.

**Commercial or other business activities.** You may not market or sell clothing or finished articles printed, manufactured, or assembled outside Antarctica. You may not import materials to finish and market such items locally. Federal law forbids the use of an APO address for the shipment of articles or materials used in private resale operations. The U.S. Antarctic Program also prohibits use of government transportation for shipment of goods and materials for unauthorized personal business activities.

**Hazardous materials.** Explosive gases, flammables, oxidizers, poisons, radioactive material, corrosives and other hazardous materials may not be shipped as baggage, mail or hand-carry. See Chapter 4: Science Cargo.

**Electric** blankets and heaters are not allowed for safety and power reasons.

## Baggage Organization and Labeling

Your personal belongings and ECW clothing will normally be carried from Christchurch to McMurdo in two orange bags issued to you as part of your ECW gear in Christchurch. You can also take your own suitcases or bags as long as the total weight of all bags combined does not exceed the established limits, or you have authorization in advance for excess baggage (see the beginning of this chapter). One of your orange bags, plus your additional suitcases/bags, will be placed in the hold cargo area of the airplane and will not be available during the flight.

Your second orange bag will be a carry-on bag, and should consist of some ECW clothing (see Chapter 5), and any items that you may want to use on your flight south, such as a camera, book, MP3 player or laptop. Another small bag of your choice (e.g., day pack) should be identified as your 'boomerang bag' containing a change of street shoes/clothes, personal items, medicines and toiletries. In the event of a flight turn-around or cancellation after check-in, this bag will be returned to you for your next night's stay in Christchurch.

The size of your carry-on bag, which must not exceed 61x38x23 centimeters (24x15x9 inches), will be screened as you check in at the Antarctic Passenger Terminal.

Laptops are accepted as hand-carry, but it must fit into the hand-carry dimensions along with the rest of your hand-carry. You may not bring sharp objects aboard planes: if you are bringing a pocket knife, scissors, or other sharp objects, stow them in your checked baggage. As on commercial airlines, liquids, aerosols and gels are restricted to 3 oz. containers in carry-on luggage. To see current standards, visit **www.tsa.gov**. Your baggage will be screened using various detection sensors, including a drug detection dog. The contents of your baggage may also be subject to additional visual inspection.

## Station Store

Each station store normally carries the following items, with slight variations due to the remoteness and fluctuating supply and demand. Snacks, drinks, souvenirs and other items are also sold.

- Baby Oil
- Body Soap
- Combs
- Dental Floss
- Deodorants
- Eye Care Solution, Multi-Purpose
- Eyeglass Repair Kits
- Facial Tissue
- Feminine Hygiene Pads
- Hair Brushes
- Hair Conditioners
- Lip Balms
- Lotions
- Mouth Wash
- Nail Clippers
- Sewing Kits
- Shampoo
- Shaving Cream (non-aerosol)
- Sunscreen SPF 30
- Tampons
- Toothbrushes
- Toothpaste
- Tweezers

If you are traveling to Antarctica on a research vessel, the amount of baggage you will have access to can be very limited. You should pack the items you'll need for the five-day ocean journey in a small piece of luggage. Any baggage you store in the cargo area will be inaccessible during the journey.

Mark all your bags, including those you carry aboard, clearly with tags. Also place identification inside each bag. Do not lock your luggage, as airline security may need access to it. Mark boxes with a stencilled or painted address. Include your assigned antarctic station, the initials "USAP," "RPSC" or event number, and return address. If you are using boxes previously shipped to Antarctica, please take special care to eliminate any old cargo markings or placards.

Any **Do Not Freeze (DNF)** equipment should not be included in your checked or hand-carry baggage. Use the U.S. Antarctic Program cargo system to protect it from freezing (see Chapter 4: Cargo).

**Other personal equipment.** Personal baggage may also include delicate scientific instruments that must be hand-carried. You are responsible for handling personal baggage throughout the trip to and from Antarctica, unless it is checked as air cargo. If delicate instruments are to be moved as air cargo, clearly mark any handling requirements on the container. Handling personal baggage includes customs clearances in New Zealand, Chile, and the United States when returning from Antarctica. Pack baggage securely in easily handled containers.

## STORAGE AVAILABILITY

### In New Zealand

There is a limited amount of storage space available at the U.S. Antarctic Program Clothing Distribution Center (CDC) in Christchurch to leave items not needed in Antarctica. Some examples of items you might leave behind are summer clothing, business suits, street shoes, backpacking equipment, books that you have finished reading, and souvenirs acquired on the trip south to New Zealand.

This service is not provided solely for your personal benefit. It reduces the amount of materials airlifted to and from Antarctica, freeing capacity for timely movement of needed U.S. Antarctic Program materials, possibly including yours.

There will not be much time to spend sorting through your baggage before checking in for your flight to McMurdo Station. Plan ahead and organize your baggage and any items for storage in advance.

U.S. Antarctic Program participants who wish to use their personal dive equipment, bicycles, or camping gear while in New Zealand, may mail the items to themselves in care of the CDC. These items should not be mailed more than 60 days prior to your arrival in Christchurch. Items received after your departure to Antarctica will be held in the CDC warehouse secured baggage storage room until you redeploy from Antarctica. If you are no longer an active participant, the article(s) will be returned or forwarded, if a forwarding address is available. The address is as follows:

[Participant's Name]
[Specify the Antarctic Station]
c/o Private Bag 4747
Christchurch Airport
Christchurch 8140
New Zealand
HOLD IN CHRISTCHURCH

The New Zealand Ministry of Agriculture and Forestry (MAF) is now assessing a fee (average $7NZ) to clean/fumigate items (e.g., dirty hiking boots, tent poles) left in Christchurch while you are in Antarctica. These items will remain in MAF custody at the U.S. Post Office in Christchurch until arrangement has been made to pay the fee.

photo by Calee Allen

*This dorm room inside the new Elevated Station at Amundsen-Scott South Pole Station has been personalized with simple and lightweight items such as cloth wall-hangings. Linens, pillows and blankets are provided for you.*

## In Chile

Limited secure storage space is available in Punta Arenas for participants to store items they do not want to take to Antarctica, such as clothing to be used after leaving Antarctica and science equipment used in multi-year projects. Contact the Peninsula Logistics Supervisor if you have questions regarding the storage of any personal items in Punta Arenas. Coordinate with Agencias Universales S.A. (AGUNSA) officials upon arrival in Punta Arenas to have items stored. ■

## CHAPTER 4:

# Conservation, Permits and Science Cargo

*photo by Philip Spindler*

*A macaroni penguin on the left, a chinstrap in the rear and two Adélie penguins on the right.*

Environmental conservation and waste management law applies in Antarctica. This chapter describes the public law and explains how to get a permit for activities allowed under permit.

The law applies to everyone working in the U.S. Antarctic Program and to every U.S. citizen associated with other national programs. It applies to all expeditions to Antarctica that originate from the United States. The import-export part of the law even applies to tourists as well as U.S. citizens not in Antarctica.

The chapter also discusses the shipment of science cargo, and it explains the permitting rules that apply to cargo, including specimens shipped from Antarctica.

## ANTARCTIC CONSERVATION ACT

The Antarctic Conservation Act (P.L. 95-541), as amended by the Antarctic Science, Tourism, and Conservation Act of 1996 (P.L. 104-227), formalizes U.S. adherence to Antarctic Treaty conservation rules, including the 1964 Agreed Measures for the Conservation of Antarctic Fauna and Flora and the 1991 Protocol on Environmental Protection.

The law provides penalties of up to $11,000 and one year imprisonment for each violation. Other penalties could include removal from Antarctica, rescission of a grant, or sanctions by your employer. It assigns the NSF and other agencies regulatory, permit and enforcement authority.

The Antarctic Conservation Act requires your involvement from the time you begin planning your trip until after you leave Antarctica. Your activities, on the job or off, must comply with the Antarctic Conservation Act. Much of your conservation planning will involve common sense – minimizing pollution, avoiding interference with animals – but the act is complex, and you cannot rely solely on common sense.

**Antarctic Conservation Act (ACA) of 1978** (NSF 01-151). This book contains the law, its regulations, maps of special areas, the Protocol on Environmental Protection and a permit application form. You can find it online at **www.nsf.gov/od/opp/antarct/aca/nsf01151/aca_nsf_01_151.pdf**.

## Highlights of the Antarctic Conservation Act

**Environmental Impact Assessment.** Proposed activities shall be subject to environmental assessment of impacts of those activities on the antarctic environment, or on dependent or associated ecosystems.

If an activity has less than a minor or transitory impact, the activity may proceed. Otherwise, an environmental assessment must be completed, according to Annex 1 of the Protocol on Environmental Protection to the Antarctic Treaty. Parties planning the activity are responsible to ensure that the assessment procedures set out in Annex 1 are applied in the planning processes leading to decisions about any activities undertaken in the Antarctic Treaty area. An Initial Environmental Evaluation or a Comprehensive Environmental Evaluation of the activity may be required and must be signed by the NSF before the activity can begin.

**Do Not Disturb Wildlife**

If they are reacting to you, then you are too close.

**Taking or harmful interference** are prohibited except under a permit that specifies the authorized activity, including when, where, and by whom it is to be conducted. Permits are issued only to provide specimens for scientific study or for museums or other educational institutions. NSF evaluates requests for permits and issues them when approved. You must carry a copy of your ACA permit when working with fauna or flora in the field.

"Taking" means to kill, injure, capture, handle or molest a native mammal or bird, or to remove or damage such quantities of native plants that their local distribution or abundance would be significantly affected.

"Harmful interference" means:

- flying or landing helicopters or other aircraft in a manner that disturbs concentrations of birds and seals.
- using vehicles or vessels, including hovercraft and small boats, in a manner that disturbs concentrations of birds and seals.
- using explosives or firearms in a manner that disturbs concentrations of birds and seals.
- willfully disturbing breeding or molting birds or concentrations of birds and seals by persons on foot.
- significantly damaging concentrations of native terrestrial plants by landing aircraft, driving vehicles, walking on them, or by other means.
- any activity that results in the significant adverse modification of habitats of any species or population of native mammal, bird, plant, or invertebrate.

**ACA Permits**

According to the regulations pursuant to the Antarctic Conservation Act as amended by the Antarctic Science, Tourism and Conservation Act, **a permit is required to:**

- "Take" native mammals, birds or plants
- Engage in harmful interference of native mammals, birds, invertebrates or plants
- Enter Antarctic Specially Protected Areas
- Introduce nonindigenous species
- Import or export native flora or fauna

**Special areas.** A number of precisely defined places in Antarctica are designated under the Antarctic Treaty, and in U.S. law, as Antarctic Specially Protected Areas (ASPAs), formerly referred to as SPAs and SSSIs. You must have a compelling need to enter one of these areas, and you must have a permit to do so. You must carry your permit with you while working in an ASPA.

Some of these special areas are near stations, such as Arrival Heights next to McMurdo or Litchfield Island near Palmer. The areas and their management plans, with which you must comply if you are permitted to enter, are described in the publication *Antarctic Conservation Act of 1978* (NSF 01-151), free from NSF and on the Web site listed above.

An additional category, Antarctic Specially Managed Areas (ASMAs), may be created for areas where activities pose risks of mutual interference or cumulative environmental impacts, and for sites of recognized historic value that do not require strictly controlled access. Entry into an ASMA does not require a permit.

**Introducing species.** You need a permit to introduce nonindigenous species to the Antarctic (south of 60 degrees South latitude). A clear need to introduce the items must be demonstrated. Only the following may be considered for a permit allowing their introduction:

- domestic food plants
- laboratory animals and plants including viruses, bacteria, yeasts and fungi

The ACA allows food plants, but introduced soil must be sterile. Many antarctic stations have hydroponic vegetable gardens.

Living nonindigenous species of birds may not be introduced into Antarctica. Section 670.18 of the ACA lists antarctic native birds.

If you are uncertain if the species you need to take to Antarctica would be an introduced species, contact the environmental officer at the NSF/OPP (Polly Penhale, ppenhale@nsf.gov; 703-292-8031).

**Import into and export from the United States.** In the United States it is unlawful, unless authorized by regulation or permit, to have or sell, or to import or export, antarctic plants, mammals or birds. An application for a permit must demonstrate that the import or export would further the purposes for which the species was taken or collected, demonstrate that the import or export is consistent with the purposes of the ACA, and state which U.S. port will be used.

Mailing items to or from the United States constitutes import or export.

**Banned substances.** The ACA waste management regulations ban these substances from Antarctica:

- pesticides (except those required for science or hygiene; a permit is needed)
- polychlorinated biphenyls (PCBs)
- nonsterile soil
- polystyrene beads and plastic chips

**Designated pollutants.** The ACA identifies some substances as designated pollutants that must be used, stored, and disposed of in a way that prevents their release to or adverse impact on the environment.

This category is large and requires attention both when you pack for travel to Antarctica and at your work site and living area. When packing, think about how to minimize the types and amounts of substances you need, to substitute benign substances for designated pollutants wherever possible, and to handle the designated pollutants that you must take.

Designated pollutants include any substance listed by name or characteristic (flammable, corrosive, reactive, toxic) in the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, and other U.S. regulations. Waste containing designated pollutants is antarctic hazardous waste, and it has to be used, stored and disposed of in controlled ways.

Many research and industrial supplies – and common substances like lighter fluid and fingernail polish remover – at U.S. antarctic stations are designated pollutants. All of them must have a permit to enter Antarctica. The support contractor annually completes the actions needed to request a permit; the task requires the cooperation of all program participants. This chore and others are part of the work involved in preparing for Antarctica.

## Environmental Guidelines

*Aspects of environmental protection are covered in many parts of this guidebook. It is your responsibility to know them. Here are a few more common sense examples of how you can do your part.*

**Don't litter.** Use the appropriate receptacles and comply with the waste management program at your station. Winds can turn litter into dangerous flying materials.

**Secure construction sites.** Pick up debris and dispose of properly. Protect materials outdoors from scattering by the wind.

**Handle waste properly.** If you handle waste, know the rules. If you do not know them, ask a supervisor, a lab manager, a RPSC waste management employee, or an NSF representative.

**Leave only footprints.** Bring everything back to McMurdo, Palmer, South Pole or the ship from field camps. This includes human waste.

**Handle lab chemicals properly.** Pack, store and identify them correctly. Arrange for proper disposal according to instructions.

**Don't spill fuel.** Take the time and precautions necessary to avoid spills. Waste fuels and lubricants have to be labeled and stored for return to the United States. Any spill should be reported to the McMurdo fire house or the station manager at South Pole and Palmer stations.

**Help clean up.** Volunteers assemble from time to time to police an area. This is an opportunity to work with your colleagues to keep camp and station areas clean.

**Avoid disturbing wildlife.** In particular, do not walk on vegetation, touch or handle birds or seals, startle or chase any bird from its nest or wander indiscriminately through penguin or other bird colonies.

**Do not introduce plants or animals** to Antarctica, or collect eggs or fossils. Clean your gear and clothing before arriving in Antarctica.

**Do not enter any of the ASPAs without a permit** and adhere to the area management plan when working in these areas and in ASMAs.

**Avoid interference with scientific work** and do not enter unoccupied buildings or refuges except in an emergency.

**Take care of antarctic historic monuments.**

**Historic sites.** More than 70 historic monuments or sites have been identified during Antarctic Treaty consultative meetings. Steps are taken to restore and preserve monuments, including tombs, buildings and objects of historic interest. The concerned governments protect these sites from damage. If you go near historic sites, please take care not to damage or disturb them.

NSF will not allow work in Antarctica until a permit has been either approved or found not to be required. Copies of ACA permits must be on file at NSF.

McMurdo has four Antarctic Treaty historic sites: Observation Hill, Scott's Hut, Vince's Cross and the Richard E. Byrd Memorial. Two other monuments are accorded historic status by the U.S. Antarctic Program: Our Lady of the Snows Shrine, which was established in memory of Richard Thomas Williams, a Navy Seabee who drowned when his tractor broke through the sea ice in January 1956, and the Raymond Smith Monument, which commemorates BM1 Raymond Thomas Smith, USN, who died in 1982 during an unloading accident at McMurdo onboard USNS *Southern Cross*.

South Pole has two Antarctic Treaty historic sites: Amundsen's tent, erected in 1911, and Flag Mast, established in 1956. The location of both monuments is unknown.

Capes Royds, Evans and Adare contain historic huts or their remains. Respect the basic rule prohibiting the removal or disturbance of any materials from these sites, for either souvenir or scientific purposes.

**Enforcement officers.** ACA enforcement officers are federal officials responsible for ensuring compliance with the ACA and for permits issued to U.S. citizens or foreign nationals in the United States. Enforcement officers help U.S. Antarctic Program participants understand their obligations to protect native plants and animals, and to prevent the release of pollutants. They are authorized to review permits to ensure terms and conditions are fulfilled; serve warrants; search and seize property without warrant; take affidavit; detain for inspection and inspect packages, crates, or other containers; and make an arrest with or without a warrant. The local enforcement officer can be reached via the NSF station representative.

## GETTING ACA PERMITS AND REPORTING

NSF will not allow work in Antarctica until a permit has been either approved or found not to be required. You may not do things that require a permit unless you have a permit. A permit cannot be retroactive.

You are the person who initially decides whether or not an ACA permit will be needed for proposed activities in Antarctica. If there is any doubt, contact the NSF/OPP (Nadene Kennedy, nkennedy@nsf.gov).

Permit Officer
Office of Polar Programs, Room 755
National Science Foundation
4201 Wilson Boulevard
Arlington, Virginia 22230
Fax: 703-292-9081

Normally, at least 65 days are required for NSF to review and decide on an ACA permit. During that time, a summary of the application is published in the Federal Register so that the public can comment. The Foundation evaluates public comments and performs an internal review. It then approves the application, approves it with modifications, or rejects it.

**Meteorites.** A U.S. regulation governing antarctic meteorites ensures that meteorites in Antarctica will be collected for scientific research purposes only. U.S. expedition organizers who plan to collect meteorites in Antarctica will ensure that any specimens collected must be properly collected, handled, documented and curated to preserve their scientific value. For more information on meteorite regulation, please visit **www.nsf.gov/od/opp/antarct/meteorite_regs.jsp**.

### Permits for Protected Resources

If your project involves any native mammal that is a marine mammal as defined by the Marine Mammal Protection Act of 1972 (16 U.S.C. 1362(5)), any species that is an endangered or threatened species under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), or any native bird that is protected under the Migratory Act (16 U.S.C. 701 et seq.), you may need to obtain permits from other federal agencies. NSF cannot issue an ACA permit until the Permit Office receives copies of valid permits issued under these regulations. The following Web site provides information on the acts listed above: **www.nmfs.noaa.gov/pr/permits**.

**Postseason report.** At the end of the season, write a one-page report of activities conducted under your ACA permit and submit it to the permit officer at OPP.

## OTHER IMPORT-EXPORT REGULATIONS U.S. AND FOREIGN

Federal laws and regulations control the taking and importing into the U.S. of certain biological specimens, alive or dead. Other countries have rules for crossing their borders with some materials.

Responsibility for knowing these regulations, complying with restrictions, and obtaining clearances rests with the grantee. Keep your RPSC Science Support POC informed by sending copies of relevant correspondence, actions and permits granted.

The NSF representative in Antarctica cannot provide the needed clearances from the field. It is your responsibility to obtain the necessary permits.

**Import of animal-origin materials.** The U.S. Department of Agriculture, Animal and Plant Health Inspection Service (APHIS), regulates the import of all animal-origin materials that could be a disease risk to U.S. livestock. Animal-origin materials include animal products, animal by-products, and biological materials that contain or have been in contact with materials of animal origin (including cell cultures).

You may not bring such materials into the country without a permit. Permits may be requested on VS Form 16-3, "Import or Transport Controlled Material or Organisms or Vectors." If you want to import cell cultures, you also need VS Form 16-7, "Additional Information for Cell Cultures and their Products." Forms and fee information can be found at **www.aphis.usda.gov/import_export** or from the address below. A copy of the forms you submit should be sent to your RPSC Science Support POC.

USDA, APHIS, VS, NCIE
Products Program
4700 River Road, Unit 40 Telephone: 301-734-3277
Riverdale, MD 20737-1231 Fax: 301-734-8226

**Foreign permit restrictions.** All countries have some restrictions against the importation of harmful plants or animals or of soil samples that might contain harmful seeds, insects, fungi, or bacteria. New Zealand has particularly stringent regulations (see below), and Argentina and Chile have similar rules. Chile does not currently restrict transshipment of specimens or technical equipment. For general information about materials sent by mail or shipped as retrograde cargo to the United States, contact the embassies of the respective countries for information and permit applications before you leave the United States. Otherwise, there may be difficulty in clearing customs, particularly when hand carrying biological samples.

For information about New Zealand Ministry of Agriculture and Forestry regulations, visit their Web site:
www.maf.govt.nz/mafnet
For information about Chilean restrictions, contact the consulate in your region:
www.chile-usa.org/consular.htm
For information about Argentinean restrictions, go to the following Web site, click on the English link and then the Consulates in the U.S. link:
www.embassyofargentina.us

To keep the NSF informed of your action, please forward information copies of correspondence to your RPSC Science Support POC.

**New Zealand health and agricultural requirements.** New Zealand has strict regulations regarding importation or transshipment of biological and laboratory samples. A permit from the Ministry of Agriculture and Forestry (MAF) Biosecurity New Zealand must be obtained for entry of biological and laboratory samples. This applies to samples coming from the United States or Antarctica.

Please enter information regarding samples into POLAR ICE, the online grantee application. This process will create an application for a MAF permit. Applications are sent to the senior administrative coordinator at Raytheon Polar Services N.Z. (RPSNZ) for processing. You must apply for a permit at least eight weeks before you leave the U.S. for Antarctica.

Permit information submitted through POLAR ICE is sent electronically to RPSNZ. However, permit applications can also be forwarded directly to the senior administrative coordinator via e-mail: CHC-MAFpermits@usap.gov. Alternatively, they can be faxed to NZ at 011.64.3.358.9060.

## Controlled Drugs, New Organisms, Genetically Modified Organisms

If your research requires movement from the United States to Antarctica of controlled drugs, new organisms or genetically modified organisms, permits from U.S. and N.Z. government agencies must be obtained and the process will take longer.

**Controlled Drugs.** Controlled drugs must be hand-carried through New Zealand. In order to do this, a valid U.S. Drug Enforcement Administration (DEA) permit must be obtained. In addition, approval must be obtained from New Zealand Food Safety Authority. The requirement to obtain an approved Application to Import Veterinary Medicine from New Zealand will take at least 10-12 weeks to complete.

Legally prescribed controlled medications for personal use may be brought through Chile. Medications for research purposes require advance documentation. Check with RPSC science planners or your NSF program officer at least 30 days prior to your travel for the current regulations.

**New Organisms or Genetically Modified Organisms.** To transship new organisms and genetically modified organisms (GMO), approval must be obtained from the Environment Risk Management Authority (ERMA). This is part of the MAF process. For GMOs you must provide your approved ACA permit along with an application avaialble through POLAR ICE. For new organisms, you must provide your approved ACA permit. You should expect the ERMA/MAF process to take at least 6-8 weeks to complete.

## Importing Samples into New Zealand

If you are planning to import your samples into New Zealand for testing at a New Zealand institution, you must obtain a MAF permit from your collaborative institution. This permit must accompany your samples either as hand-carry or cargo.

## Transshipping Samples through New Zealand

**United States to Antarctica.** If you are shipping samples from the United States through New Zealand on to Antarctica, a copy of your permit will be sent directly to you along with a letter from the Manager of New Zealand Operations. If you are hand-carrying your samples from the United States, you must carry your permit and your letter with you. When you arrive in New Zealand, you must declare your samples and present the permit and letter. If you also have controlled drugs, GMOs or new organisms, you must present the additional paperwork provided to you by RPSNZ.

If you are shipping your samples directly from the United States to Antarctica, you must attach the permit, and any other applicable paperwork, to the boxes being shipped.

**Antarctica to the United States.** If you are shipping samples from Antarctica to the United States, your permit will be sent to the Crary Lab in McMurdo. It will be held there until you are ready to leave the Ice. A copy can be sent to you by request. If you plan to hand-carry your samples, you must present a copy of your permit and declare your samples to the MAF Biosecurity officials when you enter New Zealand.

If you are shipping, your permit will be available in the Crary Lab at McMurdo Station. When you are ready to ship your samples, contact the Crary Lab and Science Cargo staff with details of your shipment.

photo by Stacy Kim

*A science team deploys a new instrument under the sea ice at its field camp on the McMurdo Sound sea ice.*

If you are working in the Antarctic Peninsula area, get transport details from the NSF representative there, the RPSC resident manager at Palmer, or the marine projects coordinator on your research vessel.

You will be required to identify the container as to content, relevant permits, special handling requirements (such as dry ice) and addressees. State whether the container will be hand-carried or shipped independently.

## Radioactive Materials

Shipment and use of radioactive materials in Antarctica requires strict adherence to U.S. antarctic policies and procedures to avoid contaminating the Antarctic environment, and to ensure safety. Approval by the NSF/OPP to use radioisotopes in the Antarctic must be obtained before any radioactive material is shipped south. A hard-copy of the NSF/OPP approval should accompany all radioactive material shipments to and from Antarctica. PIs are responsible for the procurement, packaging, transport and retrograde of NSF-approved radioactive materials required for their particular research project.

PIs must direct their requirements through the radiation safety officer of their institution to ensure compliance with state, national and international regulations pertaining to the packaging and shipment of radioactive materials. Consult with the Hazardous Material (HAZMAT) specialist in Christchurch by e-mail (hazmat@iac.org.nz) or fax (+64-3-358-1479), for shipments to and through New Zealand. When shipping radioactive materials, or having them consigned from a vendor, please ensure that any material packaged within category "Yellow-II" does not exceed a transport index of 1.0, or that any "Yellow-III" packages do not exceed 3.0.

**It is against the law to hand-carry radioactive materials into New Zealand.**

Radioactive isotopes **cannot** be shipped to New Zealand without the appropriate Certificate of Authorization to Import Radioactive Materials. The HAZMAT specialist in Christchurch must receive importation documentation five business days before radioisotopes are shipped through/to New Zealand. Accordingly, if you are planning to order and ship radioisotopes directly from U.S. vendors to New Zealand, then you MUST adhere to the following instructions:

All orders must be marked by the vendor for:

National Science Foundation
c/o Raytheon Polar Services (NZ) Limited
Gate 1, Orchard Road North
Christchurch International Airport
Christchurch, New Zealand

The project's event number and PI's name must also be included in the shipping instructions so that the HAZMAT specialist in Christchurch will know to whom to consign the shipment in Antarctica.

After the order is placed with the vendor, you MUST then send the HAZMAT specialist in New Zealand either an e-mail (hazmat@iac.org.nz) or a fax (+64-3-358-1479) with the applicable following information:

**Unsealed** (Not shipped as an integral part of equipment)

1. Radionuclide
2. Activity per item
3. Number of items
4. Description of radioactive material
5. Country of origin
6. Expected departure date from country of origin (include country name, i.e., United States)/Arrival in Auckland, New Zealand

**-OR-**

**Sealed** (Shipped as an integral part of an instrument)

1. Radionuclide
2. Activity per item

3. Number of items
4. Year of manufacture (if known)
5. Source serial number (if known)
6. Instrument type (if part of an instrument or other equipment)
7. Model #
8. Serial #
9. Country of origin
10. Expected departure date from country of origin (include country name)/ Arrival in Auckland, New Zealand

Additionally, you are required to follow up with confirmation of the Airway Bill and flight numbers and special handling instructions (e.g., DNF) as soon as the shipment is confirmed.

Upon receipt in Christchurch, the HAZMAT specialist will ensure that the shipment is consigned to the PI at a station in Antarctica or aboard a USAP research vessel at Port Lyttelton.

Please do not hesitate to contact the HAZMAT specialist with any questions on this procedure:

Cargo/Hazardous Coordinator
Raytheon Polar Services (NZ) Limited
Tel: +64-3-358-1417 Fax: +64-3-358-1479
Mobile: 027-4357731 E-mail: mike.skevington@iac.org.nz

## SCIENCE CARGO

Many dollars have gone into the support of each science project and the facilities required for the projects. Data and their subsequent interpretation are the greatest single return on this investment. Data and specimens should be transported with the same care and forethought that went into planning the research.

The challenges presented in transporting cargo and passengers to and from Antarctica are diverse. Antarctic operations are divided roughly into two geographic areas, the Continental and the Peninsula areas, differentiated by the stations and the means of supplying those stations.

***Instructions on Packaging and Shipping,*** provided by RPSC, explains exactly how to package and ship your science cargo to and from Antarctica. This publication is kept current with recent methods of safe and damage-free shipping, examples of how to time your shipments, and the current name, address and phone number of the Port Hueneme representatives.

You can find this information online at **www.usap.gov**.

### Sea and Air

Due to the unusual restrictions presented in getting cargo to Antarctica, requirements are analyzed and cargo loads are planned months in advance. Planning begins with information gathered from the SIP and RPSC management.

Responsibility for cargo and passenger movement within the Continental Area rests with the RPSC director of Logistics and the RPSC manager of Antarctic Terminal Operations (ATO). During the summer season at McMurdo, RPSC's Terminal Operations department manages all cargo transported to McMurdo Station and onward.

**US Antarctic Program/Science Cargo** is the facility that focuses on the cargo related to **science** efforts, special S- or T-events, and hazardous cargo. At McMurdo Station, cargo is documented, packaged, and labeled for transport and then turned over to the Movement Control Center (MCC) staff for actual transport. All hazardous cargo to be transported via helicopter is also processed through the U.S. Antarctic Program Science Cargo office. Should you require assistance in determining the whereabouts of cargo you have shipped, these people can tell where in the U.S. Antarctic Program cargo system your particular cargo is located. It will assist them if you can provide a copy of the U.S. Antarctic Program shipping document, or, for commercial shipments, a copy of the bill of lading or airway bill.

*photo by Chris Demarest*

*The cargo ship* American Tern *at McMurdo Station's ice pier. From food and construction materials to paper and computer equipment, almost everything needed to keep operations going is delivered on this one ship once per year.*

Methods of cargo transport used each year in support of science are:

**Palmer Station via research vessels.** Cargo must reach the NSF contractor representative in Port Hueneme, California, at least 90 days before it is to be loaded aboard the research vessel in Punta Arenas, Chile, for forwarding to Antarctica.

**McMurdo Station via charter resupply vessel.** A U.S. flag charter ship sails from Port Hueneme to McMurdo Station, arriving in early February. Cargo for this ship must be received in Port Hueneme by December 1. This ship is the preferred transport for delivering materials to McMurdo and the inland stations. Plan to get as much of your cargo as possible on it.

**McMurdo Station via U.S. Antarctic Program airlift.** U.S. Antarctic Program airlift refers to the scheduled movement of cargo and passengers from Christchurch to McMurdo via any aircraft capable and certified to operate in Antarctica. The airlift period is generally from the beginning of WINFLY to the end of the operating season. Airlift may be used with NSF approval to support funded science projects, prevent work stoppages, facilitate emergency repairs, and transport mail and fresh food. Most cargo is moved from Port Hueneme to Christchurch to await airlift to McMurdo. Commercial surface vessel shipment to Christchurch is the preferred transport mode for airlift cargo. Additional NSF approval is required to ship cargo from Port Hueneme to Christchurch via commercial air, and approval is based on importance to accomplishing Program objectives. In general, airlift cargo needs to arrive in Port Hueneme by 30 August. A link to the Packing and Shipping Instructions can be found at **www.usap.gov/usapgov/logistics/index.cfm?m=4**.

**Commercial air cargo.** If circumstances prohibit shipment by sea, RPSC may be authorized by the NSF to ship your cargo by commercial air. Commercial air shipments need to provide sufficient benefit to warrant the added cost of this transport mode. This is the most expensive way to ship, and will be used only for essential material that cannot go by sea. Air cargo will not be authorized as a substitute for inadequate advance planning of material movements. RPSC submits Air and Commercial Air Shipment requests to the NSF to gain authorization to use this mode of transportation.

**South Pole Station cargo.** Cargo to/from South Pole Station is transported almost entirely by LC-130 aircraft from McMurdo Station. These aircraft operate only from late October through mid-February. The station is isolated the rest of the year. RPSC Science Cargo personnel in McMurdo and at South Pole determine cargo plans and schedules.

**Hazardous cargo.** Explosives, gases, flammables, oxidizers, poisons, radioactives, corrosives, and other hazardous materials are forbidden in personal baggage, mail or hand-carry and must be shipped as cargo. Hazardous cargo must be packaged, labeled, marked, and documented in accordance with the applicable federal, international, military, and U.S. Antarctic Program regulations. Contact the RPSC regulatory specialist for more information.

- It typically costs 20 to 30 times more to fly items than to ship them via vessel.
- Frequently, air transport costs exceed the cost of the actual item being transported.
- Lack of planning results in excessive transport costs.

**Emphasis on sea cargo.** The U.S. Antarctic Program is committed to maximize practical use of sea cargo – and to minimize use of air cargo, which is vastly more expensive. Shipping by sea is the preferred method for transporting grantee cargo and other materials to Antarctica. It is far cheaper than air cargo, and it is secure. Once your cargo is packed and labeled properly and on the ship, the next off-load stop is McMurdo Station. The ship also can be used to return gear and specimens to the United States.

Maximum use of sea transportation is possible only through planning by all concerned. Make every effort to allow sufficient time for shipment by sea. Plan to position cargo in Antarctica the season before field work.

**Transportation schedules** are available at **www.usap.gov** under the Calendars and Schedules link to facilitate cargo movement planning. Cut-off dates for shipping to the research vessels *Nathaniel B. Palmer* and *Laurence M. Gould* provide the dates when the cargo must be at Port Hueneme to meet the quoted delivery date at the ship. The R/V *Laurence M. Gould* is the primary vessel used to transport passengers and cargo between Punta Arenas and Palmer Station. The Continental Area Acquisition Schedule, located on the same Web site referenced above, provides the timeline for cargo movement to McMurdo and South Pole stations.

### Retrograde (Return) Science Cargo

Near the end of your stay in Antarctica, you will arrange to have your science cargo shipped to the United States with the U.S. Antarctic Program cargo representative at McMurdo Station or cargo personnel at Palmer or South Pole stations. This person will issue you the appropriate documents and accept the cargo for shipment. You are responsible for insuring, packing and crating the equipment, and for labeling the containers.

Use of ship, rather than air, cargo back to the United States, especially from McMurdo, is encouraged when the science will not be compromised by the slower delivery. Air cargo will be authorized when necessary.

Retrograde cargo is shipped to a U.S. entry point and onward to its ultimate destination. The grantee pays shipping costs from the U.S. entry point to the ultimate destination. Note that it is the shipper's responsibility to insure cargo against loss.

You are entirely responsible for any items you mail or hand-carry. All retrograde cargo will go by ship unless air shipment is fully justified and authorized by the NSF representative or designate at Palmer Station, or the NSF representative at McMurdo Station.

Refer to Chapter 6 for information on transporting personal cargo and boxes.

## TRAVEL WITHIN ANTARCTICA

Timeframes and transportation for work in remote locations is planned well in advance during the summer planning season. Working together, grantees, the NSF, planners, and transport schedulers agree upon a field plan that is published in the Research Support Plan (RSP) six weeks before the participant deploys. All plans are subject to change given weather conditions and other unforeseen circumstances that may arise.

Any unauthorized travel on aircraft or ocean-going vessels may result in an employee's immediate termination and removal from Antarctica.

Grantees and RPSC employees deploying to remote locations should read the USAP Field Manual available in PDF under the Travel and Deployment link at **www.usap.gov.**

### Air Transport

Transportation to remote field camps is provided by fixed-wing aircraft, helicopters and ground transportation.

**Fixed-wing aircraft** are LC-130 ski-equipped airplanes, Baslers and smaller Twin Otter aircraft. LC-130s are operated by the 109th Airlift Wing of the New York Air National Guard. These

*Curious emperor penguins investigate a Twin Otter plane parked at a remote Antarctic field camp.*

*photo by Sean Loutitt*

*photo by Charles Kaminski*

*An LC-130 plane flown by the New York Air National Guard takes off from the Shackleton Glacier in Antarctica. Four jet-assisted take off rockets can be seen on the side of the fuselage, providing extra power for lifing off the ice.*

airplanes provide heavy-lift capability to all inland stations as well as Search and Rescue (SAR) for the entire continent. Science project team members must work with the science cargo staff to stage their cargo 72 hours before scheduled transport. Passengers must stage their personal luggage (except for one carry-on) the night before the scheduled flight. This is called "bag drag."

Twin Otters are twin-engine, high-wing aircraft, and Baslers are larger twin-engine low-wing aircraft, used for small field teams with moderate cargo loads deploying to more remote locations generally without groomed landing areas. The day of the flight, science team members and RPSC camp staff are responsible for transporting their personal bags to the airfield and loading it onto the plane.

**NOTE:** Please provide accurate weights for all personal bags to the fixed-wing office.

**Helicopters** are used principally for logistical support in the Ross Island region and in the Dry Valleys. Anyone expecting to fly on a helicopter must attend safety training. Cargo capacity and range varies depending on the helicopter. Science team members work with the helicopter staff to arrange the cargo logistics.

For all airframes, hazardous cargo must be packaged and certified by U.S. Antarctic Program Cargo personnel in accordance with applicable regulations. Detailed packing and planning guidelines, including field and mechanical equipment weights, are presented in the U.S. Antarctic Program *Field Manual*.

**South Pole**. Grantees and employees traveling to the South Pole will coordinate their trip with the South Pole population specialist and the fixed-wing supervisor in McMurdo. Because of limited berthing, all participants going to this station must be approved by the NSF well in advance of the trip.

**Safety**. As with all operations in Antarctica, **safety comes first.** Mechanical problems and bad weather can delay missions.

- You must be manifested on any aircraft. Any unauthorized travel on aircraft may result in your removal from Antarctica.
- Be on time. Departures will not be delayed for persons arriving late.
- Bag lunches are provided, but it is always a good idea to have a good meal before long flights.
- Do not consume alcoholic beverages before a flight. You will not be allowed to board the aircraft if you appear to be under the influence of alcohol. Consumption of alcoholic beverages is not permitted onboard.
- You must wear certain items of the ECW clothing. The specific requirements will be posted in advance of your flight.
- Hazardous materials must be packed and certified by U.S. Antarctic Program cargo personnel. You may not carry unauthorized hazardous material in your baggage or on your person.

Anyone requiring overnight stays away from a station must complete Field Safety Training. More details on this are provided in Chapter 6. ■

## CHAPTER 5:

# Travel Guidelines

*U.S. Antarctic Program passengers disembark from a U.S. Air Force C-17 cargo jet. The USAF crew out of McChord Air Base provide transportation between Christchurch, New Zealand, and McMurdo Station.*

*photo by Mike Embree*

This chapter gives travel advice for the foreign countries through which you may travel, explains how to obtain your extreme cold weather (ECW) clothing issue, how to transport your baggage, your arrival in Antarctica, and your return from the continent.

## TRAVEL ADVICE

### Customs and Mail Warning

Like any travelers, participants must obey foreign laws. These laws can differ from those of the United States, and penalties for violations can be more severe than those of our country. Persons found in violation of these laws are subject to prosecution in the local courts. Association with the U.S. Antarctic Program affords neither preferential treatment nor immunity from prosecution.

Governments are determined to prevent the passage of illegal materials, especially illegal drugs, through their countries. You could be imprisoned for life for bringing or mailing illegal drugs into a foreign country.

Methods of finding illegal materials include the use of trained dogs, handled by the New Zealand Customs Service and the Chilean Servicio Agricola y Ganadero. At NSF's request, all mail destined for the continental side of the program is screened/inspected by New Zealand Customs Service. On occasion, U.S. citizens have been detained by customs on their return. Some of them have been found guilty of carrying illegal materials and have been fined.

U.S. law also prohibits the mailing of controlled substances, which includes illegal drugs. The policy (6 April 1982 Federal Register, pages 14864-14866) recognizes the responsibility of the United States to assure that personnel authorized to use the military postal facilities do not abuse the customs, tax, and other laws of the host country. This applies to articles/mail that are staying within New Zealand. New Zealand Customs Service does not assess a tax or duty for items going to Antarctica.

In addition to being guilty of criminal activity and causing inconvenience and expense to themselves, persons who try to bring illegal materials through foreign countries embarrass their own country. In particular, the New Zealand mail interdictions have delayed mail for all program participants.

- Obey the law.
- Do not try to take illegal substances through foreign countries.
- Do not mail illegal substances.
- Tell your friends not to mail illegal substances to you.

There are also heavy penalties for concealing dutiable goods from Customs or for making false declarations. It is against the law to take dutiable items (e.g., cameras, radios, binoculars) and to sell them or give them away without paying duty.

## Stay in Contact

While awaiting transportation from New Zealand or Chile, keep the local program representatives informed of where you are and how he or she can contact you. Transport schedules often are revised on short notice.

## Be Patient

Whether you travel to Antarctica via a research vessel or by air, you should be prepared to handle delays and changes in schedules. Every effort is made to ensure the safety of program participants, and that often means departures are delayed or flights are turned around. This may be due to mechanical considerations, ice conditions, and especially changes in weather.

## Currency Exchange

Learn the currency exchange rate before departing for a foreign country. Bank representatives will change foreign money for U.S. money at U.S. international airports. You also can change money at most banks in foreign countries. Remember that banks and stores may be closed on weekends. ATM cards can be conveniently used.

Generally, a better exchange rate will be found in the country whose currency you are purchasing than in the United States. Also, in Chile, rates can vary significantly between banks and currency exchange houses.

Chilean and New Zealand banks will not cash personal checks drawn on U.S. checking accounts. Carry enough money in the form of travelers checks or international credit cards such as Visa. Chapter 2: Personal Finances, tells how to transfer money to New Zealand.

## Electrical Compatibility

The electrical voltage in New Zealand is 230v 50hz. For Chile, it is 220v 50hz. Most portable computers will have an AC converter that will be compliant. The user will require a suitable adapter plug to connect to the wall outlet, which can be purchased from hardware and travel stores. Some small appliances, such as razors and hair dryers, can be purchased with dual voltage capabilities, but would still require an adapter plug to fit into the wall sockets.

You can find information on the type of electricity used and the electrical plugs needed for countries around the world at various Web sites. An example is **http://kropla.com/electric.htm**.

## Personal Vacations

You may elect to travel to other countries prior to returning to the United States. Any costs associated with the additional travel will be your responsibility. You will need to return to the Christchurch Travel Office or AGUNSA (for people deploying to Palmer Station or the vessels) to collect your tickets and any stored baggage. If you wish to spend time in New Zealand or South America, you will need to be in compliance with the immigration policies. When you stay in a country as a tourist, the program is no longer your sponsor, and you are responsible for observing immigration and customs regulations.

Grantees and RPSC full-time employees vacationing in New Zealand **before** going to Antarctica **must** contact the Christchurch Travel Office (telephone 0-800-358-8139) at least three days before their scheduled date to fly to Antarctica (but preferably earlier). Flight schedules to Antarctica often change, and it is advantageous to both you and the Christchurch Travel Office if regular contact is made during the period of leave.

The U.S. Antarctic Program takes advantage of significantly lower rates on airline tickets that are purchased in advance and available for return travel less than one year from the first date of travel. The program requires its travelers to cover the extra expenses of taking vacation en route. If you elect to vacation in New Zealand, and thus extend your stay beyond the maximum stay allowed, the fare difference could be significant.

When arriving at New Zealand gateway cities, Auckland or Christchurch, a 12-month visitor visa will be provided to you on production of a letter from your organization supporting your participation with the U.S. Antarctic Program. One year covers the period most participants deploy with extra time for personal stay. However, if you deploy for a longer period of time and your visa expires while you are deployed, one extension of three months is available. This process is completed by providing the necessary information to the Christchurch Travel Office, which will work with N.Z. Immigration to obtain the extension. This process is electronic. Ultimately, **you are responsible for ensuring your visa is valid.**

## TRAVEL THROUGH NEW ZEALAND

**Transfer at Auckland.** Auckland International Airport is the port of entry into New Zealand for most participants. There, you process through Health, Immigration, and Customs checks. Have your passport, RPSC 12-month visa letter (on company letterhead) in your ticket jacket, boarding passes, and New Zealand Customs declaration form handy. If you are hand-carrying high-tech and/or scientific equipment into New Zealand, be prepared to show your New Zealand Customs "Temporary Importation Into New Zealand" form to Customs officials. In the baggage claim area, carts are available for your use at no cost. After getting all your checked baggage, you are directed to Customs. Then you can recheck your baggage for the domestic flight to Christchurch. This can be done while you are still at the international terminal.

The domestic terminal is 900 m (1,000 yards) from the international one. You can take a free bus or walk between the two.

**Flight to Christchurch.** The flight from Auckland to Christchurch takes approximately 90 minutes. If your departure from Auckland to Christchurch is delayed or rescheduled (for example, your flight from the States was delayed and you missed your connecting flight) rearrange your onward travel at the appropriate airline counter – there are regularly scheduled flights available. Call the Christchurch Travel Office toll free (0-800-358-8139) and state the change. If you are in a group of antarctic travelers, elect one member to call with information about everyone in the group.

photo by David A. Carson

*Lyttelton Harbor is located just a few kilometers from Christchurch, New Zealand.*

All participants will be provided instructions via e-mail from the Christchurch Travel Office regarding hotel, ECW issue times, taxis, shuttles, etc. In addition, DSG will provide travel documents prior to stateside flight departure. **Carry these documents with you on the United States - New Zealand flight.** If you have any questions, please contact deploy@usap.gov or call the DSG offices: 1-800-688-8606, prompt 2, or local in Colorado at 303-790-8606, prompt 2.

If you have a problem with mishandled luggage, please do as you normally would stateside: file a claim with the airline upon arrival at Christchurch. Retain a copy of your luggage claim form and talk with the Christchurch Travel office personnel so they know you are experiencing a problem.

| | | |
|---|---|---|
| Christchurch Travel | Telephone: | 1-800-390-1449 (from the United States) |
| RPSNZ Limited | Toll-free: | 0-800-358-8139 (within New Zealand) |
| 38 Orchard Road | Fax: | 011-643-357-8850 (from the United States) |
| Christchurch | E-mail: | chctravel@usap.gov |
| New Zealand | Contact: | Travel Services Representative |

**NSF in New Zealand.** An NSF office in the International Antarctic Center near Christchurch International Airport maintains a working relationship with the host country and supports program activities in Antarctica. Telephone 03-358-8138 (from U.S.: 1-800-390-1449), Fax 03-358-9060 (from U.S.: 011-643-358-9060).

**United States - New Zealand Antarctic coordination.** New Zealand is one of the original Antarctic Treaty signatory nations and has operated an Antarctic program since the 1957-1958 International Geophysical Year. Cooperation with the United States is extensive in both science and logistics. U.S. investigators planning cooperative arrangements should plan directly with N.Z. investigators or research institutions rather than official N.Z. government units, except when approved in advance by a U.S. Antarctic Program official.

**Accommodations.** Hotel/motel reservations in Christchurch are booked in advance by RPSC for all participants for the length of their stay in Christchurch. This method enables the Christchurch office to find you should there be a change in date or time for your departure to Antarctica.

If you have a specific hotel request, you will have indicated this on the travel request worksheet that you submitted to the DSG in Denver. The DSG will have forwarded this request to the Christchurch office. Every endeavor will be made to book the hotel of your choice; however, it may be necessary to book alternative accommodation if rooms are not available. If you plan to stay with friends in Christchurch, please advise the DSG of the contact telephone number in Christchurch where messages can be left for you. Flight schedules change often, and it is critical that the office knows how to contact you with updates. For those organizations not ticketed by DSG, please provide the information to the Christchurch Travel Office.

Hotel operators in New Zealand expect advance bookings to be honored. If you are not satisfied with your accommodations, please advise the Christchurch Travel Office, which will arrange for cancellation of the original reservation as well as for alternate accommodation for you. Do not change your reservations without prior approval of the change by the Christchurch Travel Office. If you do not honor your hotel reservation, expect to be billed by the hotel for the first night of the booking. With the high level of tourism in New Zealand, accommodations in summer are sometimes difficult to obtain, and disregard of the arrangements made for you will jeopardize our ability to provide accommodations in the future.

Always lock your hotel/motel room, and take precautions to safeguard your money and valuables. Hotel/motel bills, telephone charges, etc., should be settled the night before your departure from Christchurch.

**E-mail and Fax.** Christchurch offers a variety of options for sending e-mail and fax services at reasonable rates.

**Long-distance calls.** Most New Zealand hotels permit direct dialing of long-distance calls. Long-distance calls also may be placed using a pre-paid phone card, or U.S. calling cards from carriers such as MCI and AT&T. New Zealand phone cards can be purchased at the airport and at various shops throughout the country.

**Medical care.** If you need medical care in New Zealand, please contact the RPSNZ medical coordinator, who will assist you with arranging medical/dental appointments. There will be a charge for your visit to the doctor/dentist. See Chapter 2: Health Insurance.

**Public transportation.** An extensive network of bus routes serves Christchurch, Lyttelton, the airport and U.S. Antarctic Program offices. Taxi and shuttle details are provided in your arrival documents.

**Car rental and insurance.** If you rent a car, be sure you know New Zealand traffic regulations and have sufficient insurance. A booklet on traffic laws called the Road Code is available

at auto rental agencies. Traffic regulations are strictly enforced. Driving is on the left side of the road and requires strict attention. A driving permit is not required if you can provide a valid U.S. driver's license.

## Summer - McMurdo

Below is a sample list of ECW provided. The actual clothing issued will change according to your on-Ice needs. Contact your POC/supervisor for specific clothing questions.

### Outdoor Worker

Bag, orange (2)
Balaclava, wind stopper (1)
Boot, rubber, thermal (1)
Carhartt, bib overalls (1)
Carhartt, hood (1)
Carhartt, jacket (1)
Carhartt, parka (1)
Glove, leather (2)
Goggles, snow, Smith (1)
Hat, fleece (1)
Jacket, polar fleece (1)
Mitten, Kodalite (1)
Sock, tube, wool (2)
Underdrawers, expedition (1)
Underdrawers, Thermax (1)
Undershirt, expedition (1)
Undershirt, Thermax (1)

### Indoor Worker

Bag, orange (2)
Balaclava, polar fleece (1)
Boot, rubber, thermal (1)
Glove, leather (1)
Goggles, snow, Smith (1)
Hat, fleece (1)
Jacket, polar fleece (1)
Pants, polar fleece (1)
Pants, wind (1)
Parka, red (1)
Sock, tube, wool (2)
Underdrawers, expedition (1)
Underdrawers, Thermax (1)
Undershirt, expedition (1)
Undershirt, Thermax (1)

## Extreme Cold Weather Clothing Issue

ECW clothing and accessories will be provided to you at no charge at the Christchurch Clothing Distribution Center (CDC). These items are to be returned to the CDC immediately upon your return from Antarctica. Clothing issued is the property of the NSF. Participants are responsible for all issued clothing.

The issued ECW clothing is functional, sturdy, and cost effective. It includes special items of outer clothing required for the antarctic climate, such as parkas and boots. The majority of clothing is in men's sizes but will fit both men and women. However, to ensure an acceptable fit, be sure to provide accurate measurements on the Personal Information Form (submitted with your medical information).

It is important that you **try on all** of the ECW clothing (including boots) at your fitting session. Any sizing errors will be corrected at that time. The type and amount of clothing you receive depends on where you work and what your job title entails. Most, but not all, of the ECW clothing is mandatory. If you are new to the program, it is best to take all the clothing issued to you. There will be no additional clothing issued. If items are lost in Antarctica, a limited amount of resupply ECW clothing is available on station; however, the resupply stock is older and may not be an exact replacement for the lost/worn item.

The clothing issued to you is **U.S. government property.** You are responsible for it and required to return it in New Zealand or South America during redeployment. Some issued clothing, especially parkas, are subject to theft, and special attention should be taken to prevent loss. Abnormal damages or unreported loss of clothing will result in your being billed for repair or replacement costs. Any theft or loss should be reported immediately to the NSF representative or the station manager. It is illegal for you to mail government property from Antarctica. It is illegal for individuals to buy or sell government property including clothing.

## To McMurdo Station

The flight from Christchurch to McMurdo is called your **Ice flight** and the date you fly is called your **Ice date**. Report for your flight at the time given to you by the Christchurch Travel Office.

You will be asked to pack one bag with personal items/clothing and other essentials required for a one- or two-night delay. In the event your flight turns around (boomerangs) or is otherwise delayed after you have checked in, this is the only bag that will be returned to you.

photo by Robyn Waserman

*Deploying personnel are weighed with their carry-on bags at the Antarctic Passenger Terminal in Christchurch, New Zealand, before boarding the flight to McMurdo.*

As part of the check-in process you will be given time to change into your ECW gear, pack your carry-on and boomerang bags, and store any other baggage that you will not need in Antarctica in the CDC secured storage room.

Notify the RPSC representative or the agent of any accompanied cargo or baggage that exceeds your authorized weight. Remember that authorization for excess baggage must be obtained in advance from RPSC. Failure to do so may force loading this cargo on a later plane. This also applies to your northbound return. See Chapter 3: How and What to Pack.

**Your passport should be ready for inspection by New Zealand Customs.**

You will be issued an Antarctic Departure Card, which you are required to complete before moving through to the Antarctic Passenger Terminal (APT). Your passport will be checked and the Departure Card taken from you at check-in at the APT.

After dressing for your flight and completing your Antarctic Departure Card, you may walk through to the APT for official check-in and weigh-in. This is commonly known as 'bag drag.'

After being checked through the APT, you will no longer have access to your baggage except the carry-on piece. You may not leave the area unless authorized by officials. Transportation to the plane is provided. Personnel who, in the judgment of the airplane crew, are intoxicated will not be permitted to board airplanes, either en route to or from Antarctica, or when traveling within the Antarctic continent.

You will fly between New Zealand and Antarctica on an NSF- or military-owned LC-130 Hercules turboprop airplane operated by the U.S. Air Force 109th Airlift Wing, on an NSF-chartered C-17 plane (jet powered) operated by the U.S. Air Force Air Mobility Command, or a Royal New Zealand Air Force C-130. The LC-130 flight takes about 8 hours; the C-130 flight about 7 hours; the C-17 flight about 5 hours.

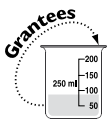
These cargo and troop planes are not designed primarily for passenger convenience. Sack lunches are served during the flights at no cost to the traveler. Toilets are provided on all planes, but the facilities can be awkward.

On the plane, you will hear an announcement that you are about to arrive at McMurdo Station. The air crew will ask you and your fellow travelers to pick up all the trash and put it in containers. Then, recalling the clothing instructions, organize yourself and your gear. Shortly, you will be instructed to fasten your seat belt.

The weather in Antarctica is likely to be clear, cold, and very bright. After the plane has stopped, gather your possessions, zip up your parka, and put on sunglasses and gloves. An air service representative will board and brief you about disembarking.

On arrival at McMurdo Station, you will be given an in-brief and instructions about collecting baggage and about your housing. Generally, your checked baggage will be ready for you at the Movement Control Center (MCC) in McMurdo two hours or so after you arrive.

## Return to New Zealand




**Grantees:** At least 10 days prior to your planned departure from Antarctica, advise the NSF passenger coordinator in the Chalet or the science coordinator at South Pole of your intended departure date from Antarctica and of any stopover en route to your airport of departure. The staff will, in turn, coordinate your requirements with the Raytheon Polar Services (NZ) Limited representative in Christchurch. You should also ensure that your retrograde cargo is ready for transport. See Retrograde Cargo in Chapter 4.

**RPSC Employees:** Weeks before redeployment begins, employees are given check-out instructions, and personal flight request information is collected. Prior to completion of your contract, your supervisor will schedule you on one of the return flights from McMurdo to Christchurch. You will also be given a travel fund for your redeployment from Antarctica.

**NOTE:** Redeployment travel is coordinated by the Christchurch Travel Office and DSG.

**Excess Baggage.** Remember that prior approval for excess baggage is required for anything over the standard limits (see Chapter 3) and that prior approvals are required for both south and northbound travel. If you check in for a northbound flight in McMurdo without the necessary excess baggage approvals, you will be required to mail that excess at your own expense through the U.S. Post Office at McMurdo Station.

Be sure to carry your **passport on your person** and not in your hand-carry bag. You may not have access to your hand-carry prior to passing through customs.

Upon your return to Christchurch from McMurdo, you will be met in the terminal building customs area by personnel from the Raytheon Polar Services (N.Z.) Limited representative. Transportation will be provided to the CDC so that you may return your ECW issue and retrieve personal belongings stored in the security room. You will be given information about your accommodations and travel before departing for your hotel by taxi or shuttle bus. Your airline tickets will be attached to your arrival documentation at the CDC or available from the Travel Office.

Before leaving the Christchurch airport on an international flight, a NZ$25 departure fee is payable and may be included in your ticket purchase.

**NOTE:** Remember that your APO privilege to mail boxes at U.S. rates expires in 10 days. See Chapter 3: APO Privileges.

## TRAVEL THROUGH CHILE

In Chile, the U.S. Antarctic Program has contracted with Agencias Universales S.A. (AGUNSA) to provide support and manage local offices.

Chile, Argentina and the United States cooperate frequently in Antarctica. Both Argentina and Chile are Antarctic Treaty nations, and both have year-round stations along the Antarctic Peninsula. While Spanish is the predominant language, English is spoken by many of their citizens, including agents employed by RPSC to assist you in your passage. A simple Spanish phrase book may prove helpful, however.

**Health.** If you require health care on your travel through Chile, contact the local AGUNSA office for assistance in making appointments. Be prepared to pay for services at your appointment. See Chapter 2 on health insurance.

The two cities that you will pass through in Chile are **Santiago** (population: 5 million), the capital, where your plane from the United States will land, and **Punta Arenas** (population: 150,000), from where you will depart for Antarctica. In the austral summer, Santiago is hot, and the weather in Punta Arenas can vary from cold to warm. Chile's food and lodging costs are about the same as or less than in the United States.

**Arrival and departure taxes.** U.S. passport holders who are first-time visitors to Chile will be required to pay an international arrival tax of US$130 upon arrival in Santiago, Chile. This can be paid in U.S. dollars or by credit card. This arrival tax payment is good for the life of your passport and should be secured in your passport. RPSC employees who go through the Denver office for Orientation prior to departure will receive money at that time to cover the Entrance/Tourist tax.

On arrival at the Santiago airport you will be met by an AGUNSA agent, who will assist you through customs and help you to make the onward domestic flight to Punta Arenas. The agent will direct you from the international terminal to the domestic terminal and ensure that you get on your flight to Punta Arenas. The agent will also advise you of any costs for airport taxes or excess baggage. In an **emergency,** the U.S. Embassy in Santiago may be phoned at 330-3321 or 330-3700 (from the US: 562-330-3321 or 562-330-3700).

Costs for hotel rooms, incidentals, and meals will be paid by you. The agents and ships representatives can provide local information as to restaurants, money exchange, etc.

The flight to Punta Arenas takes approximately 3 1/2 hours. Again, a representative from the husbanding agent, AGUNSA, will meet you at the airport and provide transportation to a local

hotel or the vessel. You may be asked to board the vessel immediately upon arrival in Punta Arenas. However, the majority of people traveling to the station are scheduled to spend one night in a hotel and board the ship the following day. Generally, if you are not asked to board the ship immediately, you should not request to do so since it means the ship is not yet ready to take passengers. Be on schedule, as time to complete your outfitting is limited and ship schedules are often tight.

AGUNSA manages the U.S. Antarctic Program ECW clothing warehouse. The airport representative will greet and assist you, notify you of your ECW clothing issue time, your ship embarkation times, and help you with local authorities.

**Santiago**

AGUNSA
Agencies Universales, S.A.
Andrés Bello 2687
Piso 15
Las Condes
Santiago, Chile

Telephone: 56-02-460-2700 or 56-02-460-2738
Fax: 56-02-460-2738
E-mail: ebraniff@agunsa.cl

**Punta Arenas**

AGUNSA Main Office
Av. Independencia 772
Casilla 60-D
Punta Arenas, Chile

Telephone: 56-61-617310 or 56-61-617311
Fax: 56-61-228239
E-mail: den-agunsaPA@usap.gov
E-mail: agunsapta@agunsa.cl

AGUNSA
Warehouse Port Area
Casilla 60-D
Punta Arenas, Chile

Telephone: 56-61-2475-3 or 56-61-248706
Fax: 56-61-226095
E-mail: den-agunsaPA@usap.gov

**NOTE:** Nothing may be charged to the agent that has not been approved in writing by the NSF/OPP.

## ECW Clothing

ECW clothing and accessories will be provided to you at no charge from the Punta Arenas warehouse. These must be returned to the warehouse immediately upon your arrival in Punta Arenas on your return from Antarctica. You are responsible for the safekeeping and accountability of all items issued and may be charged for loss or damage as a result of gross negligence or willful misconduct.

The ECW clothing issued is functional, sturdy, and cost effective. It includes special items of outer clothing required for the antarctic climate, such as parkas and boots. To ensure an acceptable fit, be sure to provide accurate measurements on the Personal Information Form (submitted with your medical packet).

It is important that you try on **all** the ECW clothing (including boots) at your fitting session. Any sizing errors will be corrected at that time. The type and amount of clothing you receive depends on where you work and what your job entails. If you are new to the program, it is best to take all the clothing issued to you. There will be no additional clothing issued. If items are lost in Antarctica, a limited amount of resupply ECW clothing is available on station; however, the resupply stock is older and may not be an exact replacement for the lost/worn item.

Participants deploying to the vessels and Palmer Station should note that there is a considerable amount of rain and other precipitation experienced on the Peninsula. Any personal clothing choices should take this into account. Please see **www.usap.gov/usapgov/TravelAndDeployment/contenthandler.cfm?id=1860** for information regarding Peninsula ECW options.

## Baggage

Due to crowded conditions on the research vessels, you should pack required clothing and personal items you'll need on the journey into a single piece of luggage. The remainder of your luggage will be stowed in the ship's hold and returned to you on arrival at the work site.

Only science equipment that is used in multi-year projects may be stored in the warehouse if approved in advance by the NSF.

## To Palmer Station

Travel to Palmer Station and other Peninsula research sites is primarily via the R/V *Laurence M. Gould*. The ship transit takes 4-5 days depending on routing. Once embarked, the RPSC representative and ship's personnel will outline ship procedures, safety policies, and room assignments.

Ship transits are usually crowded, so please comply with regulations and show courtesy in the dining areas. Meals are provided free. If you are prone to motion sickness consult with your personal physician prior to deployment. Over-the-counter type pills (e.g., Meclizine) are often sufficient to relieve sea-sickness.

On arrival at Palmer Station, please clean your cabin and ensure you take all your baggage and personal items with you when you disembark.

## Return to Chile

**Grantees:** At least three weeks before you plan to return from the Antarctic Peninsula area to South America, give your northbound travel plan to the RPSC administrative coordinator at Palmer Station or the marine projects coordinator on your ship. Identify any requirement for excess baggage or special handling of material. Airline and hotel bookings will be confirmed for you with the appropriate agent. You should also ensure that any retrograde cargo is ready for transport: see "Retrograde (return) Cargo" in Chapter 4.

**RPSC Employees:** Prior to completion of your contract, your departure will be scheduled; you will have indicated any travel plans and will be given your travel fund.

On arrival in South America, you will be met by the AGUNSA representative who will give you your airline tickets and collect your ECW clothing issue. For personnel traveling straight through Chile to the United States or on NSF/OPP-approved business travel, AGUNSA will confirm travel arrangements and transport personnel and baggage to the airport. Individuals with personal deviations from the Punta Arenas/Santiago/U.S. direct route will be directed by AGUNSA to coordinate their personal travel. **Personal travel arrangements can be completed by calling American Airlines' Meeting Services at 1-800-433-1790**. Individuals on personal travel are responsible for their own transportation to the Punta Arenas airport, and will not receive a 'meet and assist' service in Santiago. ■

*photo by Zee Evans*

*The research vessel* Laurence M. Gould *near the Antarctic Peninsula.*

## CHAPTER 6:

# Living and Working at U.S. Antarctic Program Facilities

*U.S. Antarctic Program participants working at Amundsen-Scott South Pole Station.*

*photo by Peter Rejcek*

The United States operates three year-round stations in Antarctica, two research vessels, and numerous seasonal field camps in the summer. This chapter discusses safety, health, and training considerations and then gives an overview of each facility, describing the key administrators, guidelines on waste management, and provides information about communications and mail service.

## SAFETY

U.S. Antarctic Program goals are to protect your safety and health through proactive management.

**Required training.** Since much of your work in Antarctica will not be unique to that region, you are expected to use work practices that are consistent with U.S. occupational safety and health standards. For situations that present unusual or unique hazards because of Antarctica's extreme environment, you will be provided specific instruction (for example, how to act on sea ice or around airplanes).

**Injuries are preventable.** Injuries are caused by the unsafe actions of people and the existence of unsafe conditions. Most injuries are no mere chance occurrences, but represent a failure of safety systems. Following proper safety procedures and maintaining safe conditions will reduce injuries.

**Everyone is responsible for preventing injuries.** Safety and health performance are equal in importance to productivity, quality and cost. The safest way is always the best way. Everyone is accountable for the safety performance practices of participants and for the maintenance of safe, healthy work conditions under his/her responsibility.

**All operating exposures can be safeguarded.** Sources of hazards shall be controlled through careful planning, appropriate work procedures, training, inspections, and the proper use of protective equipment and clothing.

**Safety is a condition of participation.** Each USAP participant must accept responsibility for his/her personal safety and health, as well as that of fellow participants. Everyone is to conduct himself/herself in a safe manner, and follow policies, rules, procedures and work practices. Supervisors shall assure compliance with these safety requirements by the people they supervise.

**NATIONAL SCIENCE FOUNDATION**
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230

The U.S. Antarctic Program operates in one of the most challenging environments on Earth. The harsh climate and remoteness of Antarctica have represented serious safety and health hazards since the start of human activity there. Yet, recent injuries and illnesses are seldom related to extreme environmental conditions. Common injuries include sprains and strains.

The National Science Foundation's goal is for each participant to enjoy a safe, healthful and productive Antarctic experience. Everyone will be afforded the same high level of protection from health and safety hazards. Your observance of safety rules and practices at work and during recreational activities is critical to maintaining a safe environment for yourself and your fellow U.S. Antarctic Program participants. By reporting unsafe conditions to your supervisor or NSF management, you can help reduce the risk to all.

Thank you for your efforts in support of the U.S. Antarctic Program's mission of scientific research and discovery.

Polly A. Penhale, Ph.D.; Acting Director
Office of Polar Environment, Safety and Health
Office of Polar Programs

**Risk Management.** Safe operations in unique environments often require more than simply complying with established rules. Everyone must routinely evaluate and continually reevaluate the risks associated with each task or operation. Participants must refuse to proceed until unacceptable risks are controlled or eliminated. Risk is frequently defined as the combination of the probability an adverse event will occur and the severity of the consequences if it does occur. For example, it is likely (high probability) that a person would suffer serious or fatal hypothermia (severe consequences) if caught far afield in extreme conditions without proper clothing or equipment. Therefore, taking a snowmobile to a distant site without ECW clothing and other appropriate equipment would be a high-risk undertaking. This doesn't mean that distant sites cannot be visited; it just means the risks must be reduced to an acceptable level. The risks in this example might be controlled by taking proper gear and rescheduling the trip if especially harsh weather is forecast. Keep in mind that for emergencies in the antarctic environment, it may take hours or days before help arrives. Also, one must not only consider the risk to one's self, but also the risks potentially imposed on rescuers and other response personnel. High - risk operations and activities are not acceptable unless a deliberate assessment of both risks and benefits has been conducted and approved by appropriate authorities.

**People are the keys to safe operations.** Safety awareness and a mindset that controls risks are not instinctive; they must be developed through training, motivation and cooperation. With the commitment and diligence of every participant, operations can be free of unacceptable risks.

All participants in the line of authority are responsible and accountable for:

- Evaluating the risks associated with every activity and refraining from performing high- risk operations.
- Preventing others from performing high-risk operations.
- Controlling high risks associated with essential tasks so that they can be performed with little risk of injury, illness or loss of property.
- Providing, using and enforcing the use of necessary personal protective equipment.
- Properly maintaining tools and equipment.
- Assigning participants only to tasks they are physically and mentally capable of performing.
- Taking immediate steps to correct any violation of safety rules observed or reported to them.

- Ensuring that subordinates understand the work to be carried out, the risks and hazards that might be encountered, and the proper procedures for doing work safely.
- Ensuring that subordinates understand that compliance with safety procedures and requirements is an essential part of their duties, and that willful violations are subject to disciplinary action.

**Incident reporting.** Any participant involved in or witnessing an accident or incident must report it to their supervisor or manager as soon as possible (no matter how minor). Accident or incidents may include injuries, spills, near misses, or unsafe conditions. Incident investigations must be completed within 72 hours of occurrence. Access to the RPSC Incident Reporting forms is through **https://shield.usap.gov** or through the EH&S Web page on the USAP intranet.

## Safety

**The five most common injuries are...**

- Sprains/Strains
- Contusions (bruises)
- Lacerations (cuts)
- Fractures
- Eye damage

**If you do have an injury…**

- Get immediate medical attention.
- Never hesitate or delay going to Medical for treatment.
- Report it promptly.
- You could be penalized for not reporting an injury or a near-miss incident.
- Reporting and analyzing accidents is the best way we can prevent future incidents.
- Accidents or injuries caused by failure to follow safe work practices, procedures, or training could result in disciplinary action.

**If you have people working for you…**

- You are responsible for fostering a safe work place.
- You must ensure your employees are properly trained, work safely, maintain safe conditions, and are aware.
- In the event of an injury or incident, you must complete an injury or incident investigation report, and take corrective action.
- The report must be filed the day of the injury.

### Fire Safety

Fire is a serious threat to life in Antarctica. Shelter is critical to our survival, and because of the dry and windy conditions, fires start easily and spread rapidly in Antarctica.

Most fires are caused by carelessness, poor housekeeping, or faulty electrical or mechanical operations. If precautions are taken to eliminate dangers in these areas, the threat of a disastrous fire can be greatly reduced.

All participants need to understand and obey fire prevention rules, become familiar with their surroundings, respond rapidly to any alarms, know and follow evacuation and muster plans, know how to locate and operate extinguishers, and understand how and where to report a fire.

### Field Safety Training (Survival School)

The U.S. Antarctic Program continually strives to improve safety. Part of this effort consists of field safety training, which has several objectives:

- To provide basic training in cold weather survival skills. Topics covered include cold weather camping, use of ECW, hypothermia and frostbite, snowcraft, mountaineering, working on sea ice, and other areas.
- To enable field teams to use the actual equipment they will be using in the field. An opportunity for the project teams to set up and demonstrate the proper use of tents, stoves, radios, etc., pays obvious dividends.
- To provide an opportunity for field team members to work together as a unit, perhaps for the first time, before going into the field. This is an excellent opportunity for the field team leader, as well as the individuals on the team, to learn the strengths and weaknesses of the team members.

Generally, anyone who may require overnight stays away from a station must complete training appropriate to his or her expected exposure, previous training, and experience. Some courses are tailored to the needs of each group. For example: instructions for parties spending their time in the Dry Valleys, groups working on sea ice, and groups traveling long distances by snowmobile.

The courses are not intended to develop advanced field skills (mountaineering, or traversing crevasse fields, for example) in the inexperienced person. Rather, they familiarize proficient people with specific situations they might encounter in the Antarctic. Leaders of remote field projects should select team members with wilderness survival skills and at least one safety guide to oversee activities.

Due to the nature of the instruction, there is some risk of injury. The instructors have full responsibility for conducting the program safely. Please follow their directions. People who enter the training area to observe are also the responsibility of the course instructors; failure to respond to directions given by course instructors will result in being asked to leave.

The *Field Manual for the U.S. Antarctic Program* provides information on field party preparation, safety training, transport safety, radio usage, weather, shelters, sea ice, glacier travel, res-

cue, etc. The following Web site has the manual online **www.usap.gov/TravelAndDeployment/content Handler.cfm?id=540.**

## HEALTH

Antarctica's extreme environment and relative isolation challenge human health and wellness. **A medical clinic and physician are available at all three research stations.** Health is a 24-hour-a-day consideration; it involves occupational and nonoccupational issues, both physical and mental. Emergencies risk not only the victim, but also others such as medical personnel and flight crews who provide treatment and evacuation. This expenditure of money, manpower, and equipment resources diminishes the ability to perform the program's principal mission of scientific research.

To help minimize risk, the program requires the advance medical screening described in Chapter 2. Certain medical conditions can present unexpected risks under antarctic conditions, where each participant must be capable of physical activity wearing bulky cold weather gear while being exposed to low temperatures and high altitudes, possibly under survival conditions.

**Common colds.** Although the 'crud' waylays many travelers, it isn't true that exposure to cold temperature causes upper respiratory infections or colds. They are caused by a host of viruses spread by droplets. Covering your mouth when you cough/sneeze, not sharing cups and eating utensils, and washing your hands after coughing or sneezing will reduce exposure.

Colds usually last from seven to ten days with or without treatment. The best care is rest, adequate nutrition, and increased fluid intake.

Antarctica is a polar desert and very dry. In such a dry environment large amounts of fluid are lost via your skin and lungs, and the mucous membranes lining your nose and mouth become dry and no longer protect you against viruses. Increase your fluid intake according to your location and your level of physical activity. Caffeine and alcohol will increase fluid loss, so avoid consuming large amounts of beverages/foods containing alcohol and caffeine, particularly if you are dehydrated. Chocolate and many soft drinks contain caffeine.

**Sunburn.** Snow or ice reflects 85% of ultraviolet radiation. Overestimate the protection necessary and carry a sunscreen with an SPF number of 15 or greater that includes both UVA and UVB protection. Reapply frequently according to package directions.

**Altitude sickness.** Some of the field camps and Amundsen-Scott South Pole Station are at physiological elevations above 3,000 m (10,000 ft). The flight from McMurdo doesn't allow time to acclimate en route. If you are assigned to these areas, you should check with your doctor to see if living at high altitudes will affect any preexisting medical problem. A medicine called acetazolamide will be available at the McMurdo clinic. Treatment should begin 24 hours before leaving for the high altitude. This medicine is contraindicated for those allergic to sulfa medications. The signs of altitude sickness are shortness of breath that is not relieved promptly by resting, headache, dizziness and difficulty sleeping. They can be minimized by avoiding strenuous activities the first two days, increasing fluid intake, stopping or limiting smoking, and avoiding alcohol and caffeine. Altitude sickness can occur as late as five days after reaching altitude, and occasionally, can progress to a serious medical condition requiring evacuation to a lower altitude. Anyone developing symptoms should see the local medical provider.

**Snow blindness.** Caused by exposure of the eyes to excessive light, at levels typical in Antarctica, this condition can be serious, painful and disabling. You prevent snow blindness by wearing 100% UV protective sunglasses. Snow goggles are issued to those who need them. Everyone in Antarctica must have sunglasses that protect the eyes from ultraviolet radiation. Some 'dark' glasses do not block UV. They do more harm than good because the iris widens to admit more light. Sunglasses are especially important on windy days to protect against volcanic ash particles in the eyes. For more information, refer to Chapter 3: What and How to Pack.

**Female considerations.** Many women living in Antarctica experience a variety of changes in their menstrual cycles. It is thought that this occurrence may be due to the changing daylight cycles and to the close proximity of other women.

**Smoking.** In addition to the well-known health hazards, smoking greatly increases your chance of dehydration. Smoking is prohibited in all indoor areas at all three stations. There are designated outdoor smoking shelters. Put cigarette butts in appropriate containers – not on the ground.

## RECREATION AND PERSONAL CONDUCT

A wide range of recreational opportunities are available while working for the U.S. Antarctic Program. McMurdo has the largest range of organized activities due to its size and location, while Pole and Palmer stations have more spontaneously organized events. Station-specific information is provided later in this chapter. Off-station activities such as hiking may be pursued in accordance with safety rules issued at the stations. Residents are encouraged to use the recreational facilities and activities.

Because of the nature of Antarctica, certain restrictions are required to ensure safety. Many operational procedures may impinge on what may appear to be excellent forms of recreation. For example, restrictions forbid a Sunday stroll through the pressure ridges near Scott Base to see the seals, walks on unflagged snow or ice fields, or local mountain climbing. Accidents have happened. Different people perceive risk and hazards in different ways; heed the wisdom of those who have gone before you, and follow the safety procedures that have evolved. Antarctica is as cold, and as indifferent to one's presence, as it was when Robert F. Scott was there.

The work equipment you are issued is for authorized activities. Due to the nature of the field equipment you have access to, you may be tempted to engage in unauthorized overnight camping trips, skidoo races, or Sunday drives outside of town. You are authorized to use the U.S. government equipment issued to you only to accomplish your approved work.

The guidelines and operational procedures that govern your conduct while in Antarctica vary considerably at different locations and with changing conditions, particularly weather. Familiarize yourself with local knowledge at your station or camp, and follow local rules. It is impossible to write rules to cover all circumstances, and you are expected to regulate your own activities to avoid injury to yourself and hazards to others who might have to attempt rescue. Antarctica – every part of it – can suddenly and unexpectedly become a very dangerous place.

Attendance of an **Outdoor Safety Training Session** is required by McMurdo residents before they are allowed to recreate off-station. This 45-minute discussion covers rules and guidelines for safe travel and explains the check-out process.

Safety briefings are provided at Pole and Palmer. Additional training is required at Palmer for boating.

### Alcohol and Drugs

A limited amount of alcohol is available for purchase at the three stations. Alcohol is not available on the ships.

Even during off-duty hours, events may require swift, intelligent action. The ability of a person to deal effectively with a mishap is reduced if he or she is intoxicated. The NSF will not tolerate abuse of alcohol or unauthorized use of controlled substances.

With reasonable cause, testing for alcohol may be conducted while an employee is in active working status. Disciplinary action, up to and including termination, may occur if a person is determined to have any amount of alcohol in their system while on the job.

Existing grants are subject to revocation in the event of substance abuse.

Persons under the influence of alcohol or other controlled substances will not be allowed to board program aircraft or ships.

### U.S. Criminal Jurisdiction

Public Law 98-473, the Comprehensive Crime Control Act of 1984 (Part H, chapter XII; 18 USC 7), extends Special Maritime and Territorial Jurisdiction to cover offenses committed by or against U.S. nationals in areas not under the jurisdiction of other states. Since, in accordance with provisions of the Antarctic Treaty, the United States does not recognize territorial claims in Antarctica, this law establishes that persons **can be prosecuted** in a federal court for violation of U.S. criminal law in Antarctica.

## WASTE MANAGEMENT AND ENERGY CONSERVATION

The antarctic environment requires us to pay close attention to aspects of life easily overlooked at home. Services we typically take for granted – abundant electrical power, plentiful potable water, ample food, convenient transportation, and timely and easy waste disposal – are scarce and expensive in Antarctica. Their conservation and efficient management are imperative if the United States is to continue to support broad-based science programs in Antarctica. For that reason, and because of our commitment to preserving Antarctica for future research and discovery, the U.S. Antarctic Program requires that participants carefully think about what they bring, use, or throw away in Antarctica. Regulations governing waste management under the ACA specifically require that we change the way we think about trash.

**Waste management** is more stringent in Antarctica than in the United States. Everyone is required to attend a briefing regarding the waste management program, as all personnel will be required to sort their own trash. Marked receptacles are located in work centers and housing areas for separating solid waste (e.g., cardboard, mixed paper, wood) and potentially hazardous wastes (e.g., dry-cell batteries, aerosol cans).

Given that neither climate nor the remoteness of the southern polar region are naturally conducive to human life and work, everything needed to support scientific research in Antarctica must be shipped or flown in. The U.S. Antarctic Program waste management practices follow the same principle in reverse: All the program's refuse – except wastewater – is removed from the continent for proper disposal. What comes in must eventually go out.

The intent is to diminish the environmental impact of a sizeable human presence on a continent where cold, dry conditions tend to preserve things rather than degrade them. In addition, we must be efficient and cost effective in the allocation of resources necessary to handle waste generated in Antarctica in order to further the U.S. Antarctic Program's primary Antarctic mission: support of research. Like most waste reduction efforts in communities at home, the U.S. Antarctic Program operates according to the tenets of reduce, reuse and recycle.

**Energy conservation.** Energy moves, powers, melts, heats, and lights the U.S. Antarctic Program, and it is a very significant operational cost. Therefore, participants are encouraged to do as much as possible to conserve energy while working in Antarctica. The more we can do to conserve energy, the more the NSF can do to support science. Summer residents at the South Pole are restricted to two, two-minute showers and one load of laundry per week. Although there are no such restrictions for personnel at McMurdo and Palmer stations, everyone is expected to make efforts to conserve energy.

### Conserve Energy

- Run only full loads of laundry.
- Keep doors and windows closed.
- Save expensive fresh water by shortening shower time or shutting water flow during lather-up and then starting water flow for rinsing
- Use natural light whenever possible.
- Turn off lights when not in use.
- Unplug TV/VCR when not in use.
- Plug-in vehicle rather than leave it running.
- Allow automatic light switches to do their job. Do not tape over them.

## COMMUNICATIONS

Communications within Antarctica, and between Antarctica and other parts of the world, are a vital and integral part of research and support in Antarctica. The primary use of communications is to support official requirements of the U.S. Antarctic Program, including both science and operations. However, there are opportunities for personal use of communications on a "not to interfere" basis.

While in Antarctica, you can either use your own personal laptop or one of the Microsoft Windows computers provided for public use in the small **computer** centers available 24 hours a day at all three stations. A few of the public use computers are set up for digital camera downloading

and photo manipulation. Memory card readers are also available. Some public use computers have CD burners, but it is your responsibility to provide your own CDs.

**Internet** is available at all three stations. You are provided an account to access the U.S. Antarctic Program network upon arrival on station. You must complete U.S. Antarctic Program Information Security Awareness Training before receiving access to the U.S. Antarctic Program network. Personnel are to complete the training requirement at deployment orientation. All other participants are to complete the training requirement as directed in your deployment packet prior to arriving on station.

U.S. Antarctic Program Information Security Awareness Training includes the **USAP Enterprise Rules of Behavior (EntROB)**. When using the U.S. Antarctic Program network you are required to adhere to the USAP EntROB, which is based on federal laws, regulations and agency directives. As such, there are consequences for non-compliance.

**The EntROB:**

- applies to all resources that comprise the U.S. Antarctic Program information infrastructure and all users of U.S. Antarctic Program information resources.
- defines appropriate and acceptable use of U.S. Antarctic Program information resources.
- defines prohibited use of U.S. Antarctic Program information resources.

For more information on U.S. Antarctic Program Information Security Awareness Training and the USAP EntROB, refer to **www.usap.gov/technology/contentHandler.cfn?id=1564**.

**South Pole Internet availability.** If you are traveling to South Pole Station, note that the Internet is only available for a limited number of hours per day, when satellites are visible to the station.

**E-mail.** Personnel are provided with a U.S. Antarctic Program e-mail address upon arrival on station. You may also continue to use your private e-mail account (e.g., Yahoo), but must understand that you are using Program bandwidth/resources and still must adhere to all EntROB. E-mails cannot exceed 5 MB. If you need to transfer a file that exceeds 5 MB for business or science purposes, contact the local station Help Desk.

**Grantees** are **not** assigned a U.S. Antarctic Program e-mail address unless one is either requested in your SIP or upon request once you arrive on station. If you do not request a U.S. Antarctic Program e-mail account, all local mail is sent to the e-mail address specified in your SIP. At McMurdo Station, grantees have access to IT equipment provided in the Crary Lab. Available equipment includes Macs, PCs, a scanner, a color printer and an E-size plotter. Grantees are reminded to bring any special cable connections for digital cameras in addition to driver software. Grantees are provided with blank CDs and DVDs as specified in their Research Support Plan.

**Computer screening.** All computers (including science experiments, mission operation systems, workstations, PCs, servers, laptops and portable notebooks) are screened prior to connecting to the U.S. Antarctic Program network. All systems must pass a screening process that validates the system meets computer requirements before receiving access to the USAP network. Additionally, all systems must continuously maintain compliance with the computer requirements. A system that falls out of compliance such as falling behind in anti-virus definitions, patches or vulnerability remediation may be disconnected without notice if the NSF determines there is an unacceptable level of risk or threat to the U.S. Antarctic Program environment.

For information on U.S. Antarctic Program computer requirements, refer to **www.usap.gov/usapgov/travelanddeployment/documents/IT-A-9405a.pdf**

**Telephones.** U.S. Antarctic stations and ships access commercial and government satellites for transmission of data and voice. This service is available for business and private use, although official communications have priority. The satellite systems are very reliable, but service outages do occur. A calling card is needed to place personal calls from all three stations in Antarctica. South Pole residents can place personal phone calls during satellite connectivity. Calling cards are not sold in the station stores, so a rechargeable one is recommended.

## Computer Usage

**Prohibited**

- Distributing or copying of copyrighted material (DVDs, MP3s)
- Peer-to-Peer (i.e., Skype)
- Downloading pornographic, sexist, racist, or other offensive material
- Network gaming
- Personal servers (e-mail, ftp, web, etc.)
- Unauthorized wireless access points

**Acceptable**

- Mission-specific activity
- Reasonable e-mail and Internet browsing
- Reasonable Instant Messaging
- Reasonable personal business (online banking, shopping, etc.)

**Time zones.** Different countries have different time periods for observing Daylight Savings Time, so time differences between your home in the United States and at the station where you are living will vary throughout the year.

South Pole and McMurdo stations operate on the same time as New Zealand, which is 16-18 hours ahead of the United States. If it is Tuesday afternoon in the U.S., it will be Wednesday morning at those stations.

Palmer Station operates on the same time zone as Punta Arenas, Chile, which is usually the same time as New York City, or one or two hours later, depending on the time of year.

Several Web sites provide easy time zone guidelines. One example is **www.timeanddate.com.**

**Field-party communications.** Each station and ship uses hand-held and/or vehicle-mounted VHF radios for local communications. The observance of radio etiquette is necessary to ensure efficient and available radio communications. Keep messages short and professional. For more information on proper radio etiquette, contact the communications group for your station.

Before leaving for a lengthy field deployment or even for a day, you must inform the communications center of your intentions. Frequencies and call signs are assigned, and daily check-in procedures are arranged. To avoid unnecessary search and rescue missions, every effort must be made to adhere to the established daily check-in. Immediately on returning from the field, inform the communications center that the party has returned safely.

**Postal services.** U.S. domestic postal rates and regulations apply to all Army and Air Force Post Office (APO) mail to New Zealand and McMurdo and South Pole stations. There is no APO service to Palmer Station and the research vessels. More specific postal information is **detailed later in this chapter**. While postage stamps can be purchased at all three stations, participants should bring a supply of stamps with them. Registered mail service is not available for the stations.

All NSF- and RPSC-sponsored participants are granted use of the APO in Christchurch for 10 days on arrival in New Zealand from the United States and again for 10 days on return to Christchurch from McMurdo Station. The Christchurch APO accepts N.Z. cash (not U.S.), travelers checks and personal checks.

You cannot order items via the Internet from Antarctica for courier delivery (e.g., FedEx) to the APO. The APO will not accept such deliveries. Alternatively, you can send mail and parcels through the New Zealand postal system at the international postage rate.

Mail is received in Christchurch seven days a week. Letter mail is transported from Christchurch to Antarctica on all available southbound flights. Letter mail service varies, generally taking five to 14 days, but sometimes longer depending on the time of year. Letter mail always takes priority over package mail, both to and from Antarctica. Packages have the lowest priority of all cargo being transported to Antarctica, resulting in a delivery time of up to six weeks. Please do not send perishable foods.

Packages destined for summer participants at McMurdo or South Pole should be mailed after Labor Day, or they will be returned. Mail that misses summer participants is either forwarded (if a directory card has been given to the McMurdo post office), or returned to the sender.

There is no mail service to McMurdo or South Pole stations during the winter. If you are wintering at these stations, advise friends and relatives that most parcels mailed after February 1 will not be received in Christchurch in time to be forwarded to you. Mail not received in time for forwarding to Antarctica before the winter isolation begins will be held for you until the next summer season.

The most cost-effective way to mail a parcel weighing more than 10 lbs. to Antarctica is parcel post. If you have a parcel that contains only videos, books or CDs, it can be sent special fourth class 'media rate,' which is the lowest cost. Do not use 'packing' and instead use clothing or something similarly useful and non-polluting to cushion the objects being mailed.

## Do Not Mail

- Chemicals, explosives, flammable materials
- Biological materials
- Intoxicating liquor
- Odor-producing materials
- Sharp instruments
- Drugs
- Articles for resale
- Firearms
- Ammunition
- Fireworks

Do not rely on mail service for critical business. While mail services are provided and are fairly reliable, the timing for delivery is always subject to weather, transportation options, cargo space, forwarding and your movement between locations.

Marketing of clothing or other finished articles, printed or manufactured outside of Antarctica, requiring shipment or transportation to Antarctica is prohibited. **Usage of an APO address to mail articles for resale is not permitted.** This prohibition is based on federal law outlining the usage of the APO address.

The Postal Service prosecutes people who mail items improperly. The Postal Service states, "full responsibility rests with the mailer for any violation of law under Title 18, United States Code 1716, which may result from placing these items in the mail."

Remember, all mail going to McMurdo, South Pole and surrounding field camps is subject to customs, agricultural and drug inspections as it passes through Christchurch.

The **Do Not Mail** box (on this page) lists prohibited items. For a complete listing of prohibited/restricted items, ask your local post office to show you a copy of Publication 52, Acceptance of Hazardous, Restricted, or Perishable Matter, or go to **www.usps.com** and conduct a search for Publication 52.

**Mail to/from New Zealand.** If you are corresponding with New Zealand residents, have them use this address to avoid the unnecessary time and expense of having the letter go to the United States:

[Participant's Name]
McMurdo Station
APO
Private Bag 4747
Christchurch, New Zealand

This address is a courtesy and must not be used for ordering large quantities of personal goods. All mail must comply with USPS regulation (e.g., no alcohol). The Christchurch postmaster reserves the right to refuse goods deemed excessive.

**NOTE:** Goods must go through the New Zealand post system. Items delivered by any other agency (e.g., FedEx) will be refused. If you are in any doubt, seek advice from the postmaster in McMurdo or Christchurch before posting mail.

**Philatelic mail.** Philatelists (stamp collectors) are interested in receiving mail from Antarctica, and the NSF has a procedure (next page) to support philately at a level not to interfere with the science mission.

While in Antarctica, you may receive unsolicited philatelic mail from collectors. The Foundation discourages this unauthorized philatelic activity, and you will be entirely within your rights in declining to respond to such unsolicited requests. Please discard the material in the appropriate recycling container.

If you receive large amounts of unsolicited philatelic mail, bring it to the attention of the station manager or the NSF representative.

Philatelists may obtain a maximum of two covers (self-addressed stamped envelopes) a year by writing to the postal clerks (addresses below) at the three year-round U.S. Antarctic stations.

- No more than two covers per person per station per year.
- Covers will be processed for personal (that is, noncommercial) use of individuals only.
- U.S. correspondents use domestic first-class postage for the APO addresses (below) and international first-class or air mail postage for the Palmer Station address.
- Non-U.S. correspondents use international first-class or airmail postage.

Philatelic Mail Clerk
McMurdo Station, Antarctica
PSC 469
APO AP 96599-1035
Philatelic Mail Clerk

Palmer Station, Antarctica
c/o AGUNSA
Deposito Franco Antartico
P.O. Box 60-D
Punta Arenas, Chile

Amundsen-Scott South Pole Station, Antarctica
PSC 468 Box 400
APO AP 96598
Philatelic Mail Clerk

**Postal Service Depends on:**

- Location
- Time of year
- Weather
- Available transportation

Covers are not processed if these guidelines are not followed. Philatelic mail is processed and returned to senders as soon as possible, but the processing is in addition to regular duties of station personnel. Some processing is done during the austral winter, when antarctic stations are isolated, resulting in year-long (or longer) delays in mailing covers back to the collectors.

**Hold in New Zealand.** If you wish to have mail held for you in Christchurch, you must be either currently on station in Antarctica, within 90 days of arrival on station, or plan to redeploy within 10 days of the mail arrival. Your name will be checked against the computer database to verify your deployment dates. Please advise your correspondents to use this address:

[Participant's Name]
[Specify the Antarctic Station]
c/o Private Bag 4747
Christchurch Airport
Christchurch 8140
New Zealand
HOLD IN CHRISTCHURCH

All mail passing through Christchurch will be subject to MAF/Customs inspection. This includes duty on goods or mail being held in Christchurch. ■

## CHAPTER 7:

# Stations and Ships

*Gentoo penguins watch the research vessel* Laurence M. Gould *near Palmer Station.*

*photo by Christine Hush*

The U.S. Antarctic Program has three permanent, year-round research stations and two research vessels. Additional temporary field stations are constructed and operated during the austral summer. As detailed previously in this book, participants are required to put safety and environmental protection first. Extra individual responsibility for personal behavior while living and working in Antarctica is also expected.

## MCMURDO STATION

McMurdo (77°51'South, 166°40'East) is the main U.S. station in Antarctica. It is a coastal station on the barren low ash and lava volcanic hills at the southern tip of Ross Island, about 3,864 km (2,415 mi) south of Christchurch and 1,360 km (850 mi) north of the South Pole. The original station was constructed in 1955-1956. With many additions and modernizations over the years, today's station is the primary logistics facility for airborne resupply of inland stations and for field science projects. The station is also the waste management center for much of the U.S. Antarctic Program. Year-round and summer science projects take place at McMurdo. The Albert P. Crary Science and Engineering Center, which serves as the primary laboratory and research facility, was completed in 1994. Other facilities are maintained for various studies.

The mean annual temperature is minus 18°C (0°F). Temperatures may reach 8°C (46°F) in summer and minus 50°C (–58°F) in winter. The average wind speed is 12 knots, but winds have exceeded 100 knots.

Approximately 90% of U.S. Antarctic Program participants reside in or pass through McMurdo Station. The austral winter population ranges from 130 to 200, with the summer population not to exceed 1,100. The station is normally isolated from late February until early October,

except for a brief period in August or September when several closely spaced flights (known as WINFLY, for winter fly-in) deliver personnel, supplies, and early science parties.

In the past, McMurdo operated three airfields that were used at different times as a result of environmental/seasonal conditions and aircraft type availability. These facilities included the Annual Sea Ice Runway located a few miles from McMurdo, operating from October to December and supporting all aircraft types; the Williams Field Skiway located on the Ross Ice Shelf approximately 15 km (9 mi) from McMurdo, operating from early December through February only for ski-equipped aircraft; and the Pegasus White Ice Runway located about 30 km (19 mi) from McMurdo on the glacial ice of the McMurdo Ice Shelf and with a thin compacted "white ice" pavement, operating for wheeled aircraft from early December through February. In the past two years, the U.S. Antarctic Program has moved toward consolidation of its air operations to a single airfield complex. It is expected that this consolidation will be complete by the 2012-13 season at Pegasus, where several runways/skiways are likely to exist.

McMurdo also has a heliport located on gravel at the edge of town.

**McMurdo Sound** is an historic area. On his voyage of 1839-1840, James Clark Ross brought his ships *Erebus* and *Terror* into the sound before sailing eastward along the front of the great ice shelf that now bears his name. In 1902, Robert F. Scott wintered the *Discovery* in Winter Quarters Bay, adjacent to the station. A hut he built in 1902 still stands. Scott in 1901-1903 and 1910-1913 and Ernest Shackleton in 1907-1909 and 1914-1916 deployed their sledging parties from the area. Other huts used by these expeditions, at Cape Royds and Cape Evans, still stand and are open on a limited basis for tours.

An active volcano, the 3,794-meter (12,447 ft) Mt. Erebus, is a landmark. On the west side of McMurdo Sound, the Royal Society Range, and an extinct volcano, Mt. Discovery, are spectacular vistas.

The **Movement Control Center** (MCC) provides a terminal operations function for all continental cargo and passenger movements. MCC coordinates passenger manifesting and transportation to and from the McMurdo area airfields in addition to providing support with cargo pallet building and airplane load planning. MCC personnel are also responsible for the loading and unloading of all fixed-wing airplanes (Twin Otter excluded), as well as operating the McMurdo-area shuttle bus, taxi and courier services.

**Housing** at McMurdo Station is similar to college dormitories with a community bathroom down the hall in most dorms. Linens, blankets and pillows are provided, but a towel, slippers or shower shoes, and toiletry container are recommended. Participants are assigned at least one roommate. Roommate requests, including spouses or significant others, may not be honored for temporary McMurdo residents. Temporary residents are defined as RPSC employees staying fewer than 30 days and grantees staying fewer than 15 days. Those transiting through McMurdo to the South Pole or field camps will be assigned to transient housing in the bunkroom or four to a room. Due to round-the-clock operations, roommates may arrive at any time of the day or night.

Diesel-driven generators provide **electrical power** at 120 volts, 60 hertz, the same as in the United States. Reliability is good, but rare surges or outages could affect electronic equipment. Fresh water at McMurdo is made from seawater using reverse osmosis. Compared to taking it from a stream or a well, as we usually can do in the U.S., this is an expensive way to get fresh water.

**Telephone** calls can be made 24 hours a day from dorm rooms that have phones. Remember to bring a calling card for personal calls. Charges for these calls originate in Denver, Colorado. In other words, if you are placing a call to New York City, the charges will reflect a Denver to NYC call. Business calls are made using a Personal Identification Number (PIN), assigned by your supervisor or, for grantees, the Crary Lab supervisor. **Incoming calls are restricted to U.S. Antarctic Program business or emergency calls.**

**Communication radios and pagers** may be checked out through the communications department on station for business use.

## Emergency

In an emergency, your family can get a message to you in Antarctica by calling RPSC headquarters in Denver (303-790-8606) or the NSF Office of Polar Programs in Washington, D.C., (703-292-8030). Explain that it is an emergency.

**Fax machine.** Fax machines are available for limited use with permission of your supervisor. Grantees can use the Crary Lab fax machine whenever needed. A public fax machine is available in the store for a fee.

**E-mail and Internet access** is available 24 hours a day. Due to bandwidth limitations, recreational downloads (e.g., iTunes and YouTube) via Web or point-to-point file sharing programs are limited.

**Grantees:** Computers and LAN drops for personal laptops are available in the Crary Lab's library area, which all grantees have access to at all times. Wireless connectivity is also available throughout the lab and in most of the dorms where researchers live. Shared-use Macs and PCs are available for general grantee use in the library area, as is a scanner, digital card readers, a color printer and an E-size plotter. All computers in the Crary Lab have CD burners, and DVD burners are available on request. Grantees will be allocated blank CDs and DVDs as specified in their Research Support Plan.

**NOTE: McMurdo's bandwidth is overtaxed, which can lead to slow file transfer times and Internet speeds! If you have large data files that you would like to use in McMurdo, it is advisable to bring these with you on media (e.g., CD/DVD, USB stick).**

Recreational streaming media is highly restricted at all stations and field camps.

**Mail.** The post office at McMurdo offers all regular services (letter and package mail, money orders, stamps, etc.) and operates routine hours. It does not send COD mail. The post office only accepts U.S. cash and traveler's checks. During the winter season it is closed because there is no transportation available. It does open during WINFLY.

Mail for WINFLY (mid-August) delivery should be sent after the first week in July or it will be returned. WINFLY transportation and space for parcel mail is limited. If there is not space available for your package, it will be held in Christchurch until space allows during Mainbody (October).

Packages destined for summer participants should be mailed **after Labor Day** or they will be returned. Packages for winter participants should be mailed **after 1 January**.

Your address in McMurdo will be:

**McMurdo Summer and Winter - Grantees**:

[Participant's Name]
McMurdo Station
Project [insert your #]
PSC 469 Box 800
APO AP 96599-1035

**McMurdo Summer and Winter - RPSC Employees**:

[Participant's Name], RPSC
McMurdo Station
PSC 469 Box 700
APO AP 96599-1035

There are five live **television** and three **radio** feeds in McMurdo. Provided by American Forces Radio and Television Service (AFRTS) and other sources, television offerings include a variety of news, sports and general entertainment programs. The radio stations combine popular music, news and local programming scheduled by volunteer DJs from the community. In addition, movies are programmed locally via cable television. Additional channels offer timely weather, transportation and other general community information. Many common areas are equipped with televisions and VCRs. Participants may wish to bring a small radio. A limited number of television sets are available via a lottery system for dorm rooms. A free video and DVD checkout library is operated by the station store.

There are **recreational facilities,** including a library, clubs, climbing wall/bouldering cave, gymnasium, weight room, aerobics room and band room. Volunteers frequently organize

photo by Bob Koch

*McMuirdo Station is a small town located on the volcanic lava rock of Ross Island.*

art shows, chili cook-offs, running races, yoga classes, dances, league play, lessons, lectures, etc. CDs, musical instruments, cross-country skis and other items are available for rental.

**Laundry** facilities and detergent are provided at no charge for personal use in the dormitories. Participants are responsible for washing linens and clothing.

**Chaplain services** are provided by a military chaplain and New Zealand Catholic priests, who rotate on one-month intervals. In addition to conducting regular worship services and religious programs, the chaplain accommodates all religious practices and is available for counseling, both religious and secular. The chapel program provides opportunities for volunteers to use their gifts in ministry and service.

**Food service** at McMurdo Station is cafeteria style. There is no charge for meals. Take as much as you want, but, to minimize cost and the waste McMurdo has to manage, eat all of what you take.

There are a variety of food options offered everyday, and though some food accommodations may be made, people with severe dietary restrictions or significant food allergies need to be prepared for limited choices. People with dietary restrictions should contact the food service management regarding dietary concerns, preferably before deployment.

After dining, if the room is crowded, please leave to make room for others. Arrange with the food service management for takeout meals for those ill or on duty. In addition to the regular three meals, a midnight meal is served in summer first to night workers and then the general population.

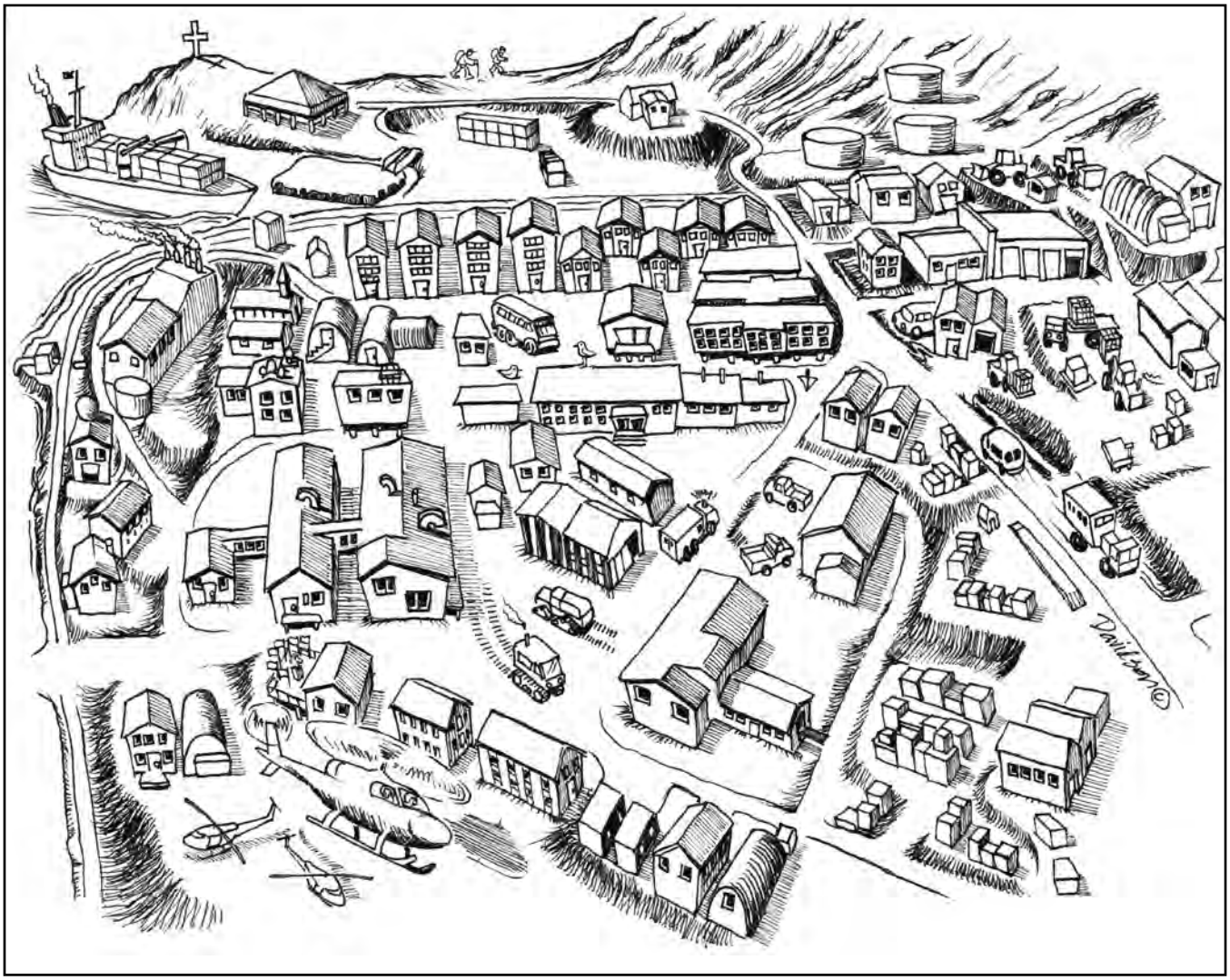
The **McMurdo Clinic** provides health care on a walk-in basis during posted hours, six days a week. Walk-in hours are extended during busy summer months to accommodate shift workers. Hours are posted at the entry and on the TV information scroll. For emergencies, staff can be reached 24 hours by calling the fire dispatch emergency number. The facility is equipped to handle a wide range of minor illnesses and injuries, and to stabilize critical patients for evacuation. Services include X-ray, laboratory, pharmacy and nursing. During the summer season, a dentist is available by appointment to cover most dental emergencies. Physical therapy is available for rehabilitation of injuries on station by referral only. During the winter season, the physician has limited capability to treat and manage dental and rehabilitation needs.

All injuries should be evaluated at the clinic. The physician will determine whether a Worker's Compensation report should be filed, and provide information to the safety manager.

**Vehicles** at McMurdo are for official use only, not for personal or recreational use. They are assigned to grantees or work centers. If your assignment requires driving a vehicle, you will receive training in proper use and preventive maintenance.

**Trash.** It is the responsibility of all persons to keep the station presentable by properly sorting and disposing of packing materials and other trash, which is recycled to the extent practical. By entering a U.S. antarctic station, you automatically consent to abide by local procedures prescribed for waste management. See Waste Management in this chapter for some of the rules. Other details will be provided to you.

## McMurdo Station



**Albert P. Crary Science and Engineering Center** (CSEC). The Crary Lab, as it is called, was built in the late 1980s and dedicated in November 1991. It is named in honor of geophysicist and glaciologist Albert Paddock Crary (1911-1987), the first person to reach both the North and South Poles.

The Crary Lab is a central building at McMurdo Station, with more than 46,500 feet$^2$ (4,320 m$^2$) of working space available. It was built in three phases with five sections, called "pods," each designed to facilitate research in a different area of the earth sciences and engineering. The main pod contains a library, shared-use computers, conference rooms, administrative offices, shared-use instrument laboratories and equipment/material storage. Three of the pods are designed to support research specific to biology/chemistry, geology and physics/engineering. These pods include laboratory space, office space and specialty areas for microscopes, environmental rooms, analytical chemistry labs, staging space, ice and rock sectioning rooms, chemical storage and an electronics workshop. The fifth pod is an aquarium room with wet labs, running sea water, and a variety of aquarium tanks designed to hold live animals and to test equipment before it is deployed to the field.

The laboratory is managed under direction from the NSF and through advice from the McMurdo Area Users Committee (MAUC). It is staffed by more than 20 support personnel including facilities engineers, computer support services, materials and supply specialists, lab supervisors, an electronics technician, a cryogen/chemical specialist, and an instrument technician. The staff provides direct assistance to scientists and researchers as requested and also ensures that operations comply with safety, environment and health requirements.

Throughout the laboratory there are scientific posters and displays, and the McMurdo community is encouraged to visit the facility to learn more about the research the U.S. Antarctic Program supports. Tours are provided on Sundays by the laboratory staff, and science lectures are presented by visiting researchers twice a week and once a month for nightshift workers. Special events and tours are often held throughout the season to further encourage community and scientific interaction.

## AMUNDSEN-SCOTT SOUTH POLE STATION

This station, at the geographic South Pole, is on the polar plateau at an elevation of 2,835 m (9,300 ft). It is situated on a 2,700 m- (9,000 ft) thick plateau of ice. It is 850 nautical miles south of McMurdo. The station is drifting with the ice sheet at about 10 m (33 ft) a year.

The original station was built in 1956-1957 and is now buried beneath the snow. The second station, located under a geodesic dome, was completed in 1975. The Dome was dismantled in 2009-10 and removed from the continent. The new Elevated Station was dedicated on January 12, 2008. The winter population is around 50 and the summer population averages 245.

Most U.S. Antarctic Program personnel will reach the South Pole from McMurdo Station via LC-130 airplanes. Cargo and fuel are transported by over-snow traverse, in addition to airplanes, from McMurdo Station. The short austral summer season, when most activity occurs, is from late October through mid-February. The station is isolated for the majority of the year, from mid-February through late October.

Photo by Scot Jackson

*An aerial view of Amundsen-Scott South Pole Station.*

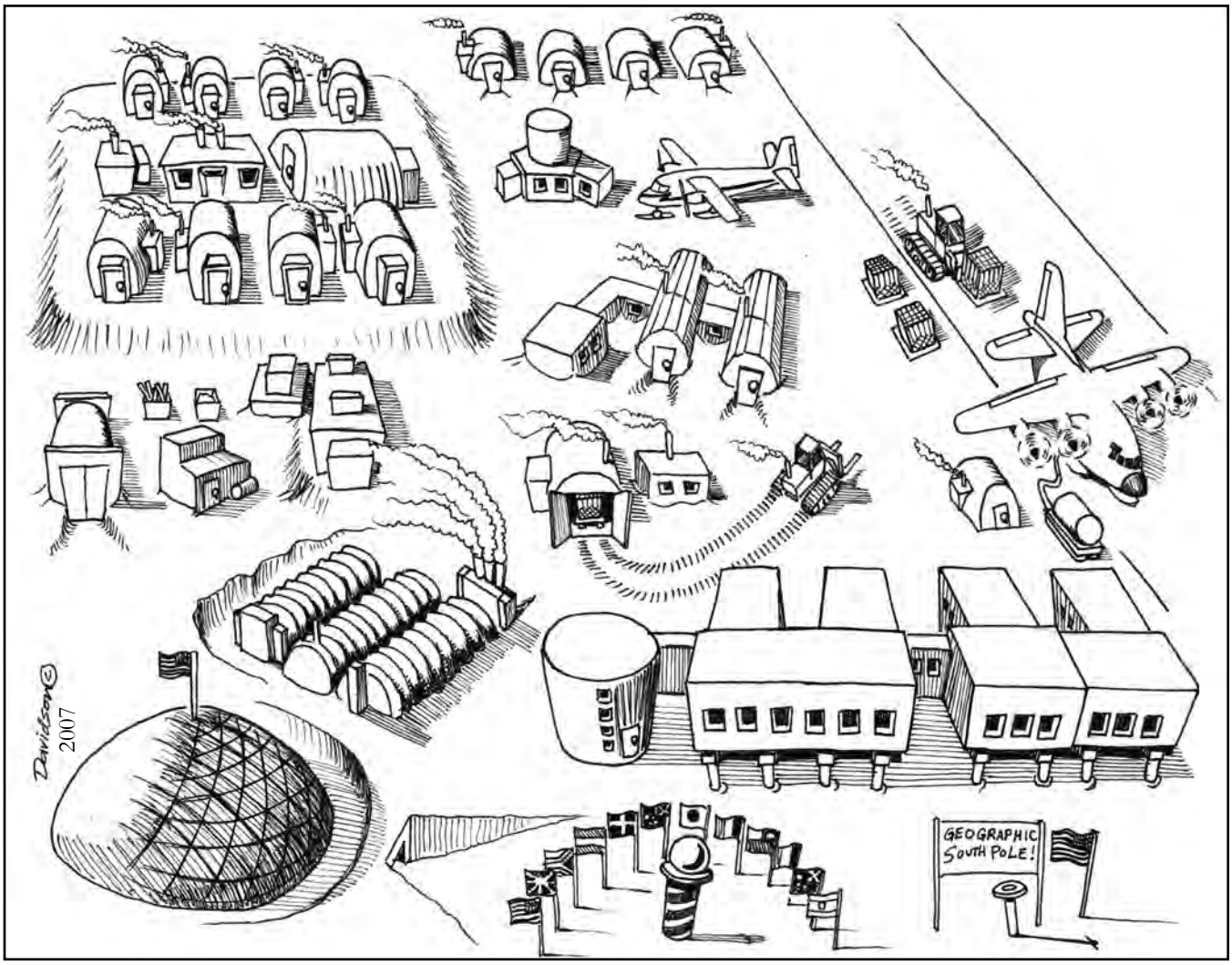
The mean annual **temperature** is minus 49°C (–56°F). Average monthly temperatures range between minus 28°C (–18°F) in the summer and minus 60°C (–76°F) in winter. The record high of minus 13.6°C (7.5°F) was recorded in December 1978, and the record low of minus 82.8°C (–117°F) was recorded in June 1982. Precipitation is about 20 cm of snow (8 cm water equivalent) per year, with very low humidity. Drifting is the primary factor in accumulation of snow around the buildings. Average wind speed is 10.8 knots.

**Research** includes astronomy and astrophysics, aeronomy, auroral, and geospace science studies, meteorology, geomagnetism, seismology, earth-tide measurements, and glaciology.

**Telephone** calls can be made from the South Pole during satellite coverage. Remember to bring a calling card for personal calls. Charges for these calls originate in Denver, Colorado. In other words, if you are placing a call to New York City, the charges will reflect a Denver to NYC call. Science, business and emergency related calls can be made with an Iridium phone during times of no satellite coverage. Incoming emergency calls must be routed through RPSC or the NSF.

**Fax Machine.** There currently is no fax machine service available at South Pole. Scanned images of documents are transmitted via e-mail to eFax, a company that faxes the document to the recipient. For incoming service, faxes are sent to eFax, which then e-mails it to the Pole, where it is printed.

## Amundsen-Scott South Pole Station




**E-mail and Internet** access is available only during satellite coverage.

**Mail.** South Pole has an official U.S. Post Office where stamps can be purchased and mail posted. However, it does not offer any registered services or sell money orders. Mail is placed aboard resupply airplanes and routed through McMurdo Station.

Packages destined for summer participants should be mailed **after Labor Day** or they will be returned.

Your address at South Pole (both summer and winter) will be:

[Participant's Name, Project # or RPSC]
South Pole Station
PSC 468 Box 400
APO AP 96598

**Ham radio** (amateur radio) connections are also available for calls to the United States. Schedules depend on volunteer operator availability and signal conditions but are usually announced. Calls are placed over the ham radio and patched into the phone system from the operator's location in the United States. Charges will be for a collect call from the operator's location to the party being called. Remember that these are not private conversations and some business discussions (e.g., banking) are not permitted.

**Meals.** Food service at the South Pole is cafeteria style. There is no charge for meals. Take as much as you want, but eat all of what you take. Remember, every piece of food thrown in the garbage has to be flown out of Pole.

There are a variety of food options offered everyday, and though some food accommodations may be made, people with severe dietary restrictions or significant food allergies need to be prepared for limited choices. People with dietary restrictions should contact the food service management regarding dietary concerns, preferably before deployment.

Arrange with the food service management for takeout meals for those ill or on duty. In addition to the regular three meals, a midnight meal is served in summer first to night workers and then the general population. Volunteers provide assistance on special occasions.

**Household duties** (chores) are shared by all personnel on a rotating basis.

**The station store** stocks very limited supplies of toiletries and alcoholic beverages. A large variety and quantity of Antarctic and South Pole souvenirs are available for purchase. Only cash and travelers checks are accepted at the store.

**ATMs** are not available at the South Pole due to the limited satellite availability. RPSC employees are able to have funds taken out of their bi-weekly paychecks and obtain this money while on station. Grantees are able to cash up to $500 in personal checks at the store each month.

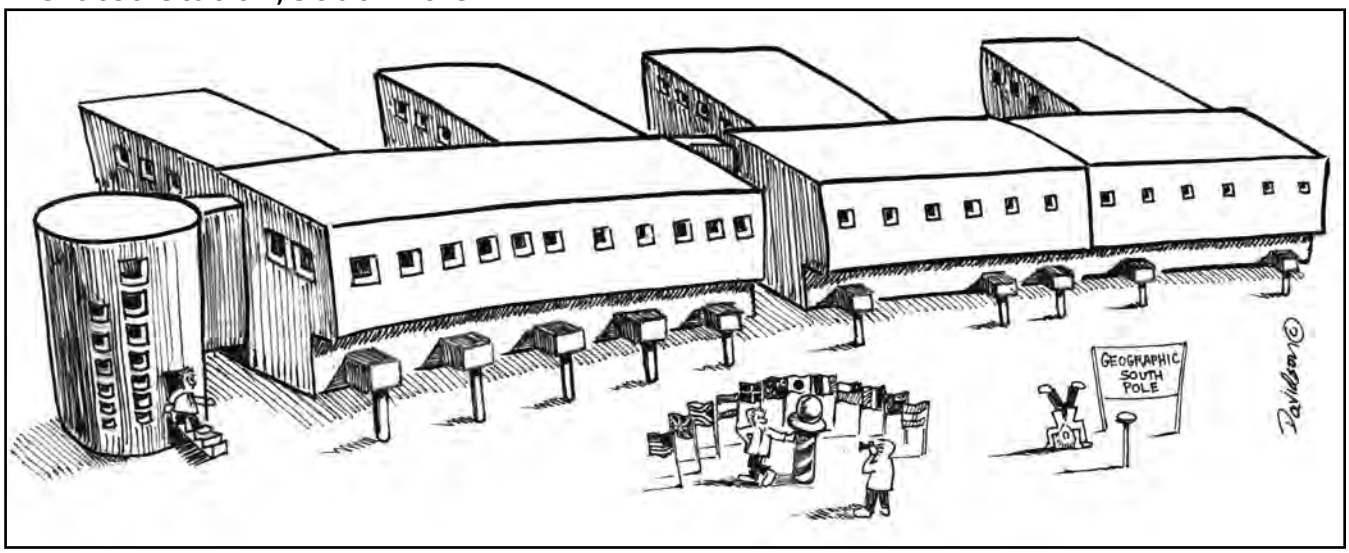
**Credit card** usage is not available.

**Housing.** Housing facilities at the South Pole are very limited. There are 154 rooms in the Elevated Station. The rest of the summer participants are housed in what is referred to as Summer Camp, which consists of Jamesways (canvas Quonset Huts) and Hypertats (highly insulated modular buildings similar to Quonset Huts). Rooms are somewhat private and measure approximately 6x8 ft. Bathrooms and showers are available in three separate buildings (therefore, if you need to use the bathroom, you will need to put on your parka and boots to get there) and each has a male and female side. These rooms are generally single rooms with community shower and bathroom facilities for male and female. With three working shifts at South Pole during the summer, there is always someone trying to sleep. Please be aware of the noise level, as courtesy and consideration are a must.

**Water conservation** at South Pole Station is critical. Participants are limited to two, two-minute showers each week.

**Laundry** facilities and detergent are provided free of charge, but due to water conservation, participants are only allowed one load of laundry each week.

## Elevated Station, South Pole



**Recreational facilities.** There is a large gymnasium, weight room, sauna, a small area dedicated to arts/crafts, and a music room.

A **physician,** with emergency dental training, is accessible on station at all times. Unless it is an emergency, please call the clinic in advance to ensure the doctor is available.

**Altitude sickness.** Amundsen-Scott South Pole Station is at a physiological elevation above 3,000 m (10,000 ft). The flight from McMurdo doesn't allow time to acclimate en route. You should check with your doctor to see if living at the high altitude will affect any preexisting medical problem. A medicine called acetazolamide will be available at McMurdo Clinic. Treatment should begin 24 hours before leaving for the high altitude. This medicine is contraindicated for those allergic to sulfa medications. The signs of altitude sickness are shortness of breath that is not relieved promptly by resting, headache, dizziness, and difficulty sleeping. They can be minimized by avoiding strenuous activities the first two days, increasing fluid intake, stopping or limiting smoking, and avoiding alcohol and caffeine. Altitude sickness can occur as late as five days after reaching altitude, and occasionally, can progress to a serious medical condition requiring evacuation to a lower altitude. Anyone developing symptoms should see the local medical provider.

The South Pole Users' Committee (SPUC) provides RPSC with feedback and suggestions on staffing, facilities and the policies that guide South Pole operations. The SPUC may recommend improvements and suggest the relative priority of their recommendations of the South Pole research site. Nine members of SPUC represent the wide range of science activities at the South Pole Station, with particular emphasis on those activities with current or previous NSF/OPP support for research at South Pole Station.

## PALMER STATION

Although the United States has had long historical ties to the Antarctic Peninsula, it did little work there until 1965 when a small biology facility, Palmer Station, was established. It is named after Nathaniel B. Palmer, the American sealer who pioneered exploration of the Peninsula area in 1820. In 1970, the new and current station was completed on Anvers Island, at 64°46'South, 64°03'West. The station, built on solid rock, consists of two major buildings and three small ones, plus two large fuel tanks and a dock.

**Ship access** is usually year-round. Tour ships and sailing yachts visit frequently during the summer months. Palmer is not regularly served by airplane, and no permanent landing field is maintained there.

**Wildlife** at Palmer Station is abundant, which makes it superbly located for biological studies of birds, seals, and other components of the marine ecosystem. It has a pier and facilities for the research vessels that support logistics and research in the marine sciences. It has a large and extensively equipped laboratory and seawater aquarium. Meteorology, upper atmosphere physics, glaciology, seismology and geology are also pursued at and around Palmer Station. The immediate vicinity is a dedicated Long Term Ecological Research (LTER) site. As with elsewhere in Antarctica, all interactions with wildlife are strictly governed by the Antarctic Conservation Act.

Station **population** is about 44 in the summer and 20 or more in winter. Unlike South Pole and McMurdo Stations, Palmer usually receives transportation year-round and does not generally have a distinctive period of winter isolation.

**Housing** at Palmer Station is similar to college dormitories with community bathrooms down the hall. Linens, blankets and pillows are provided. Participants are assigned a roommate. Washing machines, dryers and detergent are provided free of charge. There is also a sauna. Everyone participates in household duties, such as cleaning common areas.

**Meals.** Food service at Palmer Station is cafeteria style. There is no charge for meals. Take as much as you want, but eat all of what you take. Remember, every piece of food thrown in the garbage has to be shipped off the continent.

photo by Glenn Grant

*Palmer Station is the smallest of the three research stations operated by the U.S. Antarctic Program.*

There are a variety of food options offered everyday, and though some food accommodations may be made, people with severe dietary restrictions or significant food allergies need to be prepared for limited choices. People with dietary restrictions should contact the food service management regarding dietary concerns, preferably before deployment.

Palmer's **climate** is milder than that of the other U.S. antarctic stations, primarily because it comes under the influence of a polar-maritime air mass. The mean annual temperature is minus 3°C (27°F). Average temperatures range between 2°C (36°F) in the summer and minus 10°C (14°F) in the winter. The annual average wind is about 10 knots. Compared to other U.S. Antarctic Program stations, precipitation is high with ample rainfall. The water equivalent in snow and rain averages 81cm (32in) per year.

**Water** conservation is encouraged but usage is not restricted.

**Vehicles** consist mainly of Zodiac boats, snowmobiles and all-terrain vehicles.

**Training** is required before participants are allowed in Zodiacs on the water. Depending on your position, you may be required to complete Boating I, Boating II, or The Islands Course, which covers the location of survival caches, signaling, radio operations, survival skills, cold water immersion, etc.

**Science.** The science resources at Palmer Station are managed with direction from the NSF, which includes input from the Palmer Area Users Committee (PAUC). It is the responsibility of the RPSC manager of Laboratory Science to ensure that operations comply with safety, environment and health requirements. All users are provided with a chemical hygiene plan. The NSF urges users and visitors to keep the laboratory spaces clean and safe.

There is no live **TV** or **radio,** but videos and DVDs are available for viewing in the lounge.

**Telephone** calls can be made from Palmer Station 24 hours a day. Remember to bring a calling card for personal calls. Charges for these calls originate in Denver, Colorado. In other words, if you place a call to New York City, the charges will reflect a Denver to NYC call.

**Fax machines** are available for limited use with permission from your supervisor.

**E-mail and Internet** access is available 24 hours a day.

**Mail.** There is no APO service available to South America or Palmer Station. The station has no post office, but accepts and distributes letters and packages. Mail reaches Palmer Station on each southbound vessel, about once a month. Friends and family should send letters about two weeks in advance of the ship's scheduled departure from Punta Arenas. Package mail sent through Port Hueneme should be mailed at least eight weeks ahead of the scheduled departure. Please contact your POC for shipping deadline information.

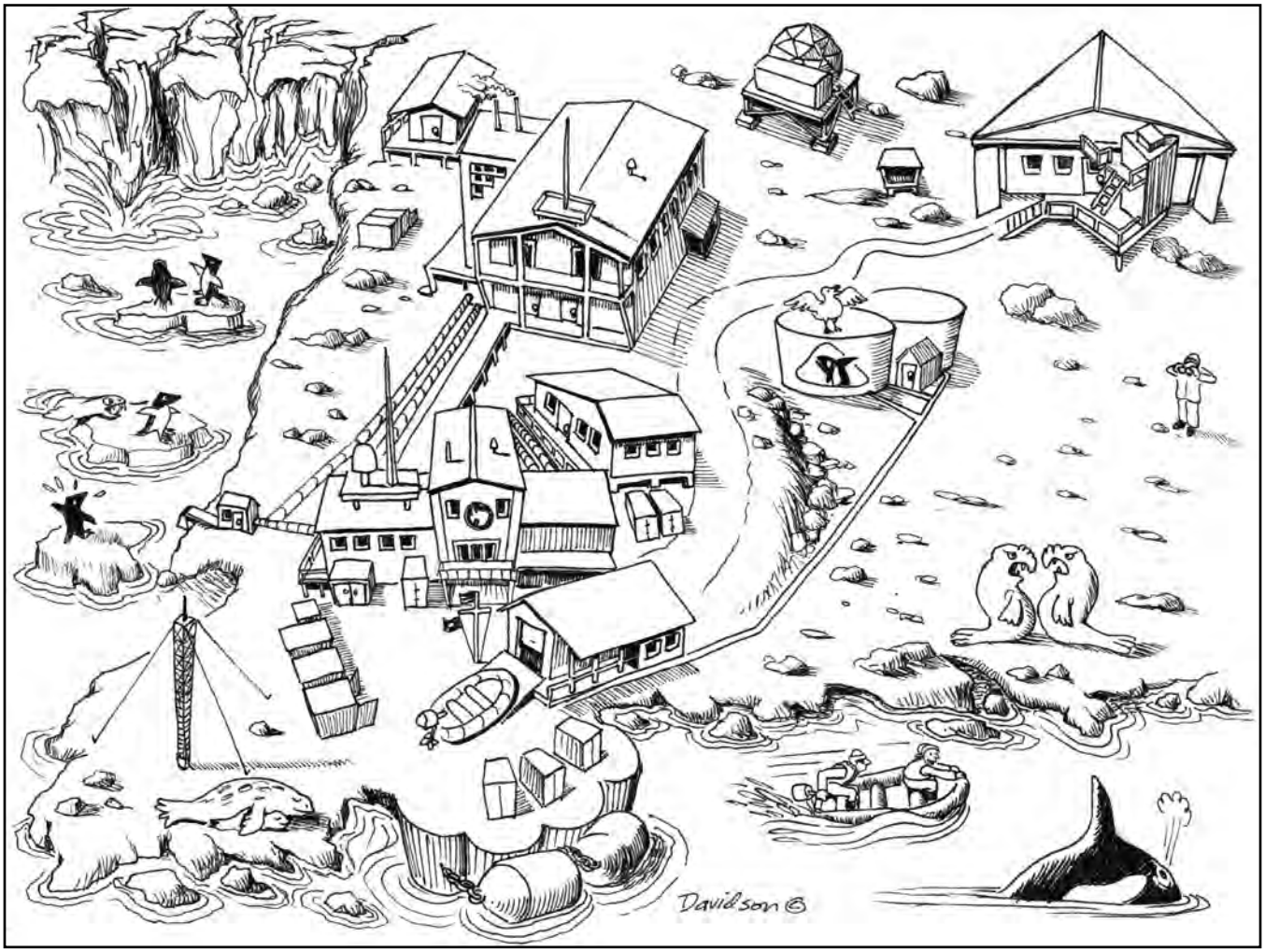
**Flat/Letter Mail (first class mail and magazines)** should be sent to:

[Participant's Name]
[Palmer Station or Vessel Name]
c/o Raytheon Polar Services Company
7400 S. Tucson Way
Centennial, CO 80112-3938

**Package mail** should be sent to the U.S. Antarctic Program cargo facility in Port Hueneme for delivery to Punta Arenas, Palmer Station, or the research vessels. This method is relatively inexpensive, but **cannot be used for letter mail** (use the address above). Packages sent via Port Hueneme may require two months or longer for delivery to Punta Arenas because packages are sent surface shipment on commercial vessels.

Packages sent via Port Hueneme become international cargo and are subject to the applicable laws and regulations that govern these shipments. These regulations are numerous and require

## Palmer Station




that shipments be certified as hazardous or not. Packages cannot be sent without a declaration of contents and value. You must provide a packing list on both the inside and outside of each package. Failure to provide accurate packing lists will result in rejection of the package and its return to sender.

Your packing list must show the following information:

1. Sender's name and address
2. Final destination of the package (your name and location)
3. Itemized list of the contents and their value

There are two addresses for Port Hueneme, depending on the shipping method:

**Via the U.S. Postal Service:**

NSF Contractor Representative
P.O. Box 338
Port Hueneme, CA 93041
Forward to:
[Participant's Name]
[Palmer Station or Vessel Name]

**Via Other Carriers (FedEx, UPS, DHL, etc.):**

NSF Contractor Representative
Building 471 North End
USN-CBC
Port Hueneme, CA 93043
Forward to:
[Participant's Name]
[Palmer Station or Vessel Name]

**NOTE:** If you are placing **catalog or Internet** orders to be shipped to the station, use the appropriate address above and send an e-mail to Port Hueneme letting them know that the package is coming. This will avoid confusion and delays in shipment. Your message should include the vendor name, package contents, your name, final destination and tracking numbers (if known). E-mail: PH-Cargo-Ops@usap.gov

**Flat and Package Mail can be shipped directly to Chile via Chilean Postal Service;** however, this method can be **unreliable and very slow**. Mail can be forwarded to the station or vessels, or it can be held for you in Punta Arenas depending on how it is labeled. The address is:

[Participant's Name] Palmer Station, Antarctica
c/o AGUNSA
Deposito Franco Antarctico
Av. Independencia 772
P.O. Box 60-D
Punta Arenas, Chile

A **physician,** with emergency dental training, is accessible on station at all times. Unless it is an emergency, please call the clinic in advance to ensure the doctor is available.

**Meals** are cafeteria style at no charge. Clean-up is done on a rotating schedule by all Palmer Station residents.

**Recreation** opportunities are available. There is an exercise room with weights and cardio machines. There is also a self-service bar, a TV lounge, billiard and ping pong tables, etc. There are some arts and craft supplies available, as well as a limited selection of cross-country skis and snowshoes. The station also has a small darkroom. Boating (after training has been completed) is available as weather permits and is a popular way to enjoy the wildlife in the area.

A small **station store** stocks a limited supply of toiletries, souvenirs and beverages.

## RESEARCH VESSELS

The **R/V *Nathaniel B. Palmer*** *(NBP)* began science operations in late 1992 when it sailed from Punta Arenas in support of the Russian-United States Ice Camp Weddell. Since then, the 94-meter (308 ft) *NBP* has sailed more than 110 science cruises, and it is now into its second long-term charter in support of U.S. Antarctic Program marine science research.

*photo by Gerrit Padgham*

*The R/V* Laurence M. Gould *docked at Palmer Station.*

The *NBP*'s main engines provide a total horsepower of 12,700. This rating, along with hull strength and other criteria, combine to qualify it for classification by the American Bureau of Shipping (ABS) as an ABS Maltese Cross A1, Maltese Cross AMS, Ice Class A2, icebreaker (able to break three ft of ice at a continuous forward speed of 3 knots). A modern, multi-disciplinary research vessel, the *NBP* has six laboratories totaling 353.5 $m^2$ (3,800 $ft^2$). It can accommodate 39 scientists and RPSC crew.

The *NBP* has worked in many areas of the Southern Ocean, including the Ross and Weddell seas, the Bransfield Strait, and has completed two circumnavigations of Antarctica in support of research projects.

The **R/V *Laurence M. Gould (LMG)*** began its service in Antarctica on January 16, 1998. A new contract with the NSF ensures that the vessel will continue Antarctic research and re-supply missions until the year 2020. Since 1998, the *LMG* has sailed in support of more than 80 science cruises. This ABS Maltese Cross A1, Maltese Cross AMS, Ice Class A1, 70.2-meter ship, has an available horsepower of 4,576 in open water operations and 3,900 horsepower during operations in ice. The A1 rating classifies the *LMG* as being capable of breaking one foot of first-year ice while maintaining continuous forward progress. It has berthing space to accommodate a total of 28 scientists and RPSC personnel. There are an additional nine bunks for passengers transiting to Palmer Station.

The *LMG* works primarily in the Antarctic Peninsula region, transporting support and scientific personnel and cargo to and from Palmer Station and supporting research throughout the peninsula area. Voyages are also made farther afield, including the Weddell Sea.

Both vessels are equipped with an enclosed Baltic Room, a diverse sonar suite, a specially designed aquarium room, moon pool, and an uncontaminated seawater system delivering water to several labs. The *NBP* seawater supply is also available on the 02 Level's Helo Deck.

Both the *NBP* and *LMG* are owned and operated by Louisiana-based Edison Chouest Offshore (ECO) and were built by North American Ship Building, a subsidiary of ECO located in Larose, Louisiana.

**Living conditions** on the research vessels include two-person cabins; private toilets and showers are available in each cabin. Each ship has laundry facilities, exercise rooms, and TV lounges with DVDs. Cafeteria-style meals are provided. Be aware that travel on the U.S. Antarctic Program research vessels often involves passing through some of the roughest seas in the world. If you are prone to motion sickness or have never sailed before, consult with your personal physician for the appropriate medication before you leave home.

**E-mail** is available on both ships and is sent and received at least twice daily. The message size and the use of the attachments in e-mail from the vessels are limited and there is no Internet connection available while at sea. Please consult your POC for the current vessel e-mail policy.

**Telephone service** via the Iridium satellite phone system is available for personal use at no cost via a morale phone. Calls on this phone should be limited to 10 minutes. INMARSAT is also available 24 hours a day, but at a cost of approximately $3.00 per minute. Personal calls via INMARSAT must be placed using a credit card.

**Mail** to participants on the research vessels can be routed through AGUNSA in Punta Arenas. Please consult the mail information described under Palmer Station to find appropriate mailing addresses. For cruises originating in New Zealand or elsewhere, please consult your POC for mailing instructions.

For more information, go to **www.usap.gov/vesselScienceAndOperations**.

## FACILITY ADMINISTRATION

The NSF, a federal agency, plans, funds, manages and coordinates the U.S. Antarctic Program in accordance with U.S. government policy.

The Department of Defense (U.S. Air Force, Air National Guard, Army, Military Sealift Command, and Air Mobility Command) and the Department of Homeland Security (Coast Guard) provide logistics, as requested by the NSF, on a reimbursable basis. The NSF contracts with RPSC for station operating support services, science support services, operation of the research ships, for facilities planning and construction, and logistics services.

**Senior U.S. representative in Antarctica.** The director of the NSF has designated the OPP office director as the senior U.S. representative in Antarctica, or SUREPA. During the austral summer operating season, the office director sometimes designates ranking officials of the U.S. Antarctic Program to serve as senior U.S. representative in Antarctica. The official designated is normally located at McMurdo Station during the summer operating season. The senior U.S. representative ensures that U.S. policy and directives for the U.S. Antarctic Program are implemented, represents the United States as it interacts with foreign nations in Antarctica, ensures that U.S.-sponsored antarctic activities are carried out consistent with the Antarctic Treaty, and takes appropriate action in personnel matters not subject to military or other authority. At McMurdo, the SUREPA's office is located in the NSF Chalet.

**NSF representative.** The NSF representative is on the continent throughout the austral summer and is the Foundation's principal representative for implementing the planned field operations. He/she coordinates and establishes on-site priorities for field support of U.S. Antarctic Program activities, coordinates the supervision and direction of the NSF contractor's efforts at McMurdo and the inland sites, and serves as an NSF spokesperson. The NSF representative has an office located in the Chalet at McMurdo Station.

**NSF science representative.** The NSF science representative is the Foundation's principal representative for antarctic science activities, interacts with investigators and the NSF representative to set science-support priorities, gives on-site direction to the RPSC laboratory services manager on science matters, and serves as the NSF science spokesperson. The position is occupied by different NSF science program managers over the course of the summer. At McMurdo Station, the NSF science representative has an office in the Albert P. Crary Science and Engineering Center.

**NSF McMurdo Station Manager.** The NSF McMurdo Station manager is a year-round position at McMurdo whose function is to oversee operation of station facilities. The manager interacts with all organizations represented at McMurdo. In winter, the NSF manager is the ranking U.S. government official at McMurdo.

**Commander Joint Task Force Support Forces Antarctica (CJTF SFA).** The commander of Department of Defense support forces in the U.S. Antarctic Program. The CJTF SFA is located at Hickam Air Force Base, Hawaii.

**13th Air Expeditionary Group Commander (13 AEG/CC).** The 13th AEG commander is the designated commander of all military forces deployed to the Joint Operations Area as part of Joint Task Force Support Forces Antarctica.

**NSF representative, Antarctic Peninsula.** The NSF representative, Antarctic Peninsula, is resident at Palmer Station or aboard research vessels during a part of the austral summer. This person coordinates U.S. activities in the Peninsula area.

**NSF representative, South Pole** is resident at South Pole Station during a part of the austral summer. This person coordinates U.S. activities at South Pole Station.

**RPSC area director/station manager.** RPSC has an area director/station manager at McMurdo, South Pole and Palmer stations during the austral summer. This person, in conjunction with the senior RPSC representative, oversees all contractor support activities. An RPSC winter site manager serves in this role during the winter months at each station.

**Station science leader.** The NSF designates a science leader for U.S. Antarctic Program stations. The station science leader is directly responsible to the Office of Polar Programs when no NSF representative is on the continent. Researchers at each station, or working out of the station, are responsible to the station science leader, who coordinates science projects and arranges for the logistics needed to support them. Researchers request support from the station science leader during the winter, who consults with the NSF station manager (at McMurdo) or the station manager (at South Pole or Palmer stations) to arrange the support. The station science leader clears official messages concerning research projects before dispatch.

**RPSC winter site manager.** This position is responsible for all station support activities including local support for science projects. At McMurdo Station, the NSF station manager is designated as the senior official on station. At South Pole and Palmer, the winter site manager and support personnel maintain the station and support the research projects. In an emergency, the winter site manager is in complete charge of everyone at the station.

**Marine project coordinators** (MPC) are provided by RPSC on both research vessels who coordinate and direct shipboard activities in conjunction with the ship's master. The MPC and the ship's master make all decisions regarding the safe conduct of the ship.

**User committees.** RPSC convenes an annual McMurdo Area User Committee (MAUC), a South Pole User Committee (SPUC), an Antarctic Research Vessel Oversight Committee (ARVOC) and a Palmer Area User Committee (PAUC) to review the effectiveness of the various antarctic laboratories. These committees review input collected from grantees, NSF representatives, RPSC laboratory managers, etc., to assess safety, environment and health requirements, space allocation, scheduling, equipment status, staffing, communications, computing and to plan operational requirements for the coming season. Reports are available online at **www.usap.gov/conferencesCommitteesAndWorkshops/userCommittees**. ■

## APPENDIX A:

# The Antarctic Treaty

The 12 nations listed in the preamble (below) signed the Antarctic Treaty on December 1, 1959 in Washington, D.C. The treaty entered into force on June 23, 1961; the 12 signatories became the original 12 consultative nations.

As of mid-2007, 16 additional nations (Brazil, Bulgaria, China, Ecuador, Finland, Germany, India, Italy, Netherlands, Peru, Poland, Republic of Korea, Spain, Sweden, Ukraine and Uruguay) have achieved consultative status by acceding to the treaty, and by conducting substantial scientific research in Antarctica. Russia carries forward the signatory privileges and responsibilities established by the former Soviet Union.

Another 20 nations have acceded to the Antarctic Treaty: Austria, Belarus, Canada, Colombia, Cuba, Czech Republic, Democratic Peoples Republic of Korea, Denmark, Estonia, Greece, Guatemala, Hungary, Papua New Guinea, Portugal, Monaco, Romania, Slovak Republic, Switzerland, Turkey, and Venezuela. These nations agree to abide by the treaty and may attend consultative meetings as observers.

The 48 Antarctic Treaty nations represent about two-thirds of the world's human population.

Consultative meetings have been held approximately every other year since the treaty entered into force, but since 1993 they typically have been held annually. Each meeting has generated recommendations regarding operation of the treaty that, when ratified by the participating governments, become binding on the parties to the treaty.

Additional meetings within the Antarctic Treaty system have produced agreements on conservation of seals, conservation of living resources, and comprehensive environmental protection. A Handbook of the Antarctic Treaty System is available in PDF at **www.state.gov/g/oes/rls/rpts/ant**.

What follows is the complete text of the Antarctic Treaty. The headings for each article were added by the National Science Foundation and are unofficial.

**[Preamble]**

The Governments of Argentina, Australia, Belgium, Chile, the French Republic, Japan, New Zealand, Norway, the Union of South Africa, The Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, and the United States of America.

Recognizing that it is in the interest of all mankind that Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord;

Acknowledging the substantial contributions to scientific knowledge resulting from international cooperation in scientific investigation in Antarctica;

Convinced that the establishment of a firm foundation for the continuation and development of such cooperation on the basis of freedom of scientific investigation in Antarctica as applied during the International Geophysical Year accords with the interests of science and the progress of all mankind;

Convinced also that a treaty ensuring the use of Antarctica for peaceful purposes only and the continuance of international harmony in Antarctica will further the purposes and principles embodied in the Charter of the United Nations;

Have agreed as follows:

**Article I**
**[Antarctica for peaceful purposes only]**

1. Antarctica shall be used for peaceful purposes only. There shall be prohibited, inter alia, any measures of a military nature, such as the establishment of military bases and fortifications, the carrying out of military maneuvers, as well as the testing of any type of weapons.
2. The present treaty shall not prevent the use of military personnel or equipment for scientific research or for any other peaceful purposes.

**Article II**
**[freedom of scientific investigation to continue]**

Freedom of scientific investigation in Antarctica and cooperation toward that end, as applied during the International Geophysical Year, shall continue, subject to the provisions of the present Treaty.

**Article III**
**[plans and results to be exchanged]**

1. In order to promote international cooperation in scientific investigation in Antarctica, as provided for in Article II of the present Treaty, the Contracting Parties agree that, to the greatest extent feasible and practicable:
   (a) information regarding plans for scientific programs in Antarctica shall be exchanged to permit maximum economy and efficiency of operations;
   (b) scientific personnel shall be exchanged in Antarctica between expeditions and stations;
   (c) scientific observations and results from Antarctica shall be exchanged and made freely available.
2. In implementing this Article, every encouragement shall be given to the establishment of cooperative working relations with those Specialized Agencies of the United Nations and other international organizations having a scientific or technical interest in Antarctica.

**Article IV**
**[territorial claims]**

1. Nothing contained in the present Treaty shall be interpreted as:
   (a) a renunciation by any Contracting Party of previously asserted rights of or claims to territorial sovereignty in Antarctica;
   (b) a renunciation or diminution by any Contracting Party of any basis of claim to territorial sovereignty in Antarctica which it may have whether as a result of its activities or those of its nationals in Antarctica, or otherwise;
2. No acts or activities taking place while the present Treaty is in force shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in Antarctica. No new claim, or enlargement of an existing claim, to territorial sovereignty shall be asserted while the present Treaty is in force.

**Article V**
**[nuclear explosions prohibited]**

1. Any nuclear explosions in Antarctica and the disposal there of radioactive waste materials shall be prohibited.
2. In the event of the conclusion of international agreements concerning the use of nuclear energy, including nuclear explosions and the disposal of radioactive waste material, to which all of the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX are parties, the rules established under such agreements shall apply in Antarctica.

**Article VI**
**[area covered by Treaty]**

The provisions of the present Treaty shall apply to the area south of 60° South latitude, including all ice shelves, but nothing in the present Treaty shall prejudice or in any way affect the rights, or the exercise of the rights, of any State under international law with regard to the high seas within that area.

**Article VII**
**[free access for observation and inspection]**

1. In order to promote the objectives and ensure the observation of the provisions of the present Treaty, each Contracting Party whose representatives are entitled to participate in the meetings referred to in Article IX of the Treaty shall have the right to designate observers to carry out any inspection provided for by the present Article. Observers shall be nationals of the Contracting Parties which designate them. The names of the observers shall be communicated to every other Contracting Party having the right to designate observers, and like notice shall be given of the termination of their appointment.
2. Each observer designated in accordance with the provisions of paragraph 1 of this Article shall have complete freedom of access at any time to any or all areas of Antarctica.
3. All areas of Antarctica, including all stations, installations and equipment within those areas, and all ships and aircraft at points of discharging or embarking cargoes or personnel in Antarctica, shall be open at all times to inspection by any observers designated in accordance with paragraph 1 of this Article.
4. Aerial observation may be carried out at any time over any or all areas of Antarctica by any of the Contracting Parties having the right to designate observers.
5. Each Contracting Party shall, at the time when the present Treaty enters into force for it, inform the other Contracting Parties, and thereafter shall give them notice in advance, of
   (a) all expeditions to and within Antarctica, on the part of its ships of nationals, and all expeditions to Antarctica organized in or proceeding from its territory;
   (b) all stations in Antarctica occupied by its nationals; and
   (c) any military personnel or equipment intended to be introduced by it into Antarctica subject to the conditions prescribed in paragraph 2 of Article I of the present Treaty.

**Article VIII**
**[personnel under jurisdiction of their own states]**

1. In order to facilitate the exercise of their functions under the present Treaty, and without prejudice to the respective positions of the Contracting Parties relating to jurisdiction

over all other persons in Antarctica, observers designated under paragraph 1 of Article VII and scientific personnel exchanged under subparagraph 1(b) of Article III of the Treaty, and members of the staffs accompanying any such persons, shall be subject only to the jurisdiction of the Contracting Party of which they are nationals in respect to all acts or omissions occurring while they are in Antarctica for the purpose of exercising their functions.

2. Without prejudice to the provisions of paragraph 1 of this Article, and pending the adoption of measures in pursuance of subparagraph 1(e) of Article IX, the Contracting Parties concerned in any case of dispute with regard to the exercise of jurisdiction in Antarctica shall immediately consult together with a view to reaching a mutually acceptable solution.

**Article IX**
**[Treaty states to meet periodically]**

1. Representatives of the Contracting Parties named in the preamble to the present Treaty shall meet at the city of Canberra within two months after date of entry into force of the Treaty, and thereafter at suitable intervals and places, for the purpose of exchanging information, consulting together on matters of common interest pertaining to Antarctica, and formulating and considering, and recommending to their Governments, measures in furtherance of the principles and objectives of the Treaty including measures regarding:
   (a) use of Antarctica for peaceful purposes only;
   (b) facilitation of scientific research in Antarctica;
   (c) facilitation of international scientific cooperation in Antarctica;
   (d) facilitation of the exercise of the rights of inspection provided for in article VII of the Treaty;
   (e) questions relating to the exercise of jurisdiction in Antarctica;
   (f) preservation and conservation of living resources in Antarctica.
2. Each Contracting Party which has become a party to the present Treaty by accession under Article XIII shall be entitled to appoint representatives to participate in the meetings referred to in paragraph 1 of the present Article, during such time as the Contracting Party demonstrates its interest in Antarctica by conducting substantial scientific research activity there, such as the establishment of a scientific station or the dispatch of a scientific expedition.
3. Reports from the observers referred to in Article VII of the present Treaty shall be transmitted to the representatives of the Contracting Parties participating in the meetings referred to in paragraph 1 of the present Article.
4. The measures referred to in paragraph 1 of this Article shall become effective when approved by all the Contracting Parties whose representatives were entitled to participate in the meetings held to consider those measures.
5. Any or all of the rights established in the present Treaty may be exercised as from the date of entry into force of the Treaty whether or not any measures facilitating the exercise of such rights have been proposed, considered or approved as provided in this Article.

**Article X**
**[discourages activities contrary to Treaty]**

Each of the Contracting Parties undertakes to exert appropriate efforts, consistent with the Charter of the United Nations, to the end that no one engages in any activity in Antarctica contrary to the principles or purposes of the present Treaty.

**Article XI**
**[settlement of disputes]**

1. If any dispute arises between two or more of the Contracting Parties concerning the interpretation or application of the present Treaty, those Contracting Parties shall consult among themselves with a view to having the dispute resolved by negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement or other peaceful means of their own choice.
2. Any dispute of this character not so resolved shall, with the consent, in each case, of all parties to the dispute, be referred to the International Court of Justice for settlement; but failure to reach agreement on reference to the International Court shall not absolve parties to the dispute from the responsibility of continuing to seek to resolve it by any of the various peaceful means referred to in paragraph 1 of this Article.

**Article XII**
**[review of Treaty possible after 30 years]**

1. (a) The present Treaty may be modified or amended at any time by unanimous agreement of the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX. Any such modification or amendment shall enter into force when the depositary Government has received notice from all such Contracting Parties that they have ratified it.
   (b) Such modification or amendment shall thereafter enter into force as to any other Contracting Party when notice of ratification by it has been received by the depositary Government. Any such Contracting Party from which no notice of ratification is received within a period of two

years from the date of entry into force of the modification or amendment in accordance with the provision of subparagraph 1(a) of this Article shall be deemed to have withdrawn from the present Treaty on the date of the expiration of such period.

2. (a) If after the expiration of thirty years from the date of entry into force of the present Treaty, any of the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX so requests by a communication addressed to the depositary Government, a Conference of all the Contracting Parties shall be held as soon as practicable to review the operation of the Treaty.

   (b) Any modification or amendment to the present Treaty which is approved at such a Conference by a majority of the Contracting Parties there represented, including a majority of those whose representatives are entitled to participate in the meetings provided for under Article IX, shall be communicated by the depositary Government to all the Contracting Parties immediately after the termination of the Conference and shall enter into force in accordance with the provisions of paragraph 1 of the present Article.

   (c) If any such modification or amendment has not entered into force in accordance with the provisions of subparagraph 1(a) of this Article within a period of two years after the date of its communication to all the Contracting Parties, any Contracting Party may at any time after the expiration of that period give notice to the depositary Government of its withdrawal from the present treaty; and such withdrawl shall take effect two years after the receipt of the notice by the depositary Government.

**Article XIII**
**[ratification and accession]**

1. The present Treaty shall be subject to ratification by the signatory States. It shall be open for accession by any State which is a Member of the United Nations, or by any other State which may be invited to accede to the Treaty with the consent of all the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX of the Treaty.
2. Ratification of or accession to the present Treaty shall be effected by each State in accordance with its constitutional processes.
3. Instruments of ratification and instruments of accession shall be deposited with the Government of the United States of America, hereby designated as the depositary Government.
4. The depositary Government shall inform all signatory and acceding States of the date of each deposit of an instrument of ratification or accession, and the date of entry into force of the Treaty and of any modification or amendment thereto.
5. Upon the deposit of instruments of ratification by all the signatory States, the present Treaty shall enter into force for those States and for States which have deposited instruments of accession. Thereafter the Treaty shall enter into force for any acceding State upon the deposit of its instrument of accession.
6. The present Treaty shall be registered by the depositary Government pursuant to Article 102 of the Charter of the United Nations.

**Article XIV**
**[United States is repository]**

The present Treaty, done in the English, French, Russian, and Spanish languages, each version being equally authentic, shall be deposited in the archives of the Government of the United States of America, which shall transit duly certified copies thereof to the Governments of the signatory and acceding States.

In witness whereof, the undersigned Plenipotentiaries, duly authorized, have signed the present Treaty.

Done at Washington the first day of December, one thousand nine hundred and fifty-nine.

For Argentina:
Adolfo Seilingo
F. Bello

For Australia:
Howard Beale

For Belguim:
Obert de Thieusies

For Chile:
Marcial Mora M.
L. Gajardo V.
Julio Escudero

For the French Republic:
Pierre Charpentier

For Japan:
Koichiro Asakai
T. Shimoda

For New Zealand:
G.D.L. White

For Norway:
Paul Koht

For the Union of South Africa:
Wentzel C. du Plessis

For the Union of Soviet Socialist Republics:
V. Kuznetsov

For the United Kingdom of Great Britain and Northern Ireland:
Harold Caccia

For the United States America:
Herman Phleger
Paul C. Daniels

APPENDIX B:

# Presidential Memorandum Regarding Antarctica, February 5, 1982

**Memorandum 6646**

**The White House**
**Washington**

For:
- Secretary of State
- Secretary of the Treasury
- Secretary of Defense
- Secretary of the Interior
- Secretary of Commerce
- Secretary of Transportation
- Secretary of Energy
- Director, Office of Management and Budget
- Director of Central Intelligence
- Chairman, Joint Chiefs of Staff
- Director, Arms Control and Disarmament Agency
- Director, Office of Science and Technology Policy
- Administrator, Environmental Protection Agency
- Director, National Science Foundation

Subject: United States Antarctic Policy and Programs

I have reviewed the Antarctic Policy Group's study of United States interests in Antarctica and related policy and program considerations, as forwarded by the Department of State on November 13, 1981, and have decided that:

- The United States Antarctic Program shall be maintained at a level providing an active and influential presence in Antarctica designed to support the range of U.S. antarctic interests.
- This presence shall include the conduct of scientific activities in major disciplines; year-round occupation of the South Pole and two coastal stations; and availability of related necessary logistics support.
- Every effort shall be made to manage the program in a manner that maximizes cost effectiveness and return on investment.

I have also decided that the National Science Foundation shall continue to:

- budget for and manage the entire United States national program in Antarctica, including logistic support activities so that the program may be managed as a single package;
- fund university research and federal agency programs related to Antarctica;
- draw upon logistic support capabilities of government agencies on a cost reimbursable basis; and
- use commercial support and management facilities where these are determined to be cost effective and will not, in the view of the Group, be detrimental to the national interest.

Other agencies, may, however, fund and undertake directed short-term programs of scientific activity related to Antarctica upon the recommendation of the Antarctic Policy Group and subject to the budgetary review process. Such activities shall be coordinated within the framework of the National Science Foundation logistics support.

The expenditures and commitment of resources necessary to maintain an active and influential presence in Antarctica, including the scientific activities and stations in the Antarctic, shall be reviewed and determined as part of the normal budget process. To ensure that the United States Antarctic Program is not funded at the expense of other National Science Foundation programs, the OMB will provide specific budgetary guidance for the antarctic program.

To ensure that the United States has the necessary flexibility and operational reach in the area, the Departments of Defense and Transportation shall continue to provide, on a reimbursable basis, the logistic support requested by the National Science Foundation and to develop, in collaboration with the Foundation, logistic arrangements and cost structure required for effective and responsive program support at minimum cost.

With respect to the upcoming negotiations on a regime covering antarctic mineral resources, the Antarctic Policy Group shall prepare a detailed U.S. position and instructions. These should be forwarded for my consideration by May 15, 1982.

Ronald Reagan

## APPENDIX C:

# The Metric System

The Metric Conversion Act of 1975 (15 USC §§205a-k) and E.O. 12770 (3 CFR, 1991 comp.) encourage federal agencies to use the metric system in procurement, grants and other business-related activities. The general conditions of each NSF grant contain a provision encouraging principal investigators to submit progress reports, final reports, other reports and publications produced under grants that employ the metric system of measurements.

Approximate Conversion from **CUSTOMARY TO METRIC**

| *When you know* | *You can find* | *If you multiply by* |
|---|---|---|
| **Length** | | |
| inches | millimeters | 25 |
| feet | centimeters | 30 |
| feet | meters | 0.3 |
| yards | meters | 0.9 |
| miles | kilometers | 1.6 |
| **Area** | | |
| square inches | square centimeters | 6.5 |
| square feet | square meters | 0.09 |
| square yards | square meters | 0.8 |
| square miles | square kilometers | 2.6 |
| acres | hectares | 0.4 |
| **Volume** | | |
| cubic inches | cubic centimeters | 16 |
| cubic feet | cubic meters | 0.03 |
| cubic yards | cubic meters | 0.8 |
| **Mass** | | |
| ounces (avoirdupois) | grams | 28 |
| pounds | kilograms | 0.45 |
| short tons | metric tons (megagrams) | 0.9 |
| **Liquid Volume** | | |
| ounces | milliliters | 30 |
| pints | liters | 0.47 |
| quarts | liters | 0.95 |
| gallons | liters | 3.8 |
| **Temperature** | | |
| degrees Fahrenheit | degrees Celsius | 5/9 (after subtracting 32) |

Approximate Conversion from **METRIC TO CUSTOMARY**

| *When you know* | *You can find* | *If you multiply by* |
|---|---|---|
| **Length** | | |
| millimeters | inches | 0.04 |
| centimeters | inches | 0.4 |
| meters | feet | 3.3 |
| meters | yards | 1.1 |
| kilometers | miles | 0.6 |
| **Area** | | |
| square centimeters | square inches | 0.16 |
| square meters | square yards | 1.2 |
| square kilometers | square miles | 0.4 |
| hectares | acres | 2.5 |
| **Volume** | | |
| cubic centimeters | cubic inches | 0.06 |
| cubic meters | cubic feet | 35 |
| cubic meters | cubic yards | 1.3 |
| **Mass** | | |
| grams | ounces (avoirdupois) | 0.035 |
| kilograms | pounds | 2.2 |
| metric tons (megagrams) | short tons | 1.1 |
| **Liquid Volume** | | |
| milliliters | ounces | 0.034 |
| liters | pints | 2.1 |
| liters | quarts | 1.06 |
| liters | gallons | 0.26 |
| **Temperature** | | |
| degrees Celsius | degrees Fahrenheit | 9/5 (then add 32) |

APPENDIX D:

# Grantee Medical Insurance

**NATIONAL SCIENCE FOUNDATION**
4201 Wilson Boulevard
ARLINGTON, VIRGINIA 22230

OFFICE OF POLAR PROGRAMS

Dear Grantee,

The National Science Foundation's Office of Polar Programs (OPP) would like to take this opportunity to remind you of the importance of being prepared for all aspects of your fieldwork. You will have received a lot of information from OPP and from its support contractor, Raytheon Polar Services Company, with respect to working in Antarctica, including a link to the *United States Antarctic Program Participant Guide,* which provides you with practical knowledge about working in Antarctica.

You are responsible for yourself and for all members of your team, including graduate students and postdoctoral fellows. All research staff (paid or volunteer) should be affiliated in some manner with your organization(s), so any worker compensation issues arising from injuries sustained while deployed can be addressed by your organization. NSF does not provide insurance for grantee personnel, and the cost of insurance is not an allowable expense on NSF grants. As such, persons traveling to Antarctica are expected to have insurance appropriate to their normal life situations so that any needed health care, compensation for property loss, worker's compensation, or survivor benefit will be provided for in the event of a health care emergency. Emergency medical care for U.S. Antarctic Program participants in Antarctica is provided in clinics at the year-round stations, and persons who need hospital care will be transported to health care facilities in New Zealand, South America or the United States, at which point they or their sponsors will be responsible for medical costs. An often overlooked aspect of fieldwork is time you and members of your team will spend in the gateway cities of Christchurch, New Zealand and Punta Arenas, Chile. Check your health and life insurance policies to be sure that flights aboard scheduled military aircraft are covered and also that health care received in foreign countries is covered.

Wishing you a safe and productive deployment.

Will Colston
Division Director
Antarctic Infrastructure and Logistics Division

Polly A. Penhale
Acting Head
Polar Environment, Safety and Health

Scott Borg
Division Director
Antarctic Sciences Division

Karl A. Erb
Director
Office of Polar Programs

# Glossary

**62nd Airlift Wing** Provides C-17 aircraft support to the U.S. Antarctic Program; headquartered at McChord Air Force Base.
**109th Airlift Wing** Division of the New York Air National Guard that supports the U.S. Antarctic Program.
**139th Expeditionary Airlift Squadron** (EAS) Designation of the 109th Airlift Wing when deployed.
**304th Expeditionary Airlift Squadron** (EAS) Designation of the 62nd Airlift Wing when deployed.
**500th Air Expeditionary Group** (500 EAG) Commands all LC-130 and C-17 activities and personnel in New Zealand and Antarctica.
**ACA** Antarctic Conservation Act.
**ACL** Allowable Cabin Load. Payload of aircraft. Calculations based upon take-off, landing restrictions, range, weather, fuel requirements, etc.
**ACPB** Air Cargo Priority Board.
**AFRTS** American Forces Radio and Television Service.
**AGUNSA** Agencias Universales S.A., RPSC's agent in Chile that supports the U.S. Antarctic Program.
**AMC** Air Mobility Command, U.S. Air Force, formally known as MAC, Military Airlift Command.
**ANG** Air National Guard, U.S. Air Force Reserve Component.
**AOD** Airport of Departure.
**AOPB** Air Operations Priority Board.
**APHIS** Animal and Plant Health Inspection Service, U.S. Department of Agriculture.
**APO** Army and Air Force Post Office.
**APT** Antarctic Passenger Terminal at the International Antarctic Center in Christchurch, New Zealand.
**ARVOC** Antarctic Research Vessel Oversight Committee. An advisory group that meets to discuss issues related to science research on the vessels.
**ASMA** Antarctic Specially Managed Area.
**ASPA** Antarctic Specially Protected Area.
**ATO** Antarctic Terminal Operations. Division of RPSC that manages the movement of passengers and cargo.
**Bag Drag** Similar to check-in with commercial airlines. Passengers are weighed and checked for ECW gear, carry-on bags are approved, and hold bags are palletized for transport.
**Beaker** A nickname for scientists.
**Boomerang** A flight that departs and returns to its origin, due to weather or maintenance considerations.
**Bumped** Refers to cargo or passengers that is/are removed from a flight due to weight restrictions or other considerations.
**C-17** A U.S. Air Force aircraft used for transporting cargo and personnel from New Zealand to McMurdo.
**C-130** A wheeled four-engine Lockheed Hercules turboprop airplane. LC-130 indicates a ski-equipped plane like those used in Antarctica.
**CDC** Clothing Distribution Center located in Christchurch, N.Z.
**Chalet** Building that houses NSF and RPSC headquarters staff at McMurdo Station, Antarctica.
**CHC or CHCH** Acronym for "Christchurch." Pronounced "Cheech."
**Clean Air Sector** Area upwind from the South Pole Station that is not contaminated by exhaust fumes from South Pole activity.
**COM AIR** Commercial air transport.
**COMNAP** Council on Managers of National Antarctic Programs.
**COM SUR** Commercial Surface vessel transport.
**Condition One** Weather condition when visibility is less than 100 ft., or wind is greater than 55 knots, or wind chill is greater than -100° F.
**Condition Three** Weather condition better than Condition Two.
**Condition Two** Weather condition when wind speed is between 48-55 knots, or visibility is less than 1/4 mile, but greater than 100 ft., or wind chill is greater than -75° F, but less than -100° F.
**Continental Area** The part of U.S. Antarctic Program that includes McMurdo Station, including South Pole and field camps supported from McMurdo (not the Peninsula area).
**CONUS** Continental United States.
**CSEC** Albert P. Crary Science and Engineering Center, laboratory at McMurdo Station, Antarctica. Also known as Building One.
**CTS** Cargo Tracking System, used to track U.S. Antarctic Program-related cargo.
**Dark Sector** Area near the South Pole Station that is not contaminated by light pollution.
**Deployment** Initial passenger transport from airport of departure to destination.
**DNF** Do Not Freeze.
**DOD** Department of Defense.
**DSG** Deployment Specialists Group. The combination of the Travel Department and Population Management to assist with every aspect of the deployment process.

**DV** Distinguished Visitor.
**E-mail** Electronic mail.
**ECW** Extreme Cold Weather. Usually in reference to the special clothing/equipment issued to U.S. Antarctic Program participants.
**EHS** Environmental Health and Safety department.
**EPA** Environmental Protection Agency, U.S. government.
**Event Number** A number identifying a science group that has received funding from NSF to perform research in Antarctica.
**FAR** Federal Acquisition Regulations.
**FEMC** Facilities, Engineering, Maintenance and Construction.
**Galley** Navy term for dining facility.
**Genetically Modified Organism (GMO)** Any organism in which any of the genes or genetic material has been modified by in vitro techniques.
**Grantee** A scientist who has received a grant from the NSF.
**Herbie** Term used to describe a storm with fierce, blowing wind and/or snow.
**HR** Human Resources.
**IAC** International Antarctic Center, Christchurch, New Zealand.
**Ice** Slang term for Antarctica. Usage: "I'm going to the Ice."
**Ice Runway** The runway used during mainbody flights, it is built on the temporary sea ice and accommodates wheeled airplanes.
**IGY** International Geophysical Year, 1957-1958.
**IT** Information Technology, the department overseeing telecommunications and computers.
**JP-8** Type of fuel used for aircraft and in diesel applications.
**JSOC** Joint Space Operations Center, a building in McMurdo.
**Kiwi** Nickname that refers to New Zealanders.
**Land-line** Describes a regular telephone line compared to broadcast radio conversation.
**LC-130** A ski-equipped four-engine Lockheed Hercules turboprop airplane.
***LMG*** Research support vessel called the *Laurence M. Gould.*
**LTER** Long Term Ecological Research.
**MAF** Ministry of Agriculture and Forestry, New Zealand.
**Mainbody** The period of time in October when the majority of passengers and cargo are flown into McMurdo Station.
**MAUC** McMurdo Area Users Committee. An advisory group that meets to discuss issues related to science research in the McMurdo area.
**MCC** Movement Control Center, McMurdo Station, Antarctica.
**MEC** Mechanical Equipment Center, McMurdo Station, Antarctica.
**Medevac** Medical evacuation of a patient.
**MOGAS** Motor automotive gasoline.
**MSC** Military Sealift Command.
***NBP*** Research support vessel called the *Nathaniel B. Palmer.*
**NGA** Non-governmental activity.
**NSF** National Science Foundation, an agency of the U.S. government.
**NYANG** New York Air National Guard.
**NZAP** New Zealand Antarctic Programme.
**OAE** Old Antarctic Explorer. A reference to an experienced Antarctic program participant.
**OPP** Office of Polar Programs, National Science Foundation.
**ORW** Operational Request Worksheet.
**OSHA** Occupational Safety and Health Act.
**PA/QA** Performance Assurance, Quality Assurance. The RPSC department that monitors the performance and quality of service provided to the U.S. Antarctic Program.
**PAUC** Palmer Area Users Committee. An advisory group that meets to discuss issues related to science research in the Palmer area.
**Pax** Vernacular for passenger/s.
**Pegasus** A prepared runway on permanent ice near McMurdo Station that accommodates wheeled airplanes.
**Peninsula Area** The part of the U.S. Antarctic Program that includes Palmer Station, R/V *Laurence M. Gould,* and other operations in the Antarctic Peninsula area.
**PHI** Petroleum Helicopters Incorporated.
**PI** Principal Investigator: Team leader or scientist in charge of a funded research project.
**POC** Point-of-Contact.
**POLAR ICE** (Participant On-Line Antarctic Resource Information Coordination Environment) A Web-based data collection and dissemination system designed to capture and administer all relevant support requirements for scientific research in Antarctica.
**PQ'd** or **PQ** Physically Qualified.
**PSR** Point of Safe Return.
**Radioisotopes** A radioactive isotope.
**Redeployment** Passenger transport from destination to origin.
**Retrograde** To return cargo from the field to McMurdo Station, or from McMurdo to destinations north. Usually in the reverse order of its initial deployment.
**RNZAF** Royal New Zealand Air Force.
**RDD** Required Delivery Date.
**ROS** Required-On-Site date.
**RPSC** Raytheon Polar Services Company
**RPSNZ** Raytheon Polar Services New Zealand. Christchurch location of logistical support for the U.S. Antarctic Program.

**SAAM** Special Assignment Airlift Mission, a mission supported by U.S. Antarctic Program AMC at the request of the NSF.
**SAR** Search and Rescue.
**SCALOP** The Standing Committee of Antarctic Logistics and Operations.
**SCAR** Scientific Committee on Antarctic Research, of the International Council of Scientific Unions, a nongovernmental organization.
**Science Planning Managers** RPSC personnel who work with science groups to plan their research season.
**Science Support** The RPSC department that works with scientists to ensure their research requirements are met.
**SFA** Support Forces Antarctica. The tactical operational name given to U.S. military activities in Antarctica.
**SIP** Support Information Package.
**SPAWAR** Space and Naval Warfare Systems, provides weather forecasting and other services for air traffic control.
**SPSM** South Pole Station Modernization.
**SPUC** South Pole Users Committee. An advisory group that meets to discuss issues related to science research at the South Pole.
**SSC** Science Support Center, a building in McMurdo.
**Supply Chain Management** The RPSC department that buys, arranges transportation and distributes materials for the U.S. Antarctic Program.
**SUREPA** Senior U.S. Representative, Antarctica, appointed by the director of NSF to oversee U.S. government activities in Antarctica.
**T-event** A technical event, approved by the NSF to perform technical functions at U.S. Antarctic Program locations.
**USAF** United States Air Force.
**U.S. Antarctic Program (USAP)** United States Antarctic Program, the U.S. government's program, administered by the National Science Foundation, for research and related activities regarding Antarctica.
**USAP Airlift** Refers to the scheduled movement of cargo and passengers from Christchurch to McMurdo
**USCG** United States Coast Guard.
**USGS** United States Geological Survey.
**V-event** A visitor, approved by the NSF, for visiting U.S. Antarctic Program locations.
**Vessel** A ship. Often refers to the annual resupply ship or to research vessels.
**VHF** Very high frequency: VHF radios are used locally around stations and ships.
**VMF** Acronym for the Vehicle Maintenance Facility.
**W-event** Writer or artist, supported by the NSF in Antarctica.
**White out** A weather term to describe a situation where the horizon is not definitive usually due to blowing snow.
**WINFLY** Vernacular for 'winter fly-in'. Usually occurring in August or September.
**Winter** Verb to winter: to spend the austral winter season at a U.S. Antarctic Program station.

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## *US Antarctic Program Participant Guide*

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Use this clip-out page (or make copies) to provide your friends and family with your address while you're on the ice. For more details on mailing letters and packages to Antarctic stations and ships, read Chapter 6.

McMurdo Station – Grantee

[Participant's Name]
McMurdo Station
Project [insert your #]
PSC 469 Box 800
APO AP 96599-1035

McMurdo Station – RPSC

[Participant's Name], RPSC
McMurdo Station
PSC 469 Box 700
APO AP 96599-1035

South Pole Station – Grantee and RPSC

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### TIPS FOR SENDERS:

- Packages intended to reach McMurdo Station and South Pole Station by Christmas need to be mailed from the U.S. by Halloween.
- Flat mail (letters) goes faster than packages. Packages may take up to six weeks.
- Do not mail perishable food.
- Do not use foam peanuts.

# HANDY CONTACT INFORMATION

Following is a list of frequently used phone numbers ... for you or your stateside family and friends.

**National Science Foundation**
**Office of Polar Programs**
703-292-8030
www.nsf.gov

**Raytheon Polar Services**
1-800-688-8606
www.usap.gov

**RPSC Deployment Specialists Group**
1-800-688-8606, prompt 2

**RPSC Medical Department**
1-800-8606, prompt 3

**Christchurch Travel Office**
From the US – 1-800-390-1449
In New Zealand – 0-800-358-8139
ptservices@iac.org.nz

**Emergency**
To get an urgent message to someone in the Antarctic, call RPSC headquarters in Denver (303-790-8606). Ask for Human Resources and explain that it is an emergency.

## Learn the Lingo!

After **PQ**'ing, **USAP RPSC FEMC** and **OAEs** will deploy from the **CDC** in **Chch** (cheech) on a **C-17**, arriving on the **Ice** around **1400**, dressed in **ECW** and then ride **Ivan** to **Mactown** ...

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