

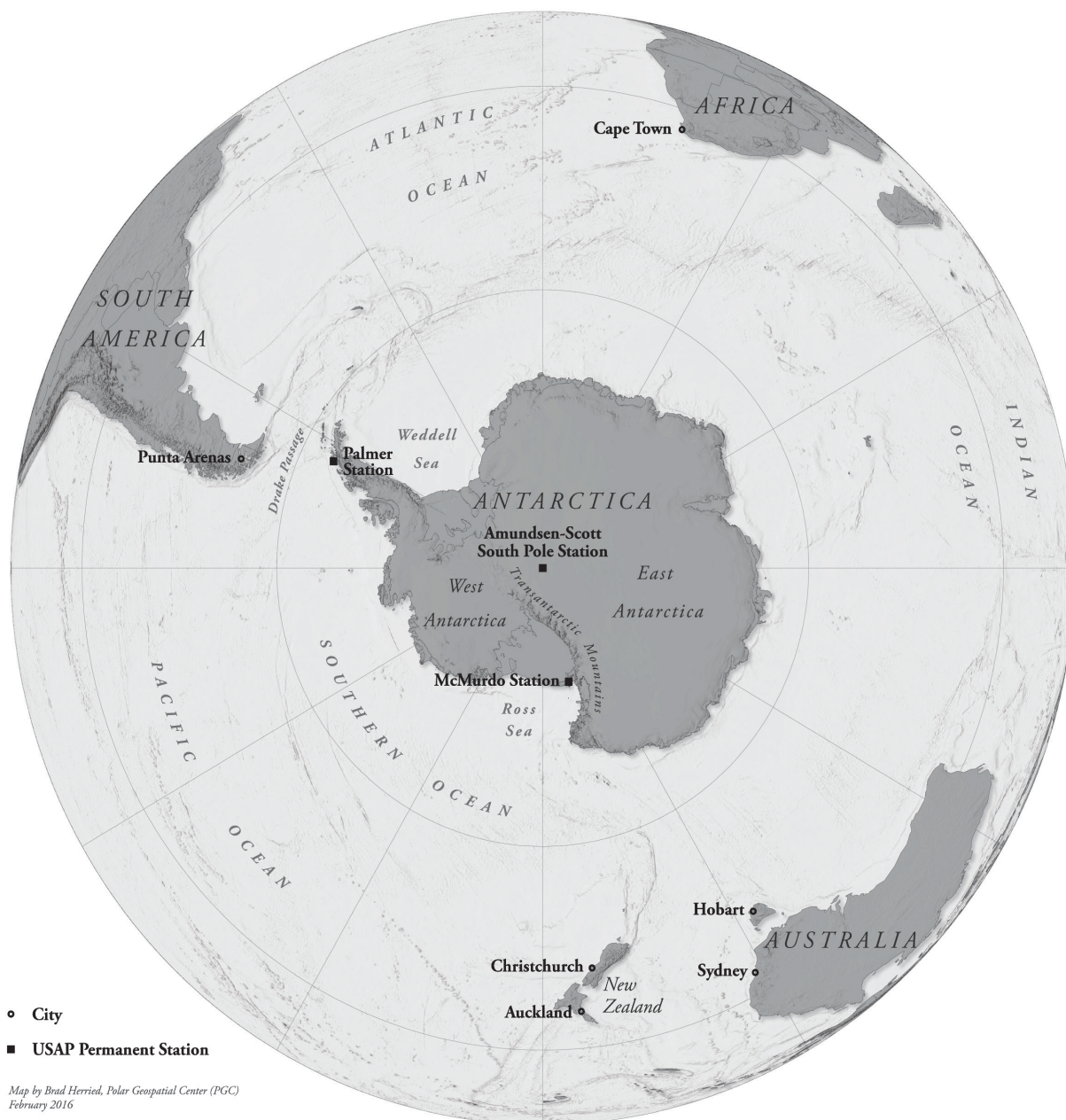


UNITED STATES ANTARCTIC PROGRAM **PARTICIPANT GUIDE**

2018-2020 Edition

National Science Foundation
2415 Eisenhower Avenue, Suite W7100
Alexandria, VA 22314


Edited by Jim Mastro and Terri Edillon, June 2018. Cover photo: Palmer Station, Shaun O'Boyle.



News about the USAP, the Ice, and the People

The Antarctic Sun

antarcticsun.usap.gov



Antarctic Photo Library

<http://photolibrary.usap.gov>



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The United States Antarctic Program

Welcome to the U.S. Antarctic Program

The U.S. Antarctic Program Participant Guide was revised and updated for 2018-2020. The purpose of the Guide is to provide practical information about this NSF-managed program. You are strongly encouraged to read it in full, well before you deploy, to learn how to prepare for living and working in Antarctica. The Guide should be used as a reference, since it contains answers to many questions that may arise during deployment. It is available online at www.usap.gov at any time.

Ensuring the safety and health of all of its participants is a priority for the U.S. Antarctic Program (USAP). Harsh Antarctic conditions present numerous challenges to safety. Some are obvious, some not so obvious. Even routine tasks can be potentially hazardous. Medical care on "the Ice" is limited. Thus, all participants need to contribute to systematic risk assessment, hazard elimination or control, safe work practices, and the appropriate use of personal protective equipment to reduce the risk of injury and illness.

All USAP participants are subject to the OPP Code of Conduct (Appendix 1) and its standards for professional and safe conduct. Note in particular that intoxication of any kind in the harsh Antarctic environment can be particularly dangerous and will not be tolerated.

Additionally, the USAP is committed to providing a respectful work environment, free of any form of harassment.

As a USAP participant, you are also responsible for full compliance with measures to protect the Antarctic environment. Failure to meet these obligations may result in penalties under U.S. law.

Please pay close attention during your training on how to live and work safely in Antarctica. Do report unsafe conditions promptly, as outlined herein and posted on the Ice.

On behalf of the USAP leadership team, I wish you a productive and safe deployment.

Kelly K. Falkner, Director
Office of Polar Programs
National Science Foundation

This Participant Guide is the initial source of information for U.S. Antarctic Program (USAP) 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 (POC) for more detailed information and the particular requirements related to your objectives. The USAP website (www.usap.gov) will contain more current deployment information than this book. If you are reading this online, you can click on websites listed in this book and be taken to that site.

All USAP participants – including grantees, Antarctic Support Contract (ASC) 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.

SOME ANTARCTIC BASICS

Antarctica

This continent is the highest, driest, coldest, windiest, and emptiest place on earth. An ice sheet covers more than 99% of Antarctica. At its thickest point, it is 4,776 m (nearly 3 mi.) deep. Antarctica holds approximately 90% of all the world's ice (by volume) and 70% of all the world's fresh water. There are many penguins and abundant sea life along the coast – but there is little life in the interior, and there are no indigenous people.

Temperatures

The mean annual temperature at South Pole Station is minus 49°C (-56°F). Temperatures at McMurdo Station may reach as high as 8°C (46°F) in summer, while at South Pole Station, the record high summer temperature of -12.3°C. (9.9°F.) was recorded in December 2011. Palmer Station's summer temperatures will reach above 4°C (40°F).

Daylight and Darkness

The area above 66.5 degrees south latitude experiences one long day and one long night each year – with several 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 recognized by 53 countries, reserves the area south of 60 degrees south latitude 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.). For comparison, the U.S. is 9.36 million sq. km. (3.6 million sq. mi.). The 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. (9,220 mi.).

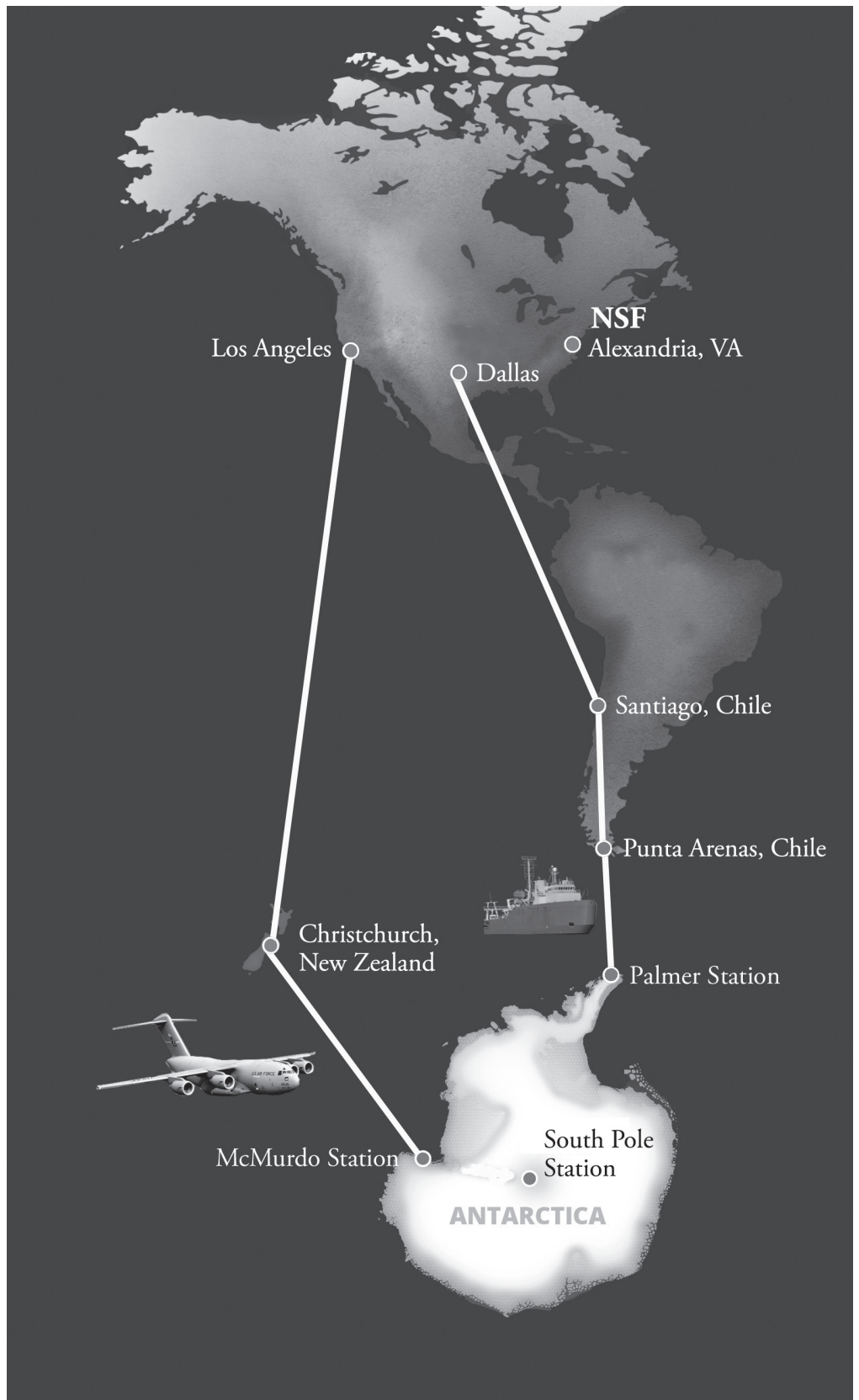
Science

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

History

The existence of the continent of Antarctica was only a hypothesis until it was first sighted in 1820-21. Sealers set foot briefly on the Peninsula in 1821, but no one set foot on East Antarctica until 1895. The South Pole was first reached in 1911, and a year-round research station was established there in 1956. Antarctica's history is full of extraordinary stories of heroism and survival.

TRANSPORTATION MAP



This map represents the routing of most USAP participants. Your exact route may differ.

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CHAPTER 1: The United States in Antarctica



U.S. Navy pilot LCDR Gus Shinn starts up the Que Sera Sera before taking off for the South Pole from the Naval Air Facility McMurdo on 31 October 1956. This aircraft was the first to land at the South Pole. The Naval Air Facility was re-named McMurdo Station in 1961. Photo by U.S. Navy.

The U.S. role in Antarctica derives from American expeditions to the region and diplomatic initiatives that have taken place since the earliest expeditions by American whalers. 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 is geared toward continuing a strong U.S. capability to support Antarctic scientific research into the foreseeable future.

BACKGROUND

Antarctic Exploration and the Antarctic Treaty

Beginning in the late 18th Century and continuing well into the early part of the 20th, Antarctica was the focus of numerous international scientific and geographic expeditions. Information on this fascinating history can be found in a variety of books and other publications, including the NSF booklet “Science on the Ice: The United States Antarctic Program.”

In 1956–57 the U.S. Navy, during Operation Deep Freeze I, and in conjunction with research teams from the National Science Foundation (NSF), established bases in Antarctica to prepare for the International Geophysical Year (IGY, 1957–58). The IGY was an intensive, multi-national, multi-disciplinary, global research effort designed to study a wide range of geophysical processes. Much of that effort took place in Antarctica and was crucial in establishing Antarctica as a continent for peace and science.

The international coordination that resulted from the IGY ultimately led to the Antarctic Treaty, which was signed in 1961. Since then, Treaty nations have agreed to several addenda, including the 1991 Environmental Protocol to the Antarctic Treaty (Protocol), which establishes rules and procedures specifically designed to protect the Antarctic environment. The Protocol was ratified and went into effect in 1998.

United States Antarctic Program (USAP)

The United States established the U.S. Antarctic Research Program (USARP) in 1959, immediately after the IGY. (The name was later changed to the U.S. Antarctic Program.) Through the USAP, NSF facilitates and manages U.S. research efforts in Antarctica. The Department of Defense supports the USAP scientific effort via the continuing Operation Deep Freeze.

Research supported by the NSF Office of Polar Programs (OPP) and by other U.S. federal agencies aims to expand fundamental knowledge of the Antarctic region, elicit the connection between Antarctica and the rest of the Earth, and leverage Antarctica as a unique research platform. U.S. research has greatly improved our understanding of Antarctica, Antarctica's role in global environmental change, and the universe beyond planet Earth. This research and the extensive logistic reach of the USAP has placed the United States in a position of scientific and diplomatic leadership in Antarctica.

Programs to integrate research and education are an important and unique element of the USAP. NSF also supports an Artists and Writers Program that facilitates works of art to increase public understanding of both Antarctica and Antarctic research.

The Antarctic Treaty and U.S. Antarctic Policy



The ceremonial pole at Amundsen-Scott South Pole Station is surrounded by the flags of the original 12 signatory nations to the Antarctic Treaty. Photo by Deven Stross

The Antarctic Treaty entered into force in 1961, and its original 12 signatory nations included 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 the stations, installations, equipment, ships, and airplanes of other member states to ensure continuing adherence to the treaty.

More than 50 nations are now signatories of the Antarctic Treaty. In addition to diplomatic interchanges carried out under the Antarctic Treaty by the U.S. Department of State and its counterparts in other nations, leaders of the various national Antarctic programs directly coordinate and exchange logistical and operational plans via the Council of Managers of National Antarctic Programs (COMNAP).

The Antarctic Treaty establishes Antarctica as a continent for science and international cooperation. It also provides for the annual exchange of plans, personnel, scientific observations, and results. The United States, a leader in both the establishment of the treaty and in its continued operation, cooperates extensively with other treaty nations in scientific research and operational support.

The Antarctic Treaty consultative parties established a secretariat in Buenos Aires, Argentina to support Antarctic Treaty activities. Besides assisting with preparation for annual meetings, the Secretariat is also responsible for information related to the Treaty System and the Protocol. Its website, www.ats.aq, includes a database that describes operations and scientific activities for each nation in Antarctica and provides information about treaty-related activities.

U.S. Antarctic Policy is based on four core principles:

1. Non-recognition 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

USAP STRUCTURE

National Science Foundation

NSF has overall management responsibility for U.S. activities in Antarctica, which includes:

- preparing an annual budget and operational plans for consideration by the executive branch and for review and appropriation by Congress;
- obtaining advice from the scientific community, as needed, to develop scientific goals for NSF-supported research in Antarctica;
- evaluating and supporting proposals for research and education from U.S. universities, other research institutions, and federal agencies;
- detailed planning of logistics and transmitting logistics requirements, along with necessary funds, to elements of the Department of Defense and the United States Coast Guard;
- managing facilities, including the planning, design, engineering, construction, and maintenance of Antarctic infrastructure;
- developing a government support contract and managing a contractor charged with operating Antarctic stations and research vessels and providing related services, including construction;
- developing and implementing a comprehensive safety, environmental, and health program for U.S. activities in Antarctica;
- arranging cooperative scientific and logistics programs with other Antarctic Treaty nations;
- designating a senior U.S. representative in Antarctica and ensuring on-site management of field programs in Antarctica; and
- serving as a clearinghouse and source of information regarding Antarctic records, files, documents, and maps maintained within agencies and nongovernmental organizations.

OPP has day-to-day responsibility for these functions (see www.nsf.gov/geo/opp/about.jsp). The OPP address is 2415 Eisenhower Avenue, Suite W7100, Alexandria, VA 22314. Phone: 703-292-8030 Fax: 703-292-9081.

Support Contractors

Leidos is currently the prime contractor supporting the USAP. Leidos manages a team that includes partner companies performing specific support functions. Together, the companies comprising the support contractor are known collectively as the Antarctic Support Contract (ASC).

Antarctic Support Contract (ASC)

Leidos	ASC program management, science planning
Best Recycling	Waste management
Damco	U.S. and international cargo, Punta Arenas operations
Gana-A' Yoo (GSC)	Lodging, food/beverage, recreation, retail, post office
GHG Corporation	IT and communications
PAE	Infrastructure, operations, transportation, and logistics
PAE New Zealand	Christchurch operations
University of Texas Medical Branch	Medical qualification, clinic staff, and telemedicine
Parsons	Design, engineering, and construction management

The scope of work ASC is responsible for includes:

- supporting funded science projects and operating research facilities;
- purchasing, shipping, warehousing, and issuing equipment and supplies;
- designing, procuring, and constructing facilities;
- operating and maintaining Antarctic stations, research vessels, and field camps;

- arranging medical clearance and travel for participants;
- managing transportation of passengers and cargo;
- providing marine terminal operations; and
- ensuring compliance with safety, health, and environmental requirements.

ASC can be reached at 800-688-8606, fax 303-790-9130. The address is 7400 S. Tucson Way, Centennial, CO 80112-3938.

Other organizations are also contracted by the NSF, ASC, and the Department of Defense (DoD) to perform specific tasks, such as providing helicopter and fixed-wing aircraft support.

Department of Defense

The DoD provides logistical support to the USAP, with costs reimbursed by NSF, as directed by Presidential Decision Memorandum 6646 and in accordance with the NSF-DoD Memorandum of Agreement. This support includes:

- shipborne cargo transport 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);
- stevedore services (Navy Cargo Handling and Port Group);
- weather forecasting, air traffic control, ground-navigation-aid 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); and
- 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 stationed at Hickam AFB, Hawaii.

The Deputy Commander JTf-SFA (DCJTf) executes the DoD mission and manages DoD assets on behalf of CJTf-SFA. This individual 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.

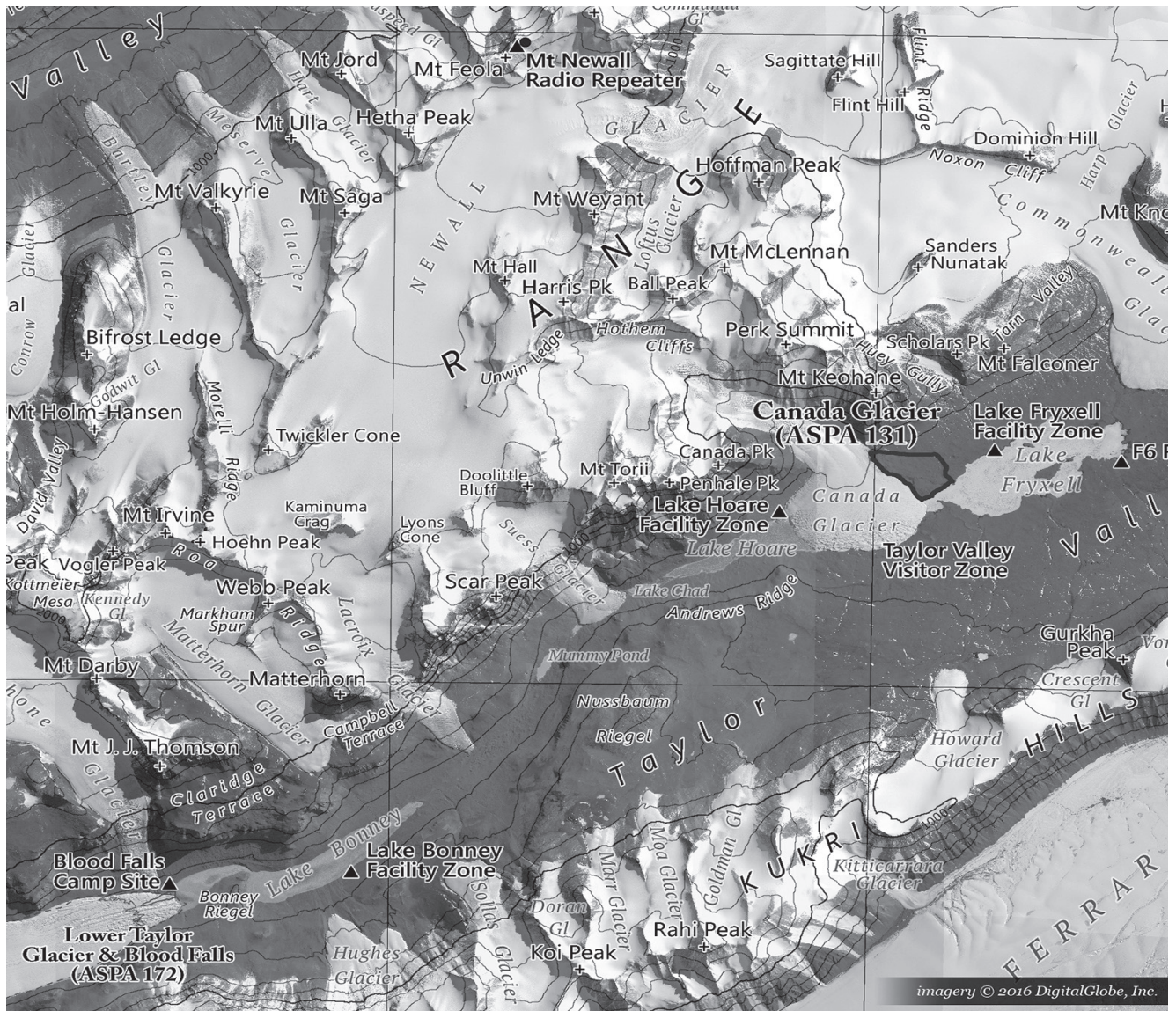
Department of Homeland Security

The Department of Homeland Security (United States Coast Guard) provides icebreaker services, reimbursed by NSF. These services include:

- breaking a channel through 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; and
- 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 providers contracted to the USAP. The U.S. Geological Survey (USGS) holds geodetic data that support mapping in Antarctica and administers Antarctic place-name decisions.



The Polar Geospatial Center (PGC) provides mapping, high-resolution satellite imagery, and geospatial support to the USAP. This is a map of the McMurdo Dry Valleys. Map by www.pgc.umn.edu.

Department of State

The Department of State is responsible for formulating foreign policy and providing foreign policy direction in regard to developing and implementing an integrated U.S. policy for Antarctica. This includes conducting foreign relations regarding Antarctica and adjudicating legal matters related to interpreting and implementing the Antarctic Treaty. The Department of State leads the U.S. delegation to the annual Antarctic Treaty Consultative Meeting, where the international community discusses a range of issues pertaining to Antarctica. The State Department is also responsible for informing other treaty parties of non-governmental expeditions to Antarctica that are organized in or proceed from the United States and determines, in consultation with the Environmental Protection Agency and NSF, whether expedition organizers are subject to U.S. environmental regulations.

International Cooperation

International cooperation between Antarctic Treaty nations in support of science is common. National Antarctic programs also cooperate with one another on logistics and operations when there are mutual benefits. 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.

The Scientific Committee on Antarctic Research (SCAR; www.scar.org) is a part of the International Council of Scientific Unions (ICSU). SCAR is a non-governmental body established to further the coordination of scientific activity in Antarctica, with a view to developing 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 scientific goals, and responds to special requests for scientific advice from the Antarctic Treaty organization. Members of the Polar Research Board, National Academies of Science (www.dels.nas.edu/prb) represent the United States on SCAR.

SCIENCE PROPOSALS AND GRANTS

OPP's mission is to promote and support excellence in scientific research and education in and about the polar regions, in accord with national policies. In its administration of the USAP, OPP's Antarctic Sciences Section receives proposals from scientists who wish to conduct research in Antarctica. Each proposal is peer-reviewed to provide detailed scientific advice to Antarctic Science program directors, who determine which research proposals are most deserving of support.

The NSF website (www.nsf.gov) provides additional information about NSF goals, strategic plans, budgets, and activities. The "Awards" tab has a searchable database of grants, including abstracts and award amounts. The "Polar Programs" section describes research facilities in polar regions, including USAP facilities, as well as Antarctic and Arctic research areas supported by NSF.

ANTARCTIC DATA REPOSITORIES

The American Geological Institute maintains the world's most complete Antarctic bibliography at www.coldregions.org. (NOTE: The bibliographies were last updated on September 30, 2011, except for limited additions regarding permafrost-related publications.) The U.S. Antarctic Data Coordination Center (www.usap-dc.org) collects descriptions of data sets compiled by USAP participants and enters them into the international Antarctic Master Directory. The Polar Geospatial Center (www.pgc.umn.edu) develops highly detailed Antarctic geospatial digital maps and aerial photographs and makes them available for scientists and the public. Topographic maps and aerial photographs of Antarctica are also available from the USGS at www.usgs.gov/products. In addition, the USGS has a searchable database of Antarctic place names, maps, and photographs at usarc.usgs.gov. With funding from NSF, the USGS, NASA, and the British Antarctic Survey have collaborated to provide the Landsat Image Mosaic of Antarctica (LIMA) at lima.usgs.gov.

USAP STATIONS AND SHIPS

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.

McMurdo Station

McMurdo Station (77°51' S, 166°40' E), the largest U.S. station in Antarctica, is situated on barren volcanic hills at the southern tip of Ross Island, about 3,827 km (2,378 mi) south of Christchurch, New Zealand and 1,350 km (839 mi) north of the South Pole. The station sits on the eastern shore of McMurdo Sound, the southernmost body of (occasionally) open water in the world. Mount Erebus, a 3,794-meter high (12,447 ft) active volcano, towers over Ross Island. On the west side of the Sound, the Royal Society Range and Mount Discovery, an extinct volcano, provide spectacular vistas. The mean annual temperature is -18°C (0°F). Temperatures may reach 8°C (46°F) in summer and -50°C (-58°F) in winter. The average wind speed is 12 knots, but winds have exceeded 100 knots.

McMurdo Sound is a historic area. In 1841, James Clark Ross brought his ships HMS Erebus and HMS Terror into the Sound, farther south than anyone had ever gone, before sailing eastward along a great wall of ice. He and his crew were the first humans to see the island and the ice shelf that both now bear his name. In 1902, Robert F. Scott wintered the HMS Discovery in Winter Quarters Bay, adjacent to the station. Both of Scott's (1901-1904 and 1910-1913) and Ernest Shackleton's (1907-1909 and 1914-1916) expeditions used the area as a base to deploy sledging parties for both scientific exploration and attempts to reach the South Pole. The huts these expeditions built still stand today at Hut Point, Cape Evans, and Cape Royds.

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 and overland resupply of inland stations and field science projects. The station is also the waste management center for much of the USAP.

McMurdo has two airfields. Phoenix Airfield, located about 18 km (11 mi) from McMurdo on the McMurdo Ice Shelf, accommodates wheeled aircraft. Williams Field Skiway, located about 15 km (9 mi) from McMurdo is for ski-equipped aircraft only. McMurdo also has a heliport to support helicopter operations.

Approximately 90% of USAP participants reside in or pass through McMurdo Station. The austral winter population ranges from 150 to 200, with the summer population varying between 800 and 1,000. The station has routine weekly flights to and from New Zealand during the austral summer (October - February), a period called "Mainbody," with less frequent flights during the winter months (March - September).

The Albert P. Crary Science and Engineering Center (Crary Lab) serves as the primary laboratory and research facility. The Crary lab is a state-of-the-art facility that supports scientists across a wide range of disciplines, including biology, geology, physics, chemistry, and system sciences. The facility is named in honor of the geophysicist and glaciologist Albert Paddock Crary (1911-1987), the first person to reach both the North and South Poles.

The lab has more than 4,320 m² (46,500 ft²) of working space and provides researchers with general use consumables, glassware, equipment, instrumentation, chemicals, cryogenics, cold storage units, laboratory materials, and general laboratory personal protective equipment (PPE). Specialized gear and specialized PPE must be brought to McMurdo by deploying science teams.

Phase I, South Side of the lab provides users with a library, shared-use computers, conference rooms, administrative and staff offices, shared equipment rooms, a cargo receiving area, and equipment/material storage areas. Phase I, North Side contains laboratories for biology and chemistry work; microscope rooms with light, petrographic, and fluorescent scopes; office spaces; environmental and walk-in freezer rooms; and a staging area equipped with a carpentry workbench. Phase II (both South and North Sides) contains laboratory space for physics, geology, glaciology, and engineering work, rock sectioning rooms, staging areas, cold rooms for ice core work, office spaces, and the information technology (IT) office. Phase III contains aquarium tanks, a flow-through seawater system, and wet laboratories designed to support live animal work and pre-deployment testing of marine equipment and submersible robotics.

The Crary Lab is managed by ASC, with direction from NSF. The lab staff is composed of facilities engineers, IT support personnel, materials and supply specialists, lab supervisors, a cryogen and chemical specialist, a research associate, and an instrument technician. These personnel assist the hundreds of scientists who move through the station each year. They also allocate and distribute resources and ensure scientific operations comply with safety, environmental, and health requirements. All scientists are expected to arrive at McMurdo trained in their respective disciplines or accompanied by a team member who can provide guidance.

Scientific posters and displays are found throughout the lab, and the McMurdo community is encouraged to visit the facility to learn more about USAP research. During the austral summer, the laboratory staff provides Sunday tours. Science lectures are presented by visiting researchers twice a week, and occasionally for night shift workers. Special events and tours are often held throughout the season to further encourage community and scientific interaction.

The Movement Control Center (MCC) provides terminal operations for all continental cargo and passenger movements. MCC personnel coordinate passenger manifesting and transportation to and from the McMurdo area airfields, support cargo pallet building, and assist with airplane load planning. MCC personnel are also responsible for loading and unloading fixed-wing aircraft, as well as for operating the McMurdo-area shuttle vans.

Amundsen-Scott South Pole Station

South Pole Station is located at the geographic South Pole, on the polar plateau, at an elevation of 2,835 m (9,300 ft) above sea level. The station sits on an ice sheet that is 2,700 m (8,858 ft) thick and drifts with the ice at about 10 m (33 ft) a year toward the Weddell Sea.

The mean annual temperature is -49°C (-56°F). Average monthly temperatures range from -28°C (-18°F) in the summer to -60°C (-76°F) in winter. The record high of -12.3°C (9.9°F) was recorded in December 2011, and the record low of -82.8°C (-117°F) was recorded in June 1982. The site has very low humidity, and precipitation is only about 20 cm of snow (8 cm water equivalent) per year. Drifting is the primary cause of snow accumulation around buildings. Average wind speed is 10.8 knots.

The original station was built in 1956-1957 and is 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 current station was dedicated on January 12, 2008. The winter population is around 45, and the summer population averages 150.

Most USAP personnel reach the South Pole from McMurdo Station via LC-130 ski-equipped aircraft, whereas most cargo and fuel are transported via surface traverse from McMurdo Station. The short austral summer, when most activity occurs, is from late October through mid-February. The station is isolated for the rest of the year.

Research at the South Pole includes astronomy, astrophysics, aeronomy, auroral and geospace studies, meteorology, geomagnetism, seismology, earth-tide measurements, and glaciology.

Palmer Station

Palmer Station, in the Antarctic Peninsula region, is named after Nathaniel B. Palmer, the American sealer who pioneered exploration of the Peninsula in 1820. The station is located on Anvers Island at $64^{\circ}46'$ S, $64^{\circ}03'$ W and consists of two major buildings and several small ones. There is no airfield for either helicopters or fixed-winged aircraft.

The climate is milder than that of the other U.S. Antarctic stations. Temperatures in the summer range from just below freezing to above 4°C (40°F). Winter temperatures range from 0°C (32°F) to -10°C (14°F). Palmer Station is often windy and wet, with both snow and rain. The water equivalent in snow and rain averages 81 cm (32 in) per year. Wildlife is abundant near the station, which makes it superbly located for ecosystem research. 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 period of winter isolation.

The science laboratories consist of 10 laboratory bays, an aquarium system with seawater circulating through a series of indoor and outdoor tanks, and two environmentally controlled cold rooms. There is also a separate Terra lab that hosts atmospheric, meteorological, and geological experiments. Long-term climatologic and seawater data are available at amrc.ssec.wisc.edu.

Research Vessels

The *RVIB Nathaniel B. Palmer* (NBP) is 94 m (308 ft) long and is able to break three feet of ice at a continuous forward speed of three knots. The NBP is a modern, multi-disciplinary research vessel containing six laboratories with a combined space of 353.5 m^2 ($3,800\text{ ft}^2$). It can accommodate 39 scientists and ASC personnel and operates throughout the Southern Ocean.

The *ASRV Laurence M. Gould* (LMG) is 70 m (230 ft) long and is capable of breaking one foot of first-year ice while maintaining continuous forward progress. The LMG has berthing space to accommodate 28 scientists and ASC personnel. There are an additional nine bunks for passengers transiting to Palmer Station. The LMG transports personnel and cargo to and from Palmer Station and supports research in the Antarctic Peninsula region.

FACILITY ADMINISTRATION

NSF Representative in Antarctica. Each austral summer, the OPP director designates an OPP staff member as senior U.S. representative in Antarctica (NSFREP), with an office in the Chalet at McMurdo Station. The NSFREP ensures that U.S. policy and directives for the USAP are implemented, represents the U.S. as it interacts with foreign nations in Antarctica, ensures that U.S.-sponsored Antarctic activities are carried out in a manner consistent with

the Antarctic Treaty, and takes appropriate action in personnel matters not subject to military or other authority. The NSFREP is NSF's principal representative for implementing planned field operations, and the position coordinates and establishes on-site priorities for field support of USAP activities.

NSF Science Representative in Antarctica. The NSF science representative (SCIREP) is NSF's principal representative for Antarctic science activities. The SCIREP interacts with investigators and the NSFREP to set science-support priorities, gives on-site direction to the ASC laboratory services manager on science matters, and serves as the NSF science spokesperson. The position is occupied by different NSF Antarctic Science program directors over the course of the austral summer. At McMurdo Station, the SCIREP has an office in the Crary Lab.

NSF McMurdo Station Manager. The NSF McMurdo Station manager is a year-round position whose function is to oversee the operation of station facilities and serve as deputy marshal. The station manager interacts with all organizations represented at McMurdo and also manages emergency situations. In the winter, the NSF station manager is the ranking U.S. government official at McMurdo.

Commander, Joint Task Force - Support Forces Antarctica (CJTF-SFA). This individual is responsible for all DoD personnel and material assets that support the USAP. 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 JTF-SFA.

ASC Area Manager. ASC has area managers at McMurdo, South Pole, and Palmer Stations during the austral summer. These individuals, in conjunction with the senior ASC representative, oversee all contractor support activities. The area manager may be supplemented with a site manager during the austral summer, depending on the station and the scheduled workloads.

Station Science Leader. The NSF designates a science leader for South Pole and Palmer Stations. The station science leader is directly responsible to the OPP when no NSF representative is present. 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 station manager to arrange it. The station science leader clears official messages concerning research projects before they are dispatched.

ASC Winter Site Manager. This position is responsible for all station support activities during the austral winter, including local support for science projects.

Marine Project Coordinators (MPCs) are provided by ASC on both research vessels. MPCs 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.

USAP Statistics

- Approximately 3,000 participants work at U.S. Antarctic stations and field camps each year.
- Approximately 90% of the participants travel through New Zealand.
- Participants originate from all over the U.S., with Colorado having the highest representation.
- Approximately 75% work during the austral summer and 25% during the winter.
- Approximately 33% are female and 10% are minorities.
- More than 700 scientists conduct research on more than 200 different science projects each year in Antarctica.

CHAPTER 2: Before You Leave Home



Adélie penguins at Cape Royds, Ross Island. Photo by Mike Lucibella.

You will travel through at least one foreign country en route to Antarctica, and once there you will be living in a region that does not provide many modern conveniences. Planning ahead is essential and will contribute greatly to your effectiveness and comfort. You will require a passport and you will have to pass physical and dental examinations. Please read the following information carefully. Your supervisor, science team leader, or ASC point-of-contact (POC) will answer any 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 are limited. USAP stations at McMurdo, South Pole, and Palmer are equipped and staffed to provide the routine ambulatory care that would be expected in a U.S. clinic. They also have the capability to stabilize and manage a range of emergency medical and dental conditions before patients are transported off the continent for further care. However, medical evacuations are costly, take a lot of time and effort, and place others at risk. Weather may make travel impossible for extended periods of time, and evacuations from remote camps and ships present additional difficulties. Therefore, the physical qualification (PQ) process administered by ASC seeks to screen out people with conditions that cannot effectively be managed on the Ice or aboard ship.

The PQ process applies to all grantees, ASC employees, contractors, military personnel, and guests of NSF. The U.S. will accept the PQ determinations of some other National Antarctic Programs. If you are not a U.S. citizen or permanent resident, you should contact NSF to determine the process you will need to follow. If you are PQ'd under the USAP, your PQ is also valid for deployment with the U.S. Arctic program.

Deployment clearance begins when ASC 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 is located at the University of Texas Medical Branch (UTMB) in Galveston, Texas. Upon

authorization, UTMB sends each candidate an e-mail containing information on how to access medical forms and instructions online.

Note that the PQ process may change as new information on risks or treatment options arise. Therefore, you should only obtain the tests required in your packet, even if different tests were required for a previous deployment. **The USAP will only reimburse you for the tests and exams that are indicated as necessary in your packet.**

Please read all of the instructions. Information in the packet will answer most questions about how to schedule exams and return the completed information to UTMB. If you have further questions or special circumstances, please contact your POC. UTMB contact information is included in your deployment packet.

ASC Employees: If participants have their own insurance, they should submit expenses to their insurance first. ASC will reimburse participants for approved out-of-pocket expenses. Receipts must be submitted to the hiring teammate (e.g., PAE, GSC). **NOTE:** ASC employees are required to use Labcorp for testing. Please contact UTMB if you need to have a Labcorp packet sent to you. You can take this packet to your local Labcorp location to have your labs drawn.

Grantees: Grantees should also first submit expenses through their own insurance and then may seek reimbursement for their physical and dental examinations from their NSF grant. Work with your principal investigator (PI) for procedures.

NOTE: Treatments to resolve medical or dental conditions in order to meet USAP screening criteria are not reimbursable.

You will mail or fax the completed documentation to UTMB. If your medical providers have questions concerning the deployment exam or required labs or tests, direct them to the Dear Doctor and Dear Dentist letters in the packet for detailed instructions. Doctors and dentists may also contact UTMB directly.

Candidates are responsible for scheduling examinations early to ensure all information is provided to ASC **no more than eight weeks** after the PQ packet is received. You should start the process as early as possible, in case additional testing is required for your clearance. Ensure that contacts at UTMB and ASC know how to reach you at all times (via phone and/or e-mail) should additional information be required. **Make sure the information you submit is complete, and submit it early to allow time to resolve any problems that might arise.**

All medical information, laboratory results, X-rays, dental exams, releases, and personal information forms are the property of the USAP and will not be returned to candidates. Make copies of all the paperwork for your own files.

Waivers

Candidates who do not meet USAP criteria and are determined “Not Physically Qualified” (NPQ) may request a waiver, which triggers a NSF review of their condition. UTMB will provide information on how to apply for a waiver with the NPQ notification. Be aware that any additional testing or treatment needed for a waiver will 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.

Immunizations

If you are planning to travel after your deployment, you may need additional immunizations. Consult your physician or the Centers for Disease Control (CDC) at 800-232-4636 or at www.cdc.gov/travel/default.aspx for current immunization recommendations for the areas where you plan to travel.

If vaccinations or medications (e.g., malaria chemoprophylaxis) are required before your travel, you must purchase them before leaving home and take them to the clinic upon your arrival on station. Any vaccinations 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.

Privacy Act Compliance

All medical information gathered from you by NSF or its contractor is maintained in accordance with the Privacy Act of 1974 (Public Law 93-579). NSF's authority to collect medical, dental, and psychological information is derived 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 participating in the USAP.

First Steps:

1. **PQ e-mail** - print online forms, make and attend medical appointments, mail completed paperwork to UTMB **no later than** eight weeks after receipt.
2. **Deployment e-mail** - print and complete forms, sign papers, mail completed paperwork as soon as possible to ASC Travel.

DEPLOYMENT PAPERWORK

Once you have been identified as a USAP participant (or alternate), you will receive an e-mail containing a link to the Deployment Packet. It will be sent a few weeks after you receive the PQ e-mail. Please review this paperwork carefully. It includes information you need to know before you get to Antarctica, and it includes forms you will need to fill out and return to ASC Travel.

Travel Arrangements

ASC Travel begins work on your ticketing and itinerary 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 to you

until you have: 1) completed the physical qualification process and been medically approved for deployment, 2) completed and signed all deployment paperwork and mailed it to the ASC Travel office, and 3) provided proof that any necessary visas have been obtained.

You will travel through New Zealand, Chile, or other countries en route to Antarctica, using airline tickets provided by the USAP. The International Air Transportation Fair Competitive Practices Act of 1974 (better known as the Fly America Act) requires the use of U.S. carriers for USAP-supported travel. ASC Travel 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 the travel paperwork you submit. Any deviation from the direct route must be authorized in advance by a NSF program manager or ASC management. To get the best fare, airline tickets are purchased at least three weeks in advance.

Every effort is made to obtain flight dates as requested, but this is not always possible. When ticket information is sent to you, make sure to check the date and time of travel as it may not be what you requested. Also make sure the name on your tickets corresponds to the one in your passport (i.e., no nicknames). If your tickets have discrepancies, contact ASC Travel immediately.

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 a Tuesday, you will arrive in New Zealand on Thursday. On your return, you will leave New Zealand and arrive in the continental U.S. on the same day.

Your **Airport of Departure (AOD)** is the location you designate as your residence on either the SIP or your deployment paperwork, and it 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 before re-deployment by ASC management.

Travel 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.

ASC employees: Before deployment, contact your company's Human Resources or Finance department with questions regarding expense reimbursement. Take any previously unreimbursed expense receipts with you to Antarctica, as you will be able to complete expense reimbursement there. Your particular employer will advise you if anything additional is required.

Meals and Lodging in Antarctica

Meals and lodging are provided at no charge to participants at all USAP stations, aboard the research vessels *Laurence M. Gould* and *Nathaniel B. Palmer*, and in all field camps. If you are traveling with foreign expeditions or private operators, be prepared to pay meal charges aboard their ships.

PASSPORTS, VISAS, AND PERMITS

Passports

You must have a valid passport before leaving the United States. Obtaining a passport is your responsibility, and it typically takes at least six weeks. Go to <https://travel.state.gov> for information on how to apply for a passport. If you are a federal employee, your agency must obtain an official passport by contacting the Department of State. **Bearer of official passports require visas in some countries that may not require visas of regular passport bearers.**

If you already have a passport, make sure that it will not expire during your overseas stay. **Airlines require that your passport remain valid for at least six months beyond your 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 replacing passports lost in New Zealand or Antarctica can be done via the Christchurch Travel Office. ASC's South American agent, Damco, provides similar assistance for Peninsula-based participants.

Visas and Permits

The requirements of the four countries through which most USAP travelers pass are explained below. **Any necessary visas should be obtained before leaving the United States by contacting the embassies of the countries to be visited.** Failure to do so will complicate or delay your travel. **The USAP does not pay for nor provide assistance in obtaining visas.** If your New Zealand or Chilean visa application requires an itinerary and letter confirming your participation in the USAP, contact ASC Travel and the required documents will be provided.

New Zealand: U.S. passport holders do not need a visa to enter New Zealand. However, a visitor's permit is required. ASC will provide all ASC-ticketed participants with an official letter requesting a 12-month visitor's permit, and the permit will be issued at the airport upon your arrival. Be aware that the total time spent in both New Zealand and Antarctica is recorded by New Zealand Immigration as time spent in New Zealand. See Chapter 5: "Traveling Through New Zealand" for more information.

Chile: If you will be traveling with a standard U.S. passport, you do not need a visa to enter Chile. Bearers of official passports need a visa, which is 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 and enclose your passport and a return envelope. For more information, go to www.chile-usa.org.

Argentina: If you will be traveling with a standard U.S. passport, you do not need a visa to enter Argentina. Bearers of official passports need a visa, which is 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 and enclose your passport and a return envelope. For more information, visit www.embassyofargentina.us.

Australia: USAP participants with a U.S. passport who have been ticketed by ASC and routed through Australia en route to New Zealand do not need a visa if they are remaining inside the international terminal of the airport. If you plan to leave the airport or plan leisure travel through Australia, you must obtain a visa. Usually, this can be accomplished online, 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 usa.embassy.gov.au.

Marine Crew Visas: Sea travel requires a Marine Crew Visa (MCV Class 988). If you are embarking or disembarking a ship in Hobart, the MCV must be obtained before you arrive in Australia. The application can take 5-30 days. ASC Travel can assist in this process.

Visas for non-U.S. citizens.

Foreign nationals residing in the U.S. are responsible for obtaining the appropriate visas before departing for Antarctica. Contact the embassy of the country through which you will pass to learn the requirements. Allow up to eight weeks for the visa to be processed. Remember, no tickets will be purchased until visas are obtained and proof of that provided to ASC Travel.

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

Resident aliens should determine if there are any other regulations governing absence from the U.S. 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 a new visa.

U.S. visas for foreign nationals. If you are a foreign national not residing in the U.S. and will be traveling to the U.S. after you have been to Antarctica, please review the Department of State Visa Services internet information at travel.state.gov for visitor visa and student visa information and requirements.

CUSTOMS

While in transit through foreign countries, your luggage will be inspected by Customs officials and may be screened by dogs that are trained to detect controlled substances and agricultural products. In fact, thorough searches of luggage, as well as body searches, are routinely conducted by Customs authorities at the time of entry. Importation and possession of controlled substances without prescriptions, marijuana, weapons (especially firearms and switchblade knives), pornography, and certain animal/agricultural products without special approval are strictly prohibited when entering New Zealand and Chile. In New Zealand, violators will be instantly fined NZ\$400 or more. Transportation of the above-mentioned items aboard U.S. military vessels and aircraft is also prohibited by federal law.

New Zealand has strict limits on what may and may not enter the country. Items are restricted if they are known to carry pests or diseases that could endanger native plants and animals. Travelers must declare all restricted items when entering New Zealand. 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 without declaring them will be prosecuted and are subject to severe and immediate penalties. For more information, visit www.mpi.govt.nz.

Customs regulations 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.

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

New Zealand: www.customs.govt.nz

Chile: www.aduana.cl

Australia: www.homeaffairs.gov.au/trav/ente/duty-free-concessions

Argentina: argentina.visahq.com/customs

In addition to personal effects, each passenger is entitled to the Visitor Concessionary Entry of items that a visitor normally carries, such as a laptop computer, cameras, and a smartphone. These goods must be for personal use, and they must be taken with the passenger when he or she leaves the country. There are heavy penalties for concealing dutiable goods (e.g., cameras, electronics, binoculars) from Customs or for making false declarations. It is against the law to sell or give away dutiable goods without paying duty. In addition, taxes may apply to items that are staying in New Zealand. The New Zealand Customs Service does not assess a tax or duty for items going to Antarctica.

If you plan on carrying any single item worth more than US\$1,000, excluding personal items such as laptops and cameras, please indicate that on the Trip Details form in the deployment paperwork you will receive from ASC.

Note: ASC does not provide personal property insurance.

Customs and Your Equipment

All scientific and technical equipment should be shipped, either from the U.S. or from Antarctica, as cargo. Cargo is designated NSF and hence is exempt from duty and taxes. If you decide to ship or carry technical equipment to Antarctica through another country as accompanied baggage, you must prepare in advance in order to avoid two possible costs: 1) paying import duty or posting bond to a foreign country (even though your equipment is only transiting through), and 2) paying duty when you bring the equipment back into the U.S. There are several methods of protecting against payment of unwarranted duty (for which you would not be reimbursed):

- 1. Registry with U.S. Customs.** Before leaving the U.S., you can register scientific and technical equipment (including cameras, personal computers, spare parts, or other equipment) with U.S. Customs by completing U.S. Customs Form 4457. Contact Customs at any U.S. international airport. Also, Coastal Customs Registration Centers are located in the World Trade Center in Los Angeles. Should you wish to register your items with Customs, you must do so in person, and you must possess the articles and serial numbers to be registered. Prepare a list of items (with serial numbers and/or appropriate documentation) before your arrival at the registration center. If you do not have a receipt, or the item was a gift, Customs will determine the value. Registering your items will ease re-entry into the U.S.
- 2. Letter from your institution.** When carrying scientific 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 sufficient for transiting through New Zealand.
- 3. Temporary importation of your equipment into New Zealand.** There is a customs law for non-military, USAP 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 that lists the equipment and its value and which states 1) that the goods will not be left, sold, or disposed of in New Zealand without the written permission of New Zealand Customs; and 2) that the goods listed will be exported from New Zealand within 12 months of their first landing. Appropriate forms must be obtained from ASC Travel in Denver before you depart for New Zealand, and they must be returned to ASC Travel upon your return to your home institution.

NOTE: Technical event participants fall into a special category. Contact ASC Travel.

- 4. Carnet de Passage.** Visitors from the media and other non-grantee organizations are not issued NSF letters for their professional equipment. To avoid paying 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. Obtain the Carnet de Passage for Temporary Admission before you leave for Antarctica. If you have a carnet, you do not need to register items with U.S. Customs. In the United States, the U.S. Treasury has appointed the U.S. Council for International Business to issue carnets: www.uscib.org/ata-carnet-export-service-ud-718/.

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.

Power of Attorney

You may wish to establish a general or 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 not accept a power of attorney document. They may require you to make special arrangements with them before others may withdraw your funds. Individuals may be reluctant to communicate 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. 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 a will prepared before you deploy to 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. Settle legal matters before leaving for Antarctica.

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 election authorities. However, keep in mind the uncertainties of mail in and out of Antarctica. Voting regulations are frequently updated, and the most current information for U.S. citizens interested in voting from an overseas location can be found at www.fvap.gov. Be sure to check the absentee voting requirements of your home precinct before you leave for Antarctica.

Personal Finances

Paychecks are not sent to Antarctica. All employees are required to have a U.S. bank account for the electronic direct deposit of payroll funds. ASC employees should refer to the paperwork received from their employer for detailed information about travel funds, marine compensation, and other pay-related issues.

When you deploy, take enough money with you to meet all eventualities. You should plan to have a minimum of \$500 for your trip to Antarctica. This amount will vary with personal spending habits, length of stay and travel delays. Ensure you plan for the purchase of personal items (e.g., soap, toothpaste, souvenirs) in Antarctica. Most foreign banks will not cash personal checks or cashier checks drawn on your home bank. Neither NSF nor ASC representatives in New Zealand will advance funds, nor will they accept a personal check.

There is an ATM at McMurdo Station but none at the other Antarctic stations or onboard the research vessels. Palmer is 100% cashless (including checks). Bring a credit or debit card. Conversely, South Pole accepts ONLY cash.

International credit cards (e.g., MasterCard, Visa) are generally accepted in New Zealand and South American countries. NOTE: Make sure that your ATM and credit cards do not expire while you are away from home. Notify your bank(s) that you will be traveling internationally before you leave the U.S.

Banking in New Zealand. Banks in New Zealand will exchange U.S. cash and travelers checks for New Zealand currency. You can also withdraw funds from banks using your credit cards if you have previously established a personal identification number (PIN) with your bank. ATMs marked with "Plus" or "Cirrus" (located in both the Auckland and Christchurch airports) accept credit cards with a PIN, as well as ATM and debit cards.

Banking in Chile. In Santiago, money exchange is available only in the international terminal (not the domestic terminal). There are ATMs located throughout the airport, but be aware that there may not be time to exchange money between your arrival in Santiago and your departure to Punta Arenas. However, U.S. currency can be used for taxes and fees. Banks in Punta Arenas are closed half of Saturday and all of Sunday, so plan accordingly. There are ample ATMs throughout Punta Arenas. ATMs marked with "Plus" or "Cirrus" accept credit cards with a PIN, as well as ATM and debit cards.

Joint bank accounts. If funds need to be drawn 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.

Debt payments. Arrange for the regular payment of insurance premiums and any other term debts that you may have while in Antarctica. Mail service to McMurdo and Palmer Stations during the austral winter is limited, and it is not available at all at South Pole Station (February to November). Mail delivery to all stations in the austral summer is erratic. DO NOT rely on the mail service to pay bills from Antarctica (see Postal Services in Chapter 6).

Income Tax

It is each participant's responsibility to ensure that U.S. taxes are filed each year. For federal income tax returns, you may request a filing extension from the district director of the Internal Revenue Service. However, interest is charged on the unpaid balance of your tax, beginning on April 15.

You can file your income taxes online (federal, state, and local) or, if you have arranged for someone to have a special power-of-attorney, he or she may file for you. 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, you are still responsible for paying any penalties.

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

ASC Employees: Federal and state income taxes are withheld from all ASC employee paychecks.

Insurance

Personal Baggage Insurance. Baggage insurance is provided if ASC purchases your airline ticket. If a claim needs to be processed, it is your responsibility to contact the airlines and complete the required paperwork. Notify ASC Travel and keep them posted on the situation. Loss protection is limited and is only provided during commercial flight segments.

Personal property and cargo insurance. To protect against loss that occurs during transit to or from the airport, while in a hotel, or during your stay in Antarctica, it is your responsibility to retain personal property insurance 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 within the scope of their employment. Although every effort is made to care for cargo (personal and scientific), the USAP 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 determine what you should have.

- 1. Health insurance.** Although medical personnel are available at each U.S. Antarctic station, the medical clinics are for urgent care and emergency needs only. The clinic physician is not to be considered your primary care physician. You will be responsible for any costs of hospitalization, medical care, laboratory fees, and other charges incurred outside of Antarctica. Before leaving the United States, examine your health coverage and purchase additional insurance if you need it.
- 2. Life insurance.** Federal employees' Civil Service policies remain in effect during Antarctic duty. However, NSF does not provide life insurance for its grantees in Antarctica. Therefore, you are urged to examine your life insurance coverage before departure to ensure you are adequately covered. You should also check with your institution to see whether its group policies provide coverage or exceptions for travel and work in remote regions. In making arrangements for insurance, keep in mind that Antarctic flights are generally considered non-scheduled military airplane operations.

3. **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 to Antarctica or during flights in Antarctica.
4. **Equipment insurance.** You should also have insurance for project equipment, as determined by the project's principal investigator (PI).
5. **Worker's Compensation.** If you will be working for a PI as a volunteer, worker's compensation coverage may not be provided.

ASC Employees

Employees may be eligible to enroll annually in various insurance options offered by their employer (e.g., Leidos, PAE, GSC).

1. **Health insurance.** If you are required to leave Antarctica for medical treatment, as approved by the ASC Medical organization, you are responsible for your medical bills unless the injury or illness is deemed work-related. However, the cost of extracting you from Antarctica is borne by your employer.

NOTE: It is highly recommended that you carry a form of medical insurance that provides coverage if you travel internationally after deployment. If you have enrolled in your employer's medical insurance, COBRA will be available upon completion of your contract. If medical insurance was not elected, COBRA will not be available.

2. **Worker's Compensation.** Any ASC employee who is injured while in Antarctica may be covered by worker's compensation. Within one day of the incident (regardless of the severity), a Medical Report Form must be completed by the medical staff and submitted to the designated person at the station or vessel. If you feel you will need treatment after redeployment from Antarctica, you should contact your employer's human resources office to establish a claim before leaving Antarctica or before disembarking a vessel. If the injury cannot be treated on station or on the vessel (as determined by ASC Medical), you may be transported off the continent or vessel to be evaluated. Keep in mind that worker's compensation covers only injuries. Medical issues that are pre-existing or are not work-related in nature (e.g., appendicitis, kidney stones) are not covered by worker's compensation. Your insurance policy through your employer or through an outside carrier may cover different conditions.

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, USAP management will not notify your family of the injury if you are physically capable of contacting them on your own. In the event you are physically unable to do so, USAP management will notify your emergency contact.

CHAPTER 3: How and What to Pack



USAP participants carry their bags to the elevated station after arriving at the South Pole. Photo by Mike Lucibella.

There will be several stops on your journey to Antarctica. Various transportation providers (U.S., foreign, military, vessel) have different baggage allowances and restrictions. Please adhere to the limitations set forth by each carrier. In New Zealand or Chile, you will pick up your USAP-provided extreme-cold-weather (ECW) clothing. You may require additional, personal items for the various climates, types of work, and activities you will encounter. Planning is 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. It is important to review the airline's baggage limitations and fees before departure. The baggage allowance on the flight from Christchurch to McMurdo differs from the commercial allowance.

At the time this book went to press, airline baggage allowances were two bags, 23 kg/50 lbs each, plus your carry-on. Updates regarding travel are posted on each airline's website and should be consulted before departure.

Flights from Christchurch to McMurdo Station

All personnel, summer and winter, have the same luggage weight allowance when flying from New Zealand to McMurdo Station. **A maximum of 39 kg/85 lbs for your luggage plus 7 kg/15 lbs for carry-on is allowed for this leg of your journey.**

NOTE: The ECW clothing issued to you in Christchurch weighs about 10 kg/22 lb. You are required to wear certain items on the flight. The rest of the issued clothing (about 3 kg/7 lb) will be considered part of your checked baggage.

Research Vessels and Palmer Station

There is no weight restriction for personal baggage on the research vessels. However, you should still indicate whether you have excess baggage, as storage space on the vessels is at a premium.

Grantee and Technical Event Excess Baggage

The program does not reimburse costs for excess baggage. However, you should indicate on the Trip Details form if you are carrying excess baggage, as this allows the Christchurch Travel Office to plan weight and balance for flights to McMurdo.

Mailing Excess Baggage

If you need to take more than the allowed weight to McMurdo or South Pole, you can mail boxes to yourself at the Army/Air Force Post Office (APO) address in Antarctica. See Chapter 6 for more information about mail services and restrictions.

PERSONAL PRESCRIPTION MEDICATIONS

You are responsible for obtaining a supply of your regular prescription medications that is sufficient to cover the time you will be deployed. The station doctor is not your primary care physician and cannot refill your prescription medication. You will not be allowed to winter-over unless you have enough of your regular medications to last through the winter. Carry a copy of each prescription provided by your personal physician.

You are also responsible for complying with all U.S. and international laws when exporting and importing personal medications. Please seek guidance from the U.S. Food and Drug Administration (www.fda.gov/drugs/default.htm) and the U.S. Drug Enforcement Administration (www.justice.gov/dea/index.shtml) to determine whether your specific medication is controlled and may require special export or import authorizations.

Participants working at McMurdo Station, South Pole Station, or area field camps

New Zealand customs laws only allow for three months of prescription medications (e.g. thyroid medication) and one month of controlled prescription medications (e.g. codeine) to be hand-carried through New Zealand.

New Zealand law requires the following for transporting controlled drugs into the country:

- You must declare the controlled drugs on your passenger arrival card.
- If you have more than one month's supply, you need an import license from the Ministry of Health.
- You must prove to Customs that the drug is required for treating your medical condition, and that it has been lawfully supplied to you in the country of origin. A letter from your doctor or a valid label on the container with your name and the quantity and strength of the drugs would be sufficient.

All medications must be in properly labeled pharmacy containers. 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 any remainder to reach you via mail 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 will be deployed for longer than your hand-carried medications will last, your doctor or pharmacy should mail additional or refill medications through the APO in small, priority-mail envelopes to ensure their timely arrival. Medicines should never be packed inside a larger box containing other items, as the box may not make it to Antarctica, whereas a small envelope, which is considered flat mail, likely will. Medicines destined for summer participants should be mailed after Labor Day, or they will be returned.

If you need medications urgently while on station, contact the medical clinic staff and they will provide options on how to get it through Christchurch. In an emergency, you can also contact chc-couriernotifications@usap.gov with details of your situation. 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.

Participants working at Palmer Station

Chilean customs laws do not restrict the amount of personal medications hand-carried through Chile, so if you are deploying through Chile you can take the amount of medication you need for the deployment.

WHAT TO PACK

Below is a list of some personal items you may want to consider taking to Antarctica. The list is meant as a guide only and should be modified for individual needs and preferences. Wintering personnel, for example, should increase some quantities, while official visitors and others who are scheduled for only a few days in Antarctica will require less. **Your point-of-contact (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 be working.**

You should bring your own supply of over-the-counter medications. There may be some special or brand name products, such as vitamins, cold remedies, aspirin, or toiletries that you may require during your deployment. The station store at each facility carries a limited supply of toiletries, gift items, batteries, snacks, and soda, but store stock is largely meant to supplement items you should bring with you. 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.

Toiletries. Antarctica is very dry, and it is recommended that you use hand lotion and lip balm. The station stores carry only a limited selection of these items, along with soaps, toothpaste, and other toiletries, so you should bring your own. There is no store aboard the research vessels. NOTE: Do not bring personal products that contain microbeads, such as some soaps, body washes, toothpaste, and cosmetics. Under U.S. law, the manufacture and sale of such products are being phased out.

Pain relievers. 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

Packing Suggestions

Clothing:

- Boots and shoes; work, hiking, insulated as needed for your work
- Prescription eyeglasses (if required), extra pair
- Gym clothes/shoes
- Jacket; warm windbreaker
- Neck gaiter
- Pajamas/robe
- Pants/jeans
- Shirts; light wool or fleece, long-sleeve (machine washable)
- Slippers for indoor wear
- Sock liners; polypropylene or Merino wool to wick moisture away from feet
- Socks; heavy to wear outdoor with boots; Merino wool or nylon
- Sunglasses
- Swimsuit (for sauna)
- Towel and washcloth
- Long underwear; thermal top/bottom; both base and mid-weight layers; polypropylene, Merino wool, or silk
- Underwear; regular
- Flip flops for shower

Other Items:

- Alarm clock
- Batteries, rechargeable/charger
- Camera/camera batteries
- Coffee mug
- Day pack
- Hair dryer
- Hobby, craft items (small)
- Laundry bag
- Lip balm
- Lock, combination or key
- Memory sticks or external hard drive
- MP3 player/extra earbuds
- Ethernet adapter for your laptop
- Musical instrument/spare parts
- Prescription medications
- Skis; skate/cross country
- Plastic food containers with lids to hold left-over food in your dorm room mini-refrigerator
- Toiletry articles; toothpaste, dental floss, comb, razor, shave cream, deodorant, soap and skin lotion for dry skin, tampons, a carrying case
- Vitamins
- Water bottles

Station Store

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

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

relievers to Antarctica. If you re-pack them to conserve space, retain their original labels to avoid problems with Customs.

Vitamin D3. Recent research suggests that maintaining an adequate level of vitamin D in the blood can reduce the frequency and severity of respiratory infections. See Chapter 6 for more information.

Outdoor clothing. You will be issued ECW clothing as you pass through Christchurch or Punta Arenas. Special arrangements will be made if you are taking other routes to Antarctica. This clothing will include the 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.

If you are experienced in cold weather conditions, you may add your own cold weather gear (e.g., hiking boots, parka, gloves) for field use. Be sure these items are clean and free of soil or plant material before packing them (check the Velcro®). A lightweight windbreaker is useful in McMurdo during the austral summer.

You must bring your own long underwear and heavy socks. It is highly recommended that you bring at least three pairs of heavy socks and sock liners, and at least two sets of lightweight and mid-weight long underwear. Polypropylene, Merino wool, or silk are excellent at wicking away moisture and holding heat next to your body. Contact your POC to get a recommendation of how much to bring, based on your job and location.

Indoor clothing. You must 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 your stay in Antarctica, and the type of work you will be doing.

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.

Attire en route. While dress may be informal en route to and in both New Zealand and South America, please remember that you are representing the United States and NSF and that your appearance may be noted.

New Zealand and Chile. Plan for changeable weather conditions. 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.

Bed linens. The USAP supplies sheets, pillows, pillowcases, and blankets.

Towels and washcloths. The USAP does not provide towels and washcloths at the three stations, but it does provide towels on the research vessels.

Electric power. USAP stations use 110-volt power, same as in the U.S. No converters or adaptors are needed. The research vessels have both 220- and 110-volt power. Argentina, Chile, and New Zealand use 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).

Feminine hygiene. Supplies are normally available at the station store, though brand selection is limited. Women may wish to bring the items and brands they prefer.

Sunscreen. Carry and use sunscreen with an SPF number of 15 or greater. Ensure 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 increases the potential for sunburn.

Sunglasses. Sunglasses or goggles are crucial. 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. Consider wrap-around temple frames, 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.

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 are limited. If you wear contact lenses, you should carry them on your person when traveling to avoid possible damage from freezing.

There are no issues with contact lens use in Antarctica. Limited quantities of lens cleaning supplies are available at station stores, including regular and sensitive-eye solutions for soft contact lenses. Heat-type solutions are not available. If you prefer certain brands of lens care products, you should bring enough to last your entire stay.

Water bottle. Bring at least one water bottle that can be carried with you throughout the day. Antarctica is a desert and staying well hydrated is important. Water bottles may be available in the station store, but supplies are limited.

Recreational gear (e.g., skis, musical instruments). While musical instruments and recreational equipment is available for check-out at the three stations, variety and availability is different at each facility. Depending on your length of stay, you may wish to bring or mail your own recreational gear. Be aware that it may take three months or more for your gear to arrive if you mail it. Your POC can give you more information. Be sure all recreational gear is clean before you pack it.

Smartphones. You will NOT have cell phone service in Antarctica, but you can use your smartphone or pad as an alarm clock, a source of music, or a camera. Don't forget the charging cable and an extra set of earbuds. WiFi is only available in limited areas and only to grantees with a 24/7 mission-critical need to stay connected.

WHAT NOT TO PACK

Personal comfort in Antarctica is important, and so is environmental protection. When choosing items to make your stay more comfortable, please take the time to select items with the least environmental impact and package them frugally. Use biodegradable soaps and shampoos, which will have less of an environmental impact.

Plants, seeds, and animals. The Antarctic Treaty and the Antarctic Conservation Act (as amended by the Antarctic Science and Tourism Conservation Act) prohibits the importation to Antarctica of any:

- seeds (including chia seeds),
- plants and plant parts (except by permit and under controlled conditions), and
- animals (including insects) and animal parts.

Don't pack a pest when you pack bags for Antarctica! Be sure to clean your clothing and footwear before packing it to prevent inadvertently importing non-native species or other organic material. For example, be sure there are no seeds or other plant parts caught in Velcro®, no mud on boots, and no grass inside cuffs. Please read the Don't Pack a Pest brochure at www.usap.gov/usapgov/travelAndDeployment/documents/PackaPest_brochure_Final.pdf

In addition, biologically viable organisms in food, personal care products, and supplements are all prohibited for importation and use in Antarctica. This includes "SCOBY" (the symbiotic culture of bacteria and yeast used to make yogurt and kombucha), probiotics, spirulina, and similar biologically active products.

Microbeads, tiny plastic particles in bath and beauty products, are now a banned substance in Antarctica. Do not pack any personal care products containing microbeads. They cannot be contained by wastewater treatment and will be discharged to the ocean environment, resulting in plastic pollution. Microbeads can absorb toxins and be ingested by marine organisms. The "Beat the Microbead" website (www.beatthemicrobead.org) has more information and comprehensive, country-specific lists of products that contain microbeads.

Similarly, the **antimicrobial agent triclosan is banned**. The USAP has not purchased soaps or personal care products with triclosan since 2015, and participants should not bring them to Antarctica. Triclosan is not removed during wastewater treatment and accumulates in the tissues of marine organisms.

Polystyrene packing materials such as peanuts, chips, and beads are prohibited, as they can easily blow away, posing a threat to wildlife. Cushion your packed items with clothing, and advise family members and friends to avoid using polystyrene packing materials in mail they send to Antarctica.

Try to avoid using aerosols, such as hair spray, pressurized containers of deodorant, 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, are discouraged. Consider buying rechargeable batteries and a charger.

Unmanned aerial vehicles. Unless you have specific authorization from the NSF, operating drones or remotely piloted aircraft in Antarctica is prohibited.

Magazines, catalogs, newspapers and junk mail are discouraged. Do not have your mail forwarded to your Antarctic address, as it increases the amount of waste that must be removed from the continent.

Plastic and throwaway containers. Eliminate as many of these as possible. This will help reduce the volume of solid waste in Antarctica. Repackage products into containers you are more apt to take home with you, or use Ziplock® bags that can be used repeatedly during your stay. Use the backpacker's rule – if you pack it in, you pack it out. NOTE: Be sure to keep prescription labels with repackaged medications.

Commercial or other business activities. You may not market or sell clothing or finished articles that were printed, manufactured, or assembled outside Antarctica. You may not import materials to finish and market such items locally. Federal law forbids using an APO address to ship articles or materials destined for private resale operations. The USAP also prohibits using government transportation to ship 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. Any device that could be used to heat cooking oil is not allowed, as splattered oil poses a fire danger. No open flames, such as candles, are allowed.

BAGGAGE ORGANIZATION

If you are flying from Christchurch to McMurdo, your personal belongings and any ECW clothing you are not wearing will be transported as checked baggage on a cargo pallet. You will be allowed a carry-on bag, which must not exceed 61 x 38 x 23 centimeters (24 x 15 x 9 inches). All luggage will be screened as you check in at the Antarctic Passenger Terminal.

Laptops are accepted as hand-carry, but they must fit into the hand-carry dimensions along with the rest of your items. Unlike commercial airlines, liquids, aerosols, and gels are not restricted in carry-on luggage. However, you may not bring sharp objects aboard planes. If you are bringing a pocket knife, scissors, or other sharp object to Antarctica, stow them in your checked baggage. Your baggage will be screened using various detection sensors, including a drug detection dog. The contents of your baggage may also be subject to visual inspection.

If you are traveling to Antarctica on a research vessel, 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 clearly with tags, including the bags you carry aboard. Also, place identification inside each bag. Include your assigned Antarctic station, the initials “USAP,” “ASC” or event number, and return address.

Do Not Freeze (DNF) equipment should not be included in your checked or hand-carry baggage. Use the USAP cargo system to protect it from freezing (see Chapter 4).

Other personal equipment. Personal baggage may also include delicate scientific instruments that must be hand-carried. You are responsible for handling personal baggage 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. Pack items securely in easily handled containers.

STORAGE AVAILABILITY

In New Zealand

There is a limited amount of storage space available at the USAP Clothing Distribution Center (CDC) in Christchurch, where you can leave items not needed in Antarctica, such as summer clothing, street shoes, backpacking equipment, and New Zealand souvenirs. 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 storage items in advance.

USAP participants who wish to use their personal dive equipment, bicycles, or camping gear in New Zealand may mail the items to themselves, care of the CDC. These items should not be mailed more than 60 days before your arrival in Christchurch. Items received after your departure to Antarctica will be held in the CDC's secure baggage storage room until you redeploy from Antarctica. The address is as follows:

[Participant's Name]
HOLD IN CHRISTCHURCH
Private Bag 4747
Christchurch 8140
New Zealand

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

Upon redeployment from Antarctica to Christchurch, it is also possible to store items in the CDC. This allows participants the opportunity to take personal vacations before final redeployment, but this storage is limited to 60 days.

In Chile

In Punta Arenas there is limited secure storage, and it's usually reserved for scientific projects and equipment.

CHAPTER 4: Environmental Protection, Permits, and Science Cargo



Blood Falls is a unique feature where iron-rich brine from the substrate is released at the terminus of the Taylor Glacier. Any work within the protected area of Blood Falls requires an ACA permit. Photo by Peter Rejcek.

U.S. environmental conservation and waste management laws apply in Antarctica. This chapter describes environmental impact assessment and the Antarctic Conservation Act, and it explains how to get a permit for certain activities. The chapter also discusses the shipment of science cargo, and it explains permitting rules that apply to cargo, including specimens shipped from Antarctica.

ENVIRONMENTAL IMPACT ASSESSMENT

U.S. Federal Regulations require that all proposed activities in Antarctica be assessed for their impact on the environment or on dependent or associated ecosystems. Annex I of the Environmental Protocol to the Antarctic Treaty establishes the process for environmental impact assessments (EIAs). A preliminary EIA is completed for all USAP activities. If it is determined that an activity will have a less than minor or transitory impact, the activity may proceed as documented in a Record of Environmental Review (ROER). If the environmental impacts are likely to be greater, then additional review will be required. Depending on the expected level of impact, an Initial Environmental Evaluation (IEE) or Comprehensive Environmental Evaluation (CEE) will be prepared. NSF/OPP works with those who are planning to conduct the activity to ensure that all environmental review has been completed and appropriate mitigating measures are in place before the activity proceeds.

ANTARCTIC CONSERVATION ACT

The Antarctic Conservation Act (ACA) 16 U.S.C. § 2401, et seq. implements various requirements, as delineated in the Antarctic Treaty and the Protocol on Environmental Protection to the Antarctic Treaty. The ACA applies to any person subject to the jurisdiction of the U.S. Violations of this law may result in civil fines, criminal fines, and imprisonment for up to one year. Other penalties could include removal from Antarctica, rescission of a grant, or sanctions by an employer. The ACA assigns NSF and other agencies regulatory, permit, and enforcement authority.

The ACA requires your involvement from the time you begin planning your trip until after you leave Antarctica.

Your activities, on or off the job, must comply with the ACA. 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. The ACA and permit application instructions and form can be accessed online at www.nsf.gov/geo/opp/antarct/aca/aca.jsp.

Highlights of the ACA

"Take" or "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; or
- engaging in any activity that results in the significant adverse modification of habitats of any species or population of native mammal, native bird, native plant, or native invertebrate.

Specially Protected and Managed Areas. A number of places in Antarctica are designated under the Antarctic Treaty as Antarctic Specially Protected Areas (ASPAs) that protect environmental, scientific, historic, or wilderness values. 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. Other ASPAs include the historic huts in areas near McMurdo.

Antarctic Specially Managed Areas (ASMAs) have been established to assist in the planning and coordination of activities in order to avoid possible conflict, minimize environmental impacts, and improve cooperation between national programs. Entry into an ASMA does not require a permit. However, all activities conducted within the ASMA must be in accordance with the ASMA management plan and any associated codes of conduct.

These areas and their management plans are described on the website maintained by the Antarctic Treaty Secretariat for the Committee on Environmental Protection at www.ats.aq/e/ep_protected.htm.

Introducing species. You need a permit to introduce non-native species to the Antarctic (south of 60° S), and a clear research need must be demonstrated. Lab animals and plants, as well as viruses, bacteria, yeasts, and fungi require an ACA permit for introduction. The ACA does allow the importation of food plants under special circumstances. Many Antarctic stations, including South Pole Station, have hydroponic vegetable gardens. If you have questions regarding the introduction of non-native species, contact the ACA Permit Office at ACApermits@nsf.gov.

Import into and export from the United States. In the United States it is unlawful, unless authorized by permit, to have, sell, import, or export Antarctic plants, mammals, birds, or their parts. 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.

ACA Waste Management

Banned substances. ACA waste management regulations ban these substances, and others, from Antarctica:

- pesticides (except those required for science or hygiene, and a permit is needed)
- polychlorinated biphenyls (PCBs)
- nonsterile soil

- polystyrene beads, plastic chips, and loose polystyrene packing material

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 impacts on, the environment. Designated pollutants include any substance listed by name or characteristic (flammable, corrosive, reactive, toxic) in the Clean Air Act, the Clean Water Act, Resource Conservation and Recovery Act, or other U.S. regulations. Waste containing designated pollutants is Antarctic hazardous waste and must be used, stored, and disposed of in controlled ways. Many research and industrial supplies and common substances, such as lighter fluid and fingernail polish remover, are designated pollutants. ASC holds the USAP Master Waste Permit that describes the management of these substances. If you have any questions about substances you intend to bring to Antarctica, please contact Environmental@usap.gov.

You need to pay attention when you pack for travel to Antarctica. Ask yourself: How might I reduce the number and amount of designated pollutants, are there benign substances that might be substituted for designated pollutants, and how should these substances be handled?

Historic sites. More than 90 historic monuments or sites have been designated during Antarctic Treaty meetings.

Environmental Guidelines

Aspects of environmental protection are covered in many parts of this guide. 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 and work site. Winds can turn litter into dangerous flying materials.
- **Secure construction sites.** Pick up debris and dispose of it properly. Protect outdoor materials from being scattered by the wind.
- **Handle waste properly.** If you handle waste, know the rules. If you do not know them, ask a supervisor, lab manager, ASC waste management employee, or NSF representative.
- **Leave only footprints.** Bring everything back to McMurdo, Palmer, South Pole, or the research vessel 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. Use secondary containment and absorbent spill pads when transferring fuel. Waste fuels and lubricants have to be labeled and stored for return to the United States. All spills must be reported.
- **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. If the wildlife are reacting to you, you are too close.
- **Do not introduce plants or animals to Antarctica** or collect eggs, feathers, or fossils. Clean your gear and clothing before arriving in Antarctica.
- **Do not cross contaminate.** Avoid transferring soil from stations to field sites and between field sites. Brush boots before boarding vessels or aircraft. Consider using boot covers or dedicated boots for work at field sites.
- **Do not enter any ASPAs without a permit**, and adhere to the area management plan when working in these areas and in ASMA's.
- **Avoid interference with scientific work** and do not enter unoccupied buildings or refuges except in an emergency.
- **Take care of Antarctic historic monuments.**

Steps have been taken to restore and preserve monuments, including tombs, buildings, and objects of historic interest. If you go near historic sites or monuments, do not damage or disturb them. If you come across a potentially historic artifact, do not touch it. Report the find and its location to an NSF representative or ASC management.

There are five Antarctic Treaty historic sites in the McMurdo Station vicinity: Observation Hill, Scott's Hut, Vince's Cross, the Richard E. Byrd Memorial, and a plaque commemorating the location of the former nuclear power plant. The USAP also commemorates historic events with plaques. The Our Lady of the Snows Shrine 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 commemorates BM1 Raymond Thomas Smith, USN, who died in 1982 during an unloading accident aboard USNS Southern Cross in Winter Quarters Bay.

Two Antarctic Treaty historic sites are located near South Pole Station: Amundsen's tent, erected in 1911, and Flag Mast, established in 1965. The exact locations of these monuments are unknown.

Capes Royds, Evans, and Adare have historic huts or their remains. Respect the basic rule that prohibits touching, removing, or disturbing any materials from these sites, for either souvenir or scientific purposes. The historic huts at Hut Point, Cape Royds, and Cape Evans have been designated as ASPAs by the Antarctic Treaty and require a permit to enter. There are opportunities for group visits to these huts from time to time. Information about visits can be obtained from ASC staff in the Chalet at McMurdo Station.

Enforcement officers. ACA enforcement officers are federal officials responsible for ensuring compliance with both the ACA and issued permits. These officers help USAP participants understand their obligation to protect native plants and animals and prevent the release of pollutants, and they are authorized to exercise the full spectrum of law enforcement powers when performing their duties.

PERMITS AND REPORTING

Antarctic Conservation Act. NSF will not allow work in Antarctica to commence until an ACA permit has either been approved or found not to be required. Collecting any materials in Antarctica is prohibited unless specifically authorized by an NSF-issued permit. You may not do things that require a permit unless you have a permit, and 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 ACA permit officer at ACApermits@nsf.gov, or:

Permit Officer
Office of Polar Programs, National Science Foundation
2415 Eisenhower Avenue
Alexandria, Virginia 22314
Fax: 703-292-9081

Normally, 45 to 60 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. NSF evaluates public comments and performs an internal review. It then approves the application, approves it with modifications, or rejects it.

Post-season report. By April 1, a report of activities conducted under your ACA permit must be submitted to the permit officer at OPP.

Protected resources. If your project involves any 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 bird that is protected under the Migratory Act (16 U.S.C. 703 et seq.), you may need to obtain permits from other federal agencies. NSF cannot issue an ACA permit until the permit officer receives copies of valid permits issued under these regulations. The following websites provide information on the acts listed above:

- www.nmfs.noaa.gov/pr/permits
- www.fws.gov/birds/index.php

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, visit www.nsf.gov/geo/opp/antarct/meteorite_regs.jsp.

IMPORT-EXPORT REGULATIONS

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 ASC science support POC informed by sending copies of relevant correspondence, actions, and permits granted. The NSF representative in Antarctica cannot provide clearances from the field. It is your responsibility to obtain the necessary permits in a timely fashion.

Import of animal-origin materials. The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), regulates the importation of all animal-origin materials and soils 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.

To verify your project's requirement, contact AskNIES.Products@aphis.usda.gov or:

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

Foreign permit restrictions. All countries have some restrictions against the importation of harmful plants or animals, or soil samples that might contain harmful seeds, insects, fungi, or bacteria. New Zealand has particularly stringent regulations (see below). 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 U.S., the websites below provide a first contact for information. It is important to obtain necessary foreign permits before you leave the U.S.. Otherwise, there may be difficulty in clearing customs, particularly when hand-carrying biological samples.

- For information about New Zealand Ministry of Primary Industries (MPI) regulations, visit their website: www.mpi.govt.nz.
- For information about Chilean restrictions, contact the consulate in your region: chile.gob.cl/chile/en/site/edic/base/port/consulados.html.
- For information about Argentinean restrictions, go to the following website, click on the “English” button, then “Consular Assistance,” and then “Consulates in the U.S.”: www.eeeuu.mrecic.gov.ar/en.

Please forward copies of all correspondence to your ASC science support POC.

New Zealand health and agricultural requirements. New Zealand has strict regulations regarding the importation or transshipment of biological and laboratory samples. A permit from the Ministry for Primary Industries (MPI) must be obtained in order to bring them into the country. This applies to samples coming from either the U.S. or Antarctica.

Please enter information regarding the movement of samples into POLAR ICE, the online database used to create the Science Information Packet (SIP), which outlines the science group's requirements for the season. During this process, an application for an MPI permit will be created. Applications are gathered by the senior administrative coordinator at PAE (NZ) for processing. You must apply for a permit at least eight weeks before you leave the U.S.

for Antarctica.

Controlled Drugs, New Organisms, Genetically Modified Organisms

If your research requires moving controlled drugs, new organisms, or genetically modified organisms from the U.S. to Antarctica, permits from U.S. and New Zealand government agencies must be obtained.

Controlled Drugs. Controlled drugs for research purposes require advance planning and documentation. Please notify your ASC science planner if you anticipate using controlled drugs during your field season. ASC personnel will arrange for procuring and shipping these items to Antarctica. Protocols set forth by the U.S. Drug Enforcement Administration (DEA) are applicable while in Antarctica. (NOTE: Personal prescription drugs are covered in Chapter 3.)

New Organisms or Genetically Modified Organisms. PAE NZ holds a standing approval from the New Zealand Environmental Protection Authority (NZEPA) to transship GMOs and new organisms through New Zealand en route to or from Antarctica. Provided your organisms meet the definition of the “Risk Groups” contained within the applicable NZEPA Decision Document, you are able to transship them. You can request a copy of the Decision Document and applicable MPI permit from the Crary Lab supervisor at Mcm-CraryLabSupv@usap.gov or from the PAE NZ office at CHC-MPIpermits@usap.gov.

If an organism does not meet the definitions in the Decision Document, a new application must be made to NZEPA. The process to complete this is available on www.epa.govt.nz. For GMOs, you must provide your approved ACA permit, along with an application available through POLAR ICE. For new organisms, you must provide your approved ACA permit. The application process could take 12 or more weeks to be completed.

Importing Samples into New Zealand

If samples are being imported into New Zealand with New Zealand being the ultimate destination of the samples, the destination institution or agency must provide a copy of their MPI Permit to Import to accompany the samples. A copy must be sent to the grantee importing the samples, to the Crary Lab supervisor (Mcm-CraryLabSupv@usap.gov), and to CHC-MPIpermits@usap.gov.

Shipping Samples Through New Zealand

United States to Antarctica. If you are shipping samples from the U.S. through New Zealand on to Antarctica, a copy of your permit will be sent directly to you, along with a letter from the contract manager of New Zealand Operations. If you plan to hand-carry your samples, you must notify the Christchurch hand-carry e-mail group (chc-handcarry@usap.gov) of your intentions and provide all special handling requirements. You will be advised in the letter from the contract manager that you need to carry your permit and your letter with you, and when you arrive in New Zealand you must declare your samples and present the permit and letter to the Ministry for Primary Industries inspector at the border. If you also have GMOs or new organisms, you must present the additional paperwork provided to you by PAE NZ.

If you are shipping your samples directly from the U.S. 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 or carrying samples from Antarctica to the U.S., your permit will be sent to the Crary Lab in McMurdo. It will be held there until you are ready to leave the Ice. All sample shipments need to be accompanied by a letter on university letterhead that answers the following three questions:

1. What is the source of the product?
2. If animal, what is the type and origin?
3. Does the product contain any animal by-products?

More information can be found in the document Packing and Shipping Instructions (www.usap.gov/logistics/documents/TL-MAN-0002.pdf). A copy of these instructions can be sent to you on request.

If you plan to hand-carry your samples, you must present a copy of your permit and declare your samples to the

MPI Biosecurity officials when you enter New Zealand.

When you are ready to ship your samples, contact the Crary Lab and Science Cargo supervisors with details of your shipment. If you are working in the Antarctic Peninsula area, get transport details from the ASC Palmer Station manager or the marine projects coordinator on your research vessel. You will be required to identify the contents of containers, relevant permits, special handling requirements (such as dry ice), and addressees. State whether the containers will be hand-carried or shipped independently.

NOTE: If you plan to hand-carry samples and did not identify this in your SIP, you must let your ASC POC and ASC Travel (travel@usap.gov) know immediately the nature of the samples and the name of the person who will be hand-carrying the samples. This will allow ASC Travel to ticket the individual appropriately through New Zealand. Australian law does not allow hand-carried samples.

Radioactive Materials

Using radioactive materials in Antarctica requires strict adherence to USAP policies and procedures to avoid contaminating the Antarctic environment and ensure the safety of personnel. Approval to use radioisotopes in Antarctica must be obtained from NSF/OPP before any radioactive material is shipped south. A hard-copy of the approval should accompany all radioactive material shipments to and from Antarctica. PIs are responsible for procuring, packaging, transporting, and retrograding the NSF-approved radioactive materials required for their projects.

PIs must direct their requirements through the radiation safety officer of their institution to ensure compliance with state, national, and international regulations pertaining to packaging and shipping radioactive materials. For shipments to and through New Zealand, consult by e-mail with the hazardous material (HAZMAT) specialist in Christchurch (chc-hazmat@usap.gov) or fax (+64-3-358-1479). 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 documents five business days before radioisotopes are shipped through or to New Zealand. Accordingly, if you plan to order and ship radioisotopes directly from U.S. vendors to New Zealand, then you **MUST** adhere to the following instructions:

1. All orders must be marked by the vendor for:
National Science Foundation
c/o PAE (NZ) Limited
Gate 1, Orchard Road North
Christchurch International Airport
Christchurch, New Zealand
2. The project's event number and the 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.
3. After the order is placed with the vendor, you **MUST** then send the HAZMAT specialist in New Zealand either an e-mail (hazmat@usap.gov) or a fax (+64-3-358-1479) with the applicable following information:
 - A. If the material is unsealed** (not shipped as an integral part of equipment):
 - i. Radionuclide
 - ii. Activity per item
 - iii. Number of items
 - iv. Description of radioactive material
 - v. Country of origin
 - vi. Expected departure date from country of origin (include country name, e.g., United States) and

expected arrival in Auckland, New Zealand

B. If the material is sealed (shipped as an integral part of an instrument):

- i. Radionuclide
- ii. Activity per item
- iii. Number of items
- iv. Year of manufacture (if known)
- v. Source serial number (if known)
- vi. Instrument type
- vii. Model #
- viii. Serial #
- ix. Country of origin
- x. Expected departure date from country of origin (include country name) and expected arrival in Auckland, New Zealand

4. You are required to follow up with confirmation of the airway bill, flight numbers, and special handling instructions (e.g., DNF) as soon as the shipment is confirmed.

5. When the shipment is received in Christchurch, the HAZMAT specialist will ensure it 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, PAE (NZ) Limited

Tel: +64-3-358-1417

Fax: +64-3-358-1479

Mobile: 027-4357731

E-mail: hazmat@usap.gov

SCIENCE CARGO

Data and specimens should be transported with the same care and forethought that went into planning research projects. The document “Packaging and Shipping Instructions” (see above for URL) explains how to package and ship your science cargo to and from Antarctica. This publication is kept current with recent methods for safe and damage-free shipping; examples of how to time your shipments; and the current name, address, and phone number of Port Hueneme representatives.

Due to the restrictions presented in transporting cargo to Antarctica, requirements are analyzed and cargo loads are planned months in advance. Planning begins with information gathered from the SIP and from ASC management. Responsibility for cargo and passenger movement within the continental area rests with the ASC director of Transportation and Logistics and the ASC manager of Antarctic Terminal Operations (ATO). During the summer at McMurdo, ATO manages all cargo transported to McMurdo Station and onward.

USAP Science Cargo focuses on cargo related to science projects and technical events, but all hazardous cargo is also processed through the USAP Science Cargo office. At McMurdo Station, cargo is documented, packaged, and labeled for transport and then turned over to Movement Control Center (MCC) staff for transport. Science Cargo staff can tell you where in the USAP cargo system your particular items are located. You can assist them if you provide a copy of USAP shipping documents or, for commercial shipments, a copy of the bill of lading or airway bill.

Transport Methods for Science Support Cargo

Palmer Station via research vessels. Cargo must reach the NSF contractor representative in Port Hueneme, California at least 90 days before it is scheduled for loading onto the research vessel in Punta Arenas, Chile for transport to Antarctica. See the Peninsula Logistics Schedule for cruise deadlines at: www.usap.gov/logistics/documents/TL-FRM-0100.pdf.

McMurdo Station via charter resupply vessel. A chartered, U.S.-flag cargo vessel sails annually from Port

Hueneme to McMurdo Station, arriving the last week of January. Cargo for this ship must be received in Port Hueneme by December 1. This vessel is the preferred mode of transport for delivering materials to McMurdo, as well as for ongoing transport to South Pole Station and continental field camps. Maximum use of this mode is possible only through careful planning by all concerned. Allow sufficient time for shipment by vessel. When possible, plan to position cargo in Antarctica the season before scheduled field work.

McMurdo Station via USAP airlift. USAP 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 late August to the end of the operating season, although recently there have been scheduled winter flights. Commercial surface vessel shipment to Christchurch (via Port Lyttleton) is the preferred transport mode for airlift cargo. In general, airlift cargo needs to arrive in Port Hueneme according to the shipping dates noted in Packaging and Shipping Instructions.

Commercial air cargo. If circumstances prohibit shipment by sea, NSF may authorize ASC to ship cargo by commercial air to Christchurch. This is the most expensive way to transport cargo and will be used only for essential material that cannot go by sea. Commercial air shipments need to provide sufficient benefit to warrant the added cost of this transport mode. Air cargo will not be authorized as a substitute for inadequate advance planning.

South Pole Station cargo. Cargo to and from South Pole Station is transported almost entirely by LC-130 aircraft from McMurdo Station. These aircraft operate from late October through mid-February. During the summer, some cargo (mostly fuel) is transported via South Pole Traverse. The station is isolated the rest of the year. ASC Science Cargo personnel in McMurdo and at South Pole determine cargo plans and schedules.

Hazardous cargo. Explosives, gases, flammables, oxidizers, poisons, radioactive materials, corrosives, and other hazardous items 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 applicable federal, international, military, and USAP regulations. Contact the ASC Hazardous Cargo supervisor for more information.

Transportation schedules are available at www.usap.gov under the Grantees Support/ Calendars and Schedules link. The Peninsula Logistics schedule provides the cut-off dates for shipping to the research vessels, which indicate when the cargo must be at Port Hueneme to meet the quoted delivery dates at the ship. The Continental Area Acquisition Schedule 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 with the USAP cargo representative at McMurdo Station or with cargo personnel at Palmer or South Pole stations to have your science cargo shipped to the U.S. 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.

All retrograde cargo will go by ship unless air shipment is fully justified and authorized by the NSF representative at McMurdo Station or the NSF representative (or designate) at Palmer Station. Air cargo will be authorized only 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.

CHAPTER 5: Travel Guidelines



A U.S. Air Force C-17 aircraft lands near McMurdo Station. Photo by Jack Green.

This chapter gives travel advice for the foreign countries through which you might travel and explains how to obtain your ECW clothing and how to transport your baggage. The chapter also describes your arrival in Antarctica and your return from the continent.

TRAVEL ADVICE

Customs and Mail Warning

Like any traveler, USAP participants must obey foreign laws. These laws can differ from those of the U.S., and penalties for violations can be severe. Persons found in violation of these laws are subject to prosecution in local courts. Association with the USAP affords neither preferential treatment nor immunity from prosecution.

Governments make all attempts to prevent the passage of illegal materials, especially illegal drugs, through their countries. You could be imprisoned for life for transporting or mailing illegal drugs to a foreign country.

At NSF's request, all mail destined for the continental side of the program is screened and inspected by the New Zealand Customs Service. On occasion, U.S. citizens have been detained by Customs on their return from Antarctica. Some of them have been found guilty of mailing illegal materials and have been fined. U.S. law also prohibits the mailing of controlled substances and illegal drugs. It is U.S. policy (April 6, 1982, Federal Register, pages 14864-14866) to ensure personnel authorized to use military postal facilities do not abuse the customs, tax, and other laws of the host country. In short:

- 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.

Stay in Contact

While awaiting transportation to Antarctica from New Zealand or Chile, you must keep local program representatives informed of where you are and how they can contact you. Transport schedules are often 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, or especially the weather.

Currency Exchange

Learn the currency exchange rate before departing for a foreign country. Bank representatives will exchange U.S. money for foreign money at U.S. international airports, but generally, a better exchange rate will be found in the country whose currency you are purchasing than in the U.S. You can change money at most banks in foreign countries, but remember that banks and stores may be closed on weekends and holidays. ATM cards can be used in both New Zealand and Chile. 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. A credit card with a chip is required in many foreign stores.

Electrical Compatibility

The electrical voltage in New Zealand is 230v 50hz. In Chile, it is 220v 50hz. Most laptop computers have a compliant AC converter. You will require an adapter, which can be purchased from hardware and travel stores, to connect to the wall outlet. Some small appliances, such as razors and hair dryers, have dual voltage capabilities, but they still require an adapter plug. You can find information on the type of electricity used and the electrical plugs needed around the world at various websites, such as https://en.wikipedia.org/wiki/Mains_electricity_by_country.

Pre-Deployment Personal Vacations

NOTE: Contract employees are not allowed to take pre-deployment personal vacations en route to Antarctica.

Participants wishing to vacation in New Zealand, Chile, or elsewhere in South America before deploying to Antarctica must inform the ASC Travel Office **via their Travel Request Worksheet** eight weeks before deployment.

Participants vacationing in New Zealand before going to Antarctica must contact the Christchurch Travel Office at least three days before their scheduled date to fly to Antarctica. 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.

Post-Deployment Personal Vacations

You may elect to travel before returning to the U.S. The USAP requires travelers to cover any extra expenses related to post-deployment vacations. This includes changes to airline ticketing, and the fare difference could be significant. Participants are responsible for making their own leisure travel arrangements, and you must comply with local Immigration and Customs regulations (see next section). When you stay in a country as a tourist, the USAP is no longer your sponsor.

TRAVELING THROUGH NEW ZEALAND

All ASC-ticketed participants traveling through New Zealand en route to Antarctica will have been provided with a 12-month visitor permit letter before deployment. Present this letter to New Zealand Immigration when you first arrive. Failure to do so will result in you receiving a three-month permit. **Do not use the express passport kiosks** in the airport, as the machines will not provide a visitor's permit with an adequate length of time for most deployments. Confirm that you have been given a 12-month visitor's permit before exiting Immigration.

If you deploy for longer than a year and your visitor's permit or visa will expire while you are deployed, you can obtain a three-month extension by providing the following information to New Zealand Immigration at INZCHCHExpress@mbie.govt.nz:

- Name, as indicated on your passport
- Passport number and expiration date
- Date of birth
- Your redeployment date (approximate will suffice)

(Note that the USAP regards the above information as Personal Identifiable Information that should not be transmitted via USAP e-mail.)

If you plan to travel in New Zealand after your deployment, you must ensure that your permit or visa will not expire during that time. You can request an electronic extension from the above address while you are still in Antarctica. Visas can also be extended for a fee at any N.Z. Immigration office.

A week or so before you arrive in Christchurch, the Christchurch Travel Office will send you an e-mail with your hotel reservation and ECW issue time, as well as information on taxis, and shuttles. If you have a problem with mishandled luggage, file a claim with the airline at the airport upon arrival. Retain a copy of your luggage claim form and advise Travel Office personnel so they are aware of the problem.

Accommodations. ASC makes reservations in advance at Christchurch hotels and motels for all participants, for the length of their stay. This helps the Christchurch office find you if there is a change in the date or time of your departure to Antarctica. Do not change your reservation without prior approval from 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.

If you plan to stay with friends, provide ASC Travel before you deploy with the contact telephone number 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 ASC, please provide accommodation information to the Christchurch Participant Services office.

Always keep your passport and valuables on you. Hotel/motel bills, telephone charges, and the like should be settled the night before your departure from Christchurch.

Grantees are responsible for paying for their accommodations.

ASC pays for accommodations for its employees.

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



Transportation. An extensive network of bus routes serves Christchurch, Lyttelton, the airport, and USAP 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. 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.

ECW Clothing Issue

ECW clothing and accessories will be provided to you at no charge at the Christchurch Clothing Distribution Center (CDC). The clothing is functional, sturdy, and cost-effective. It includes special items of outerwear required for the Antarctic climate, such as parkas and boots. Most of it is in men's sizes but will fit both men and women. Proper clothing fit and functionality are important to achieve maximum protection. Be sure to provide accurate measurements on the ECW form submitted with your travel/deployment

forms. In addition, it is important that you try on and test all ECW clothing at your fitting session (including boots) to ensure it is fully operational (check all zip-pers!). Any sizing errors will be corrected at that time. If you expect to gain weight while in Antarctica, which is common, select clothing that fits loosely. There will be no additional clothing issued once you are in Antarctica.

The type and amount of clothing you receive depends on where you work and what your job entails. Most, but not all, ECW clothing is mandatory. If you are new to the program, you must take all the clothing issued to you according to the USAP ECW Policy (www.nsf.gov/geo/opp/documents/policy/AIL-POL_1000.06%20ECW%20Gear.pdf).

Some issued clothing, especially parkas, is subject to theft, and special attention should be taken to prevent loss. Abnormal damage or unreported loss of clothing will result in you 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, buy, or sell government property, including USAP clothing.



A participant tries on ECW gear during clothing issue at the CDC in Christchurch, New Zealand. Photo by Elaine Hood.

TRAVELING 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 a “boomerang bag” with personal items, clothing, and other essentials needed 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. 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 baggage you will not need in Antarctica in the CDC secure storage room.

Notify the ASC 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 ASC. This also applies to your northbound return. See Chapter 3: How and What to Pack.

You will be issued an Antarctic Departure Card, which you are required to complete before moving through to the Antarctic Passenger Terminal (APT). After dressing for your flight and completing your Antarctic Departure Card, you will take your luggage to the APT for official check-in, where your passport and departure card will be checked and your luggage weighed. This is commonly known as “bag drag.” **Make sure you keep your passport accessible.**

After check-in, 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 aircraft is provided. Personnel who, in the judgment of the crew, are intoxicated will not be permitted to board the aircraft. This applies when traveling to or from Antarctica or when traveling within Antarctica.

Your flight will take between five and eight hours, depending on the aircraft. Military aircraft are not designed for passenger comfort, though food and water are provided. There are toilets, but the facilities can be awkward.

The weather in Antarctica when you arrive is likely to be clear, cold, and very bright. After the plane has landed, gather your possessions, zip up your parka, and put on sunglasses and gloves. Be ready for transport to McMurdo Station soon after you disembark. Upon arrival at McMurdo Station, you will be given an in-brief and instructions about your lodging and about collecting your luggage. Generally, your checked luggage will be ready for you at the MCC about two hours after you arrive.

TRAVELING WITHIN ANTARCTICA

Timeframes and transportation schedules for work in remote locations are planned well in advance. Working together, grantees, NSF, implementers, and transport schedulers agree on 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.

Grantees and ASC employees traveling to remote locations should read the *Field Manual for the U.S. Antarctic Program*, available in PDF under the Travel and Deployment link at www.usap.gov.

Air Transport

Transportation to remote stations and field camps is provided by fixed-wing aircraft, helicopters, and/or ground vehicles. Teams planning to travel must meet with Fixed-Wing Operations and/or Helicopter Operations staff to confirm flight plans and arrange personnel and cargo movements.

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

Deep field camps. All cargo and passenger movements to and from deep field camps must be planned in detail with the cargo coordinator or Fixed-Wing Operations staff, and they must be approved by the ASC continental field supervisor.



A Twin Otter delivering people and supplies to a deep-field camp. Photo by Peter Rejcek.

Fixed-wing aircraft. Intracontinental air support is currently provided by three types of fixed-wing aircraft, all ski-equipped: LC-130 Hercules, Baslers (modified DC-3s), and Twin Otters.

The LC-130s are operated by the 109th Airlift Wing of the New York Air National Guard. These airplanes provide heavy-lift capability to all inland stations, as well as search-and-rescue for the entire continent. Science project team members must first work with Fixed-Wing Operations staff or cargo coordinators to develop their project's logistics plan, and then coordinate with Science Cargo staff to stage their cargo. All project cargo must be staged and ready 72 hours before scheduled transport. Passengers must check in at Air Services with 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 used by small field teams deploying to remote locations that typically do not have groomed landing areas. The aircraft can carry small to moderate cargo loads. Baslers are larger, twin-engine, low-wing aircraft that can carry moderate loads for longer distances but have ski-field grooming requirements and other landing-site restrictions. Science project team members must work with Fixed-Wing Operations staff to develop a transport schedule and create cargo and passenger priority lists. The team must then work with Science Cargo staff to stage all cargo 72 hours before scheduled transport.

On the day of the flight, science team members and ASC camp staff will check in with Fixed-Wing Operations staff before transporting personal bags to the airfield via the shuttle service. Both science and ASC team members will assist flight crews in loading the Basler and/or Twin Otter.

NOTE: Please provide accurate weights for all cargo, including personal bags, to the Fixed-Wing Operations office.



A helicopter takes off from the sea ice at Explorers Cove. Photo by Jim Mastro.

Helicopters are used principally for logistical support in the Ross Island region and McMurdo Dry Valleys. Anyone expecting to fly on a helicopter must attend helicopter-specific safety training. People traveling to the Dry Valleys must attend environmental training, as well. Cargo capacity and range vary depending on the model of helicopter. Science team members work with the helicopter staff to arrange passenger and cargo movement.

Detailed packing and planning guidelines, including field and mechanical equipment weights, are presented in the field manual noted above.

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

Aircraft Travel Rules and Guidelines

- You must be manifested on all aircraft on which you travel. Any unauthorized travel may result in your removal from Antarctica.
- Be on time. Departures will not be delayed for persons arriving late or for cargo or passengers identified after the deadlines provided by either Fixed-Wing Operations or Helicopter Operations staff.
- Passengers can make a brown-bag flight lunch from the McMurdo cafeteria "grab and go" cooler before transport to the airfield.
- 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 any USAP aircraft.
- You must wear specific items of ECW clothing. The requirements will be posted in advance of your flight.
- All hazardous materials must be packed and certified by USAP cargo personnel. You may not carry unauthorized hazardous material in your baggage or on your person.
- Anyone flying on a USAP aircraft (other than on South Pole flights) must attend Field Safety Training (see Chapter 6).

RETURNING TO NEW ZEALAND

Grantees

At least 10 days before your planned departure from Antarctica, advise the ASC passenger coordinator in the Chalet, or the science coordinator at South Pole, of your intended departure date. They will coordinate your departure with PAE NZ Participant Services in Christchurch. You must ensure that your retrograde cargo is ready for transport. See Retrograde (Return) Science Cargo in Chapter 4.

ASC Employees

Weeks before redeployment begins, employees are given check-out instructions. Before completion of your contract, your supervisor will schedule you on a flight from McMurdo to Christchurch.

All Participants

Remember that prior approval for excess baggage is required for anything over the standard limits (see Chapter 3).

If you check in for a northbound flight in McMurdo without the necessary excess baggage approvals, you will be required to mail any excess at your own expense through the U.S. Post Office at McMurdo Station.

Be sure to carry your passport on you and not in your checked bag.

NOTE: Removing any materials from Antarctica, such as wood, bone, eggshells, feathers, and plant or animal parts is prohibited unless specifically authorized by an NSF-issued permit.

Immediately upon returning to Christchurch, you must return your ECW clothing to the CDC, even if you think it may be of no further use. You will also retrieve any personal belongings you left in the CDC storage room. You will be given information about your accommodations and onward travel at that time.

NOTE: Your APO privilege to mail boxes at U.S. rates expires 10 days after your return to Christchurch. See Chapter 6: Postal Services.

TRAVELING THROUGH CHILE

In Chile, the USAP has contracted with Damco to provide passenger support and manage local facilities.

Chile, Argentina, and the U.S. frequently cooperate in Antarctica. Both Argentina and Chile are Antarctic Treaty nations, and both have year-round stations along the Antarctic Peninsula. While Spanish is the national language, English is widely spoken in Chile, including by the agents ASC employs to assist you in your passage. Nevertheless, a simple Spanish phrase book may prove helpful.

Health care. If you require health care while in Chile, contact the local Damco representative for assistance in making appointments. If you are in Punta Arenas, you can contact the marine project coordinator on the vessel for assistance. Be prepared to pay for services provided. See Chapter 2: Insurance.

Upon your arrival at the Santiago airport, and before you pass through customs, you will be met by a Damco representative who will assist you in picking up your baggage and passing through customs. He or she will also direct you from the international terminal to the domestic terminal for your flight to Punta Arenas. It is your responsibility to be alert for domestic gate changes, which may or may not be announced in English.

Once you arrive in Punta Arenas, a Damco representative will transport you to your hotel, notify you of your ECW clothing issue time, ship embarkation time, and ship orientation time. Please show up promptly, as the window to complete your outfitting is short, and ship schedules are often tight.

Damco will provide you with a "QR code card" that gives you access to the vessel through the Prat Pier security gate, so you can come and go easily between the city and the pier area. You may be asked to board the vessel immediately. However, most people traveling to Palmer Station are scheduled to spend one night in a hotel and board the ship the following day. Do not request to board the vessel early.

Hotel rooms for ASC personnel are direct-billed, but you must pay for incidentals and meals. Grantees must pay for their hotel rooms. Agents and ships' representatives can provide local information about restaurants, shops, and money exchange:

Damco Chile SA (Santiago)

Cerro El Plomo, Floor 7, Office 707, Santiago de Chile
Contact: asc.scl@damco.com (USAP Cargo only) +56 (2) 828-9900
Emergency: David Peña, David.Pena@damco.com, +56 (9) 8156-8164

Damco Chile SA (Punta Arenas)

Warehouse #4, Prat Pier
O'Higgins #1385
Punta Arenas, Chile
Contact: asc.puq@damco.com, +1 720 568-2870
Emergency: Claudio Barrientos, claudio.barrientos@damco.com, +56 (9) 7548-3942

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

ECW Clothing Issue

ECW clothing will be provided to you at no charge from the Punta Arenas warehouse. 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.

To ensure an acceptable fit, be sure to provide accurate measurements on the ECW form you submit with your travel/deployment forms. It is important that you try on and test all ECW clothing 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 you must take all the clothing issued to you. There will be no additional clothing issued once you are in Antarctica. (See www.nsf.gov/geo/opp/documents/policy/AIL-POL_1000.06%20ECW%20Gear.pdf).

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

Baggage

Due to crowded conditions on the research vessels, you should pack the clothing and personal items you'll need on the journey into a single piece of baggage. The remainder of your baggage 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 Punta Arenas warehouse, and only if approved in advance by NSF.

TRAVELING TO PALMER STATION

Travel to Palmer Station and other Peninsula research sites is primarily via the LMG. The transit takes 4-5 days, depending on routing and sea conditions. Before sailing, the ASC representative and ship's personnel will provide an orientation that includes ship procedures, safety policies, and room assignments. Attendance is mandatory.

Ship transits are usually crowded, so please comply with regulations and show courtesy in common areas, passageways, and dining areas. Remember that ships operate 24/7 and crew members and staff are either working or sleeping at all times. Be considerate and quiet in passageways.

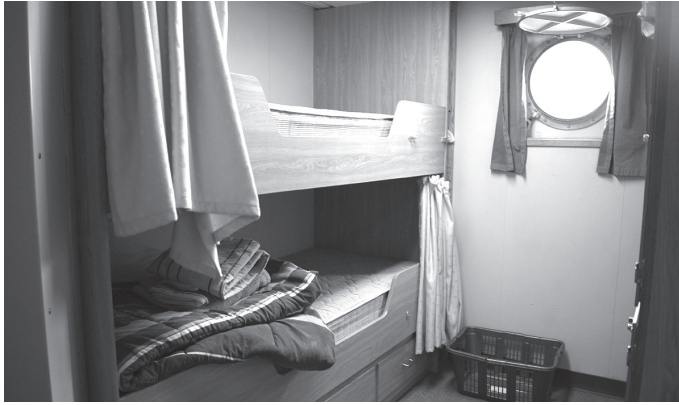
There is no charge for meals. If you are prone to motion sickness, consult with your personal physician before deployment. Over-the-counter medications (e.g., Meclizine) are often sufficient to relieve sea sickness. Bland crackers, such as saltines or soda crackers, can also help, and it is important to stay hydrated.

Upon arrival at Palmer Station, please clean your cabin and place all linens in the laundry room to assist the ship's stewards. Take all your baggage and personal items with you when you disembark.

RETURNING TO CHILE

Grantees

At least three weeks before you plan to return from the Antarctic Peninsula to South America, give your northbound travel plan to the ASC administrative coordinator at Palmer Station or the MPC on the vessel. 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) Science Cargo" in Chapter 4.



A cabin onboard the research vessel Laurence M. Gould. Photo by Elaine Hood.

ASC Employees

Your departure will be scheduled before you complete your contract. Be sure you notify the ASC administrative coordinator or MPC of any travel plans.

All Participants

Upon arrival in South America, you will be met by a Damco representative who will give you your return itinerary and collect your ECW clothing. Generally, the clothing is collected on the vessel prior to docking in Punta Arenas and returned to the warehouse in bulk.

Individuals who plan personal travel following their return to Chile are responsible for their own transportation to the Punta Arenas airport and will not receive "meet and greet" service in Santiago.

CHAPTER 6: Living and Working at USAP Facilities



McMurdo Station is the largest station in Antarctica and the southernmost point to which a ship can sail. This photo faces south, with sea ice in front of the station, Observation Hill to the left (with White Island behind it), Minna Bluff and Black Island in the distance to the right, and the McMurdo Ice Shelf in between. Photo by Elaine Hood.

USAP participants are required to put safety and environmental protection first while living and working in Antarctica. Extra individual responsibility for personal behavior is also expected. This chapter contains general information that applies to all Antarctic locations, as well as information specific to each station and research vessel.

WORK REQUIREMENT

At Antarctic stations and field camps, the work week is 54 hours (nine hours per day, Monday through Saturday). Aboard the research vessels, the work week is 84 hours (12 hours per day, Monday through Sunday). At times, everyone may be expected to work more hours, assist others in the performance of their duties, and/or assume community-related job responsibilities, such as washing dishes or cleaning the bathrooms. Due to the challenges of working in Antarctica, no guarantee can be made regarding the duties, location, or duration of work. The objective is to support science, maintain the station, and ensure the well-being of all station personnel.

SAFETY

The USAP is committed to safe work practices and safe work environments. There is no operation, activity, or research worth the loss of life or limb, no matter how important the future discovery may be, and all proactive safety measures shall be taken to ensure the protection of participants.

Although work in Antarctica poses risks, no personnel shall be allowed or required to expose themselves to unsafe conditions in the performance of their work. It is the responsibility of all USAP participants to perform their work safely, and they have all the safety and occupational health (SOH) training, appropriate tools, personal protective equipment (PPE), and other hazard protections necessary to do so. Supervisors are responsible for the safe conduct of any and all work under their control. They shall be familiar with all codes, standards, and regulations relevant to their work and ensure that such requirements are strictly enforced. These include all applicable OSHA standards and applicable host nation requirements.

Safety is everyone's responsibility. For emergencies in Antarctica, it may take hours or days before help arrives. If you see an unmitigated risk, inform your supervisor, scientific leader, or the safety representatives at your station, or contact OPP's Safety Program manager at 703-292-7477. If you are injured, seek medical attention first. However, any participant suffering an injury, no matter how minor, or any participant involved in or witnessing an accident or incident, no matter how minor, must report it to one of the contacts above. Accidents or incidents may include injuries, spills, near misses, or unsafe conditions.

Two safety areas merit special attention, fire safety and diving safety, and these are discussed below. For more on OPP's safety requirements, please see the Polar Environment, Safety and Health policy at www.nsf.gov/geo/opp/pehs/documents/Safety%20and%20Occupational%20Health%20Policy%20PESH.pdf.

Fire Safety

Fire is a serious threat to life in Antarctica, especially since shelter is critical to survival. Because of the dry and windy conditions, fires start easily and spread rapidly. Most fires are caused by carelessness, poor housekeeping, or faulty electrical or mechanical operations. Precautions must be taken to eliminate all fire hazards.

All participants must understand and obey fire prevention rules, attend fire prevention trainings, 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.



After a deep dive in McMurdo Sound, a scientific diver hangs on the down line for a safety stop. The down line marks the access hole through the sea ice. Safety stops in shallow water reduce the risk of decompression sickness. Photo by Jim Mastro.

Diving Safety

Some science projects in Antarctica require scuba or surface-air-supplied diving. There are unique risks associated with polar diving, including extreme cold, limited entry/exit points, ice in many forms, potentially dangerous marine life, low light and visibility, and contaminated water. Because 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 NSF. To obtain approval, a dive plan must be submitted that is consistent with NSF/OPP Standards for the Conduct of Scientific Diving. These standards are included as Appendix 12 in the NSF/OPP Safety and Occupational Health Policy, available online at the link noted above or from your POC.

If the PI's home institution has a diving safety officer, he or she will be required to comment on and approve any request to dive in Antarctica. Final authorization will be made by the OPP diving safety officer or another NSF-designated individual. Before approval, additional training may be required, or it may be necessary to change the original dive plan. Dive plan forms and individual diver information sheets are available in the dive section of POLAR ICE (polarice.usap.gov/login/index.cfm), the online application for science and technical support.

A variety of diving equipment is available at McMurdo and Palmer stations and aboard USAP research vessels, including scuba tanks and backpacks, weight belts and weights, regulators, dive computers, and compressors. PIs must specifically request the use of any NSF/OPP equipment in their SIP during pre-season planning. Recreational diving is not permitted.

The *Antarctic Scientific Diving Manual* contains reference tables and information on certification, dive sites, environment, operations, and emergencies. The manual is available online at [www.usap.gov/scienceSupport/documents/Antarctic Dive Guide.pdf](http://www.usap.gov/scienceSupport/documents/Antarctic_Dive_Guide.pdf).

Safety

The five most common injuries in Antarctica are:

- Sprains/Strains
- Contusions (bruises)
- Lacerations (cuts)
- Repetitive motion or overuse-type injury
- Splinter/punctures

If you do have an injury:

- Get immediate medical attention.
- Never hesitate or delay going to Medical for treatment.
- Report it promptly.

Reporting and analyzing accidents is the best way to prevent future incidents. Also, you could be penalized for not reporting an injury or a near-miss incident. Note that 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.
- You must file the report on the day of the injury.

FIELD SAFETY TRAINING

The USAP continually strives to improve safety. Part of this effort consists of field safety training, which includes a variety of specialized courses with the following objectives:

- Provide basic training in cold weather survival skills; topics include risk assessment, cold weather camping, ECW use, hypothermia and frostbite, working on sea ice, altitude awareness, and glacier travel.
- Provide field teams with instruction on the use of the equipment they will be using in the field.
- 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 team leader and team members to learn the strengths and weaknesses of others.

Generally, people leaving the established road system in and around McMurdo Station must complete training appropriate to their expected exposure, previous training, and experience. Some courses are tailored to the needs of each team, such as those spending their time in the Dry Valleys, working on sea ice, or traveling long distances by snowmobile.

Courses are not intended to develop advanced field skills (such as mountaineering or traversing crevasse fields) 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 there should be at least one safety guide to oversee any activities that occur on technical terrain.

Due to the nature of instruction, there is some risk of injury. 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 course instructors and must obey their instructions.

Antarctic Field Safety Courses

The following courses are provided at McMurdo Station:

Antarctic Field Safety – A four-hour class required annually for all personnel who will be traveling off the established trail system and/or riding in a helicopter.

Sea Ice Safety – A one-day course required for all personnel who will be working or traveling independently on the sea ice. Personnel who have taken the full course any time within the previous five seasons need only take the sea ice refresher course (45 min).

Altitude Safety – A two-hour course required for all McMurdo-based personnel who will be working at or above 8,000 feet without close support.

Glacier Travel Safety – A 1.5-day course required for all personnel whose work requires travel in steep and/or crevassed terrain above the firn line and/or on active glaciers.

GPS Training – A three-hour class required for all grantees working on the sea ice and highly recommended for all ASC participants who work on the sea ice.

Outdoor Safety Lecture – A one-hour class required for all personnel who want to participate in recreational activity, such as hiking and skiing, in the immediate area surrounding McMurdo Station. The class covers rules and guidelines for safe travel and explains the check in/check-out process.



Sea ice safety training teaches participants how to determine the thickness and condition of the sea ice and whether it is safe for travel. Photo by Elaine Hood.

Shakedown Courses – Two-day, customized courses are required for those going to un-established field camps that do not have 24-hour heated buildings with food and water easily accessible. The **Deep Field Shakedown** course is oriented to camps based on snow, and the **Dry Valleys Shakedown** course is for camps based on rock or ice. The Antarctic Field Safety course must be completed before taking either Shakedown course.

The following courses are provided at Palmer Station:

Small Boat Passenger Training – A one-hour class required annually for all personnel who will be traveling as a passenger in any small boat.

Small Boat Operator Training – A multiple-hour class required annually for all small boat drivers.

RHIB Competent Crew Training – A multi-hour class required for personnel who will be conducting research or traveling as a passenger on one of the rigid-hull inflatable boats.

Islands Survival – A one-hour class required for all small boat operators and recommended for frequent small boat passengers.

Backyard and Glacier Travel – A 15 min video required for personnel who visit the Backyard or the glacier behind Palmer Station.

The following course is provided for certain vessel-based USAP participants:

Peninsula Field Safety – An eight-hour class required annually for all personnel who will be working from the vessel on islands or sea ice.

The Field Manual for the U.S. Antarctic Program provides information on field party preparation, safety training, transportation safety, radio usage, weather, shelters, sea ice, glacier travel, rescue, and other topics. You can find the manual online at www.usap.gov/TravelAndDeployment/contentHandler.cfm?id=540.

HEALTH

Antarctica's extreme environment and relative isolation challenge human health and wellness. Chapter 2 discusses the rigorous screening participants must undergo, as well as the limited medical care available in Antarctica. This section will discuss specific health and wellness issues as they relate to the Antarctic environment.

Most of Antarctica is a polar desert and thus very dry. In this environment, large amounts of fluid are lost through the skin and lungs. The mucous membranes lining your nose and mouth become dry and no longer offer adequate protection against viruses. You must increase your fluid intake, even if you don't feel thirsty, and especially if you are physically active. Caffeine and alcohol will increase fluid loss, so avoid consuming large amounts of beverages or foods containing them. Chocolate and many soft drinks contain caffeine.

Viral respiratory infections, such as colds and flu, are often exacerbated by the extreme dryness and can be quite severe. Eating well and getting plenty of sleep and fluids will help you stay healthy during your deployment. In addition, research strongly suggests that maintaining an adequate level of vitamin D in the blood may reduce the frequency and severity of these infections. Consult with your healthcare provider regarding your blood level of vitamin D and the proper daily dose. Vitamin D3 is not available at Antarctic stores, so if you do need it, you will have to bring an adequate supply with you.

Remember also to bring your own supply of over-the-counter medications, including aspirin, ibuprofen, cold medications, and cough drops (see Chapter 3).

To limit your exposure, and to prevent you from exposing others if you are ill, cover your mouth when you cough or sneeze, don't share cups and eating utensils, and wash your hands frequently.

Sunburn. Snow and ice reflect 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. Amundsen-Scott South Pole Station and some field camps are at physiological elevations above 3,000 m (10,000 ft). The short 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 conditions.

The signs of altitude sickness can include shortness of breath that is not relieved promptly by resting, headache, dizziness, and difficulty sleeping. You will feel better if you avoid strenuous activities for the first two days, increase fluid intake, stop or limit smoking, and avoid alcohol and caffeine. Altitude sickness can occur as late as five days after reaching altitude and occasionally can progress to a serious or life-threatening condition. Anyone developing symptoms should see the local medical provider.

A preventative medicine called acetazolamide is available at the McMurdo clinic. Treatment should begin up to 24 hours before leaving for the high altitude. This drug should not be taken by those allergic to sulfa medications.

Vision Care. If you require contacts or other prescription eyewear, you are required to bring them with you. You should also bring your own contact lens supplies and spare eyeglasses. Contacts generally perform well in Antarctica, although some people develop severe dry eyes and are not able to use them. Field work will be prohibited if you are not wearing appropriate prescription eyewear. Serious injuries and deaths have occurred because participants could not see well.

Snow blindness. This condition is caused by exposure of the eyes to excessive ultraviolet light, at levels typically experienced in Antarctica. It can be serious, painful, and disabling. Snow blindness is prevented 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 and 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 getting into the eyes.

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

RECREATION

Attendance at the appropriate safety briefing(s) is required by all participants before they are allowed to recreate off-station. Note: The work equipment you are issued is for authorized activities and is not to be used for recreation. You are authorized to use U.S. government equipment only to accomplish your approved work.



Hiking the Castle Rock loop, a 10-mile marked trail near McMurdo Station, is a popular recreational activity. Photo by Robyn Wasserman.

PERSONAL CONDUCT

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 others who might have to attempt a rescue. Antarctica – every part of it – can suddenly and unexpectedly become a very dangerous place. You must always keep this in mind.

In addition, all participants are required to conduct themselves in a manner that reflects positively on the USAP, whether in transit, at a station, aboard a research vessel, or in a field camp. All participants must strictly adhere to the **Polar Code of Conduct**. The Code is in the Appendix and at www.nsf.gov/geo/opp/documents/policy/polar_coc.pdf.

The Code's tenets are rigorously enforced, and violations will result in disciplinary actions, up to and including termination or revocation of grant.

Alcohol and Drugs

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

The ability to deal effectively with a mishap is reduced when a person is intoxicated or under the influence of drugs or alcohol. NSF will not tolerate abuse of alcohol or drugs, including controlled, prescribed, and over-the-counter drugs. 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 USAP 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, ENERGY, AND WATER

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

Waste management is far more stringent in Antarctica than in the U.S. Every work center is required to schedule a briefing regarding the waste management program, and all personnel are required to sort their own trash. Marked receptacles are located in work centers and lodging areas for separating solid waste (e.g., cardboard, recyclables, metal) and hazardous wastes (e.g., batteries, aerosol cans, fuel and oil).

Given that neither the 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 to the continent. USAP waste management practices follow the same principle in reverse: All USAP 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, reducing waste reduces the cost of handling it and furthers the USAP's primary mission of supporting research.

Energy and water. Power at all three stations and on the research vessels is provided by diesel-powered generators that deliver electricity at 120 volts, 60 hertz, the same as in the U.S. Reliability is good, but rare surges or outages could affect electronic equipment. Energy constitutes a significant operational cost for the USAP, and this includes the cost of producing potable water.

Fresh water at McMurdo and Palmer stations is made from seawater using reverse osmosis. At South Pole Station a Rodriguez well produces fresh water from melted ice, but production capacity is limited and water conservation is critical. Summer residents are restricted to two, two-minute showers per week.

Although there are no such restrictions at McMurdo and Palmer stations, nor on the research vessels, everyone is expected to make efforts to conserve both energy and water.

COMMUNICATIONS

Communications within Antarctica, and between Antarctica and other parts of the world, are a vital and integral part of USAP research and support. The primary use of the communications infrastructure is to support the science and operational requirements of the USAP. However, there are opportunities for personal use on a “not to interfere” basis.

While in Antarctica, you can either use your own personal laptop or one of the public computers in the small computer centers at all three stations. These are available 24 hours a day. The Internet is available at all three stations via the USAP network. If you wish to connect your personal laptop to this network, you must bring your own ethernet adaptor. At McMurdo Station, grantees have access to IT equipment in the Crary Lab, which includes Macs, PCs, a scanner, a color printer, and an E-size plotter.

Mobile devices (smartphones, iPads) are not allowed to access any USAP network (though limited exceptions are made for grantees in the Crary lab who demonstrate a mission-critical need). Also, there is no cell service at U.S. stations. On the research vessels, mobile devices are encouraged for accessing the Internet, but they are not allowed to connect to the ship's USAP network.

You are provided a USAP network account upon your arrival, but before you are allowed to access it you must complete USAP Information Security Awareness training. (Instructions for completing this training are included in your deployment paperwork.) **When using the USAP network, you are required to adhere to the USAP Enterprise Rules of Behavior (EntROB)**, which are based on federal laws, regulations, and agency directives. There are consequences for non-compliance, including dismissal, civil liability, and/or criminal prosecution.

The Enterprise Rules of Behavior:

- Apply to all resources that comprise the USAP information infrastructure and all users of USAP information resources
- Define appropriate and acceptable use of USAP information resources
- Define prohibited use of USAP information resources

All USAP participants have a role in protecting the USAP network and USAP information, and all are subject to USAP policies related to information security. The USAP Information Management Resource Directives are located at www.usap.gov/technology/contentHandler.cfm?id=1563.

Computer Usage

Prohibited:

- Distributing or copying copyrighted material (DVDs, MP3s); downloading copyrighted material that was not legally purchased
- Downloading pornographic, sexist, racist, or other offensive material
- Internet video or voice communications that have not been pre-approved for business or educational outreach purposes
- Network gaming
- Personal servers (for e-mail, FTP, web access); secure file transfer protocol (SFTP) may be approved for use in situations where a bona fide business need exists
- Personal wireless access points, routers, switches, or any other unauthorized network devices
- Physically accessing, modifying, or altering configuration settings or in any way changing or disrupting any information system or network infrastructure

Acceptable:

- Mission-specific activity
- Reasonable e-mail and Internet browsing
- Reasonable instant messaging
- Reasonable personal business (e.g., online banking, shopping)

E-mail. ASC personnel are provided with a USAP e-mail address upon arrival on station. You may continue to use your private e-mail account, but be aware that you are using program bandwidth and resources and still must adhere to the EntROB. E-mails cannot exceed 20 MB. If you need to transfer a file that exceeds 20 MB for business or scientific purposes, contact the local Help Desk.

Grantees are not assigned a USAP e-mail address unless one is either requested in their SIP or requested on arrival. If a USAP e-mail account is not requested, all local mail is sent to the e-mail address specified in project's SIP.

Computer screening. All computers (including science experiments, mission operation systems, workstations, PCs, servers, laptops, portable notebooks, and mobile devices) are screened to ensure they meet USAP requirements before they are allowed to connect to the USAP network. Additionally, all systems must continuously maintain compliance with those 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 NSF determines there is an unacceptable level of risk or threat to the USAP IT environment.

General information about USAP computer technology requirements can be found at: www.usap.gov/usapgov/technology/index.cfm?m=4. Changes to guidance occur frequently, so please check the link regularly for new directions.

Telephones. U.S. Antarctic stations and ships access commercial and government satellites for transmitting data and voice. This service is available for business and private use, although official communications have priority. Satellite systems are reliable, but service outages do occur. A calling card is required to place personal calls from all three stations in Antarctica. Calling cards are not sold in station stores, so purchasing a rechargeable one before deployment is recommended.

Time zones. Different countries have different schedules 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 18-20 hours ahead of U.S. Mountain Time. 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. Several websites provide easy time zone guidelines (e.g., www.timeanddate.com).

Field-party communications. Each station and ship uses hand-held and/or vehicle-mounted VHF radios for local communications. Observing 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 on station.

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

POSTAL SERVICES

U.S. domestic postal rates and regulations apply to all Army/Air Force Post Office (APO) mail to New Zealand and to McMurdo and South Pole stations. **There is no APO service to Palmer Station or the research vessels.** While postage stamps can be purchased at all three stations, participants should still bring a supply with them. Registered mail service is not available.

All NSF- and ASC-sponsored participants are granted use of the APO in Christchurch for 10 days after arriving in New Zealand from the United States and for another 10 days upon returning from Antarctica. This benefit provides a tremendous cost savings if you need to mail boxes to the United States from New Zealand. The Christchurch APO only accepts credit cards, debit cards, and personal checks.

The Christchurch APO will not accept packages unless they are received via the Postal Service. **This means you cannot order items via the Internet for courier delivery (e.g., FedEx) to you in Antarctica. Neither the Christchurch APO nor USAP offices will accept such deliveries.**

In addition, **the APO cannot be used to support any type of commercial activity. It is illegal for you to ship items to Antarctica for resale.** This prohibition is based on federal law.

Mail is received in Christchurch seven days a week. Letter mail (also known as flat mail) is transported from Christchurch to Antarctica on southbound flights whenever space is available. NSF priorities dictate that science cargo and flat mail take priority over personal packages, both to and from Antarctica. Flat mail delivery generally takes 14 to 21 days, though it can be longer depending on the time of year. Packages have the lowest priority of all cargo, resulting in a delivery time of three months or more, even during the austral summer. If you only plan on being in Antarctica for the austral summer, you may not receive boxes you sent yourself until you are about to leave. Do not place medications in package mail, and do not send perishable foods.

Mail for WinFly (late-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 space is not available for your package, it will be held in Christchurch until space allows during Mainbody.

Packages destined for summer participants at McMurdo or South Pole MUST be mailed after Labor Day and before October 15. Mail that misses participants is either forwarded (if a directory card has been given to the U.S. Post Office in McMurdo) or returned to the sender.

Mail and packages destined for winter-overs who will be arriving at the end of the austral summer should be mailed AFTER Christmas so they don't displace mail for summer participants. In addition, the U.S. Post Office in McMurdo will only hold mail for 30 days. During the winter, there is no mail service to South Pole and only limited mail to McMurdo.

The most cost-effective way to mail a parcel weighing more than 10 pounds to Antarctica is via Priority flat-rate boxes or Retail Ground. Do not use single-use packing material to cushion the contents. Instead, use clothing or something similarly useful and non-polluting. If you have a parcel that contains only videos or CDs, it can be sent at the special fourth-class media rate, which is the lowest cost. No non-media items can be included in that parcel.

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

Medicines should be mailed to you by your doctor or pharmacy in envelopes, not boxes, to ensure arrival as flat mail. Medication is not given any special priority and may take upwards of three months to reach you.

Remember, too, that all mail going to McMurdo, South Pole, and surrounding field camps is subject to customs, agricultural, and drug inspections as it passes through Christchurch. 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 search for Publication 52. 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."

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

Mail to and 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
Private Bag 4747
Christchurch 8140
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 regulations (e.g., no alcohol). The Christchurch postmaster reserves the right to refuse goods deemed excessive.

STATION-SPECIFIC INFORMATION

McMurdo Station

Lodging. Rooms are similar to those in college dormitories, and participants are assigned at least one roommate. Roommate requests, including spouses or partners, may not be honored for temporary or transient McMurdo residents. Temporary residents are defined as ASC employees staying fewer than 30 days and grantees staying fewer than 15 days. Those transiting through McMurdo to South Pole or field camps will be assigned to transient lodging. Due to round-the-clock operations, roommates may arrive at any time of the day or night.

Telephone. Calls can be made 24 hours a day from dorm rooms and offices that have phones. Due to limited bandwidth and the large number of people wanting to make calls, it can sometimes be difficult to get an open line. If you arrange a specific call time with someone using e-mail, there is no guarantee that you will be able to get through at that time. Phone calls from Antarctica are routed through Denver, Colorado, and long-distance charges are based on Denver as the originating location. If you plan to make personal long-distance phone calls, you will need to obtain a personal PIN for which you arrange payment, either via a calling card or from an online company. Business calls are made using a PIN assigned by your supervisor or, for grantees, the Crary Lab supervisor. **Incoming calls are restricted to USAP business and emergencies.**

Radios and pagers. These may be checked out through the Communications department on station but are exclusively for business use.

Fax machines. These are available for limited use, with permission from your supervisor. Grantees can use the Crary Lab fax machine whenever needed.

E-mail and Internet. The satellite infrastructure used to provide off-continent communications in Antarctica is limited. McMurdo Station has 24/7 access to the Internet over a very small (17Mb) link that is shared by the entire McMurdo community. While high-bandwidth mission activities can be supported with prior coordination, participants should have no expectations regarding service for non-mission activities. For example, using video chat applications (such as Skype or Facetime) or social media applications (such as Facebook) are restricted since they severely impact the bandwidth available for science and operational traffic. Many high-bandwidth and/or inappropriate sites are blocked or de-prioritized to support mission-essential traffic.

Mail. The U.S. Post Office at McMurdo offers basic services and maintains regular hours during the summer. There is only limited service during the austral winter. The Post Office only accepts credit and debit cards for sending packages, and it does not send COD mail. Stamps are sold at the station store.

Your address in McMurdo is:

[Your Name]
PSC 769 Box 700
APO AP 96599-9998

If filling out an online shipping form, enter "APO" as the city and "AP" as the state.

Television and Radio. The cable television and broadcast radio stations at McMurdo Station are affiliates of the American Forces Network (AFN) and receive technical support and programming under the directive of the Defense Media Activity. AFN programming for the television station includes a variety of news, sports, movies, and general entertainment, and the Navy Motion Picture Service provides movies. There is also an NSF science channel with access to two programs that cover research the agency supports in fields as diverse as astrophysics and sociology: Science Now and Science Nation. Additionally, locally programmed channels provide information vital to station operations, including the emergency alert service, real-time weather and flight information, the dining menu, and other general community information.

The radio station broadcasts AFN feeds consisting of popular music, news, talk radio, and local programming designed by volunteer DJs from the community. Participants may wish to bring a small radio for their dorm room or work center.

Recreation. Facilities include a library, clubs, a climbing wall, gymnasium, weight room, aerobics room, and band room. Volunteers organize activities such as art shows, chili cook-offs, running races, yoga classes, dances, music performances, league play, lessons, and lectures. DVDs, CDs, board games, costumes, musical instruments, cross-country skis, and other items are available for rental.

Laundry. Facilities and detergent for personal use are provided at no charge in the dormitories. Participants are responsible for washing linens and clothing. Full loads are encouraged to minimize water consumption.

Religious Services. These are provided by a military chaplain during the austral summer. 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.

Meals. Food service is cafeteria style. There is no portion limit, but to minimize cost and waste take only what you will eat, and eat all of what you take. A variety of food is offered every day. People with severe dietary restrictions or significant food allergies need to be prepared for limited choices. Gluten-free, vegetarian, and vegan menu items are often available but not guaranteed. In addition to the regular three meals, a midnight meal is served in the summer, first to night workers and then to the general population. Snacks, pizza, and leftovers are available at any time.

Note: Consumption of alcohol is not allowed in the dining facility unless approved beforehand by station management.

Station store. The station store stocks a limited supply of toiletries, snacks, beverages, and souvenirs. Rationing systems help ensure that all residents have access to items. However, it is prudent to bring a sufficient supply of toiletries for your entire deployment.

Medical. The McMurdo Clinic provides health care on both a walk-in and appointment basis during posted hours, six days a week. Hours are posted at the entry and on the McMurdo intranet. For emergencies, staff can be reached 24/7 by calling 911. 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. A dentist is not available during the season, although one may be deployed near the end of the summer to help with winter-over PQ exams. During the winter, the physician has only limited capability to treat and manage dental and rehabilitation needs. The clinic has a limited pharmacy and does not provide over-the-counter medications.

All injuries should be evaluated at the clinic. The physician will work with the safety manager to determine whether a workman's compensation claim is filed. Injuries are tracked to identify potential health risks to the population.

Vehicles. Vehicles are assigned to grantees and work centers. If your assignment requires driving a vehicle, you will receive training in proper operation and preventive maintenance.

Waste. It is the responsibility of all persons to keep the station presentable by properly sorting and disposing of all recyclables and waste. By entering a U.S. Antarctic station, you automatically consent to abide by local procedures prescribed for waste management.

Amundsen-Scott South Pole Station

Lodging. There are 154 rooms in the Elevated Station. All are single rooms, but double-occupancy rooms can be created when required.

Telephone. Calls can be made only when there is active satellite coverage. Remember to bring a calling card for personal calls. As with McMurdo, calls are routed through Denver, Colorado, and long-distance charges are based on Denver as the originating point. Science, business, and emergency-related calls can be made using an Iridium phone during times of no satellite coverage. Incoming emergency calls must be routed through ASC or NSF.

E-mail and Internet. South Pole Station has very limited access to the Internet during short windows of satellite time. For an up-to-date look at the satellite schedule, please visit www.usap.gov/usapgov/technology/contentHandler.cfm?id=1935. USAP network e-mail is available only during periods with active satellite coverage. Business, science, or emergency e-mails may be sent or received outside of satellite hours by using restricted, group-based e-mail accounts.

Mail. South Pole has a postal service center where stamps can be purchased (cash only) 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. Your address at South Pole is:

[Your Name]
PSC 768 Box 400
APO AP 96598-0001

If filling out an online shipping form, enter "APO" as the city and "AP" as the state.

Recreation. There is a large gymnasium, a weight and cardio room, a sauna, a small arts-and-crafts room stocked with basic supplies, a quiet reading room, a small greenhouse with public lounge, two movie lounges, a pool room, and a music room stocked with basic instruments.



The elevated station at the South Pole contains dormitory rooms, offices, a cafeteria, a gym, a store, and a postal service center. Photo by Paul Sullivan.

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

Meals. Food service at the South Pole is cafeteria style, with three meals served daily. Take as much as you want, but only take what you are able to eat. Remember, every piece of food thrown in the garbage has to be flown out of Pole.

A variety of food is offered every day. 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. You may arrange takeout meals with food service management for those who are ill or on duty. Volunteers provide assistance with dish washing and, on special occasions, with food preparation.

Station store. The store stocks a limited supply of toiletries and beverages. Antarctic and South Pole souvenirs are also available for purchase, but supplies are limited in variety and quantity. Only cash and traveler's checks are accepted at the store.

Medical. The South Pole clinic is equipped to handle a wide range of minor illnesses and injuries and to stabilize critical patients for evacuation. It has a limited pharmacy and does not provide over-the-counter medications. A physician is on staff year-round and provides health care on a walk-in basis.

Housekeeping chores ("house mouse") are shared by all personnel on a rotating basis. All residents participate in cleaning residential bathrooms, and most work centers have weekly chores.

Money. There is no ATM at South Pole Station, and credit cards cannot be used. No check cashing services are available. Some ASC employees may be able to have funds deducted from their paychecks and cash provided to them while they are on station. However, UTMB employees do not have this option, as UTMB does not participate in remote cash disbursements. Non-ASC participants (grantees) must bring all of their cash with them.

Palmer Station

Lodging is similar to college dormitories, with two-person, shared rooms and community bathrooms. Linens, pillows, comforters, and towels are provided, as are laundry facilities and detergent. Water is plentiful, and usage

is generally not restricted, though conservation is encouraged. There is no janitorial staff. Everyone participates in station clean-up, radio watch, and hosting visitors.

Telephone. Calls can be made from Palmer Station, and each room has a phone with a Denver, Colorado phone number. As with the other stations, long-distance charges are based on Denver as the originating point. A calling card is required.

E-mail and Internet. Palmer has a 3 Mbps satellite link that provides Internet, data transfer, and telephone service. The Internet connection is shared by 44 people at Palmer and up to 97 when the LMG is at the pier. Due to this limited bandwidth, any desired software, music, or videos should be downloaded before you leave home. Large downloads and streaming media have a negative impact on everyone else.

Mail. The station has no post office. Mail reaches Palmer Station on most southbound vessels, about once a month. Friends and family should send letters and limited small packages (smaller than a shoe box) to the ASC office about two weeks before the ship's scheduled departure from Punta Arenas. Packages should include a packing list, as they will be opened and inspected before they are sent to the station.



Palmer Station, on Anvers Island in the Antarctic Peninsula region, is the smallest of the three permanent U.S. stations. Photo by Julian Race.

Mail should be sent to:

[Your Name]
[Palmer Station or Vessel
Name]
c/o ASC
7400 S. Tucson Way
Centennial, CO 80112-3938

Recreation. Facilities include an exercise room with weights and cardio equipment and a self-service bar with billiard and ping pong tables. There are arts-and-crafts supplies, and for outdoor recreation there is a limited selection of cross-country skis, snowshoes, and camping equipment. The station also has a sauna and an outdoor hot tub. There is no live TV, but there is a library of movies and TV shows available for viewing on a large-screen projector in the lounge.

Meals. Food service is cafeteria style. A variety of food is offered every day except Sunday, when there are ample leftovers available. People with severe dietary restrictions or significant food allergies need to be prepared for limited choices. Vegetarian options are generally offered, while gluten-free and vegan items are often available but not guaranteed.

Station store. A small store stocks toiletries, over the counter medicines, souvenirs, and beverages.

Medical. The station has a small but well-equipped clinic, with a physician available year-round.

Tourism. During the summer, a number of tour ships and yachts visit the station. Members of the community participate in preparing for these visits, giving tours of the station or working in the store.

Boating. Palmer maintains a fleet of small inflatable boats (Zodiacs®) and two 30-foot, closed-cabin, rigid-hull inflatable boats (RHIBs). Some recreational use is allowed for viewing local wildlife. Safety training is required before participants are allowed to travel in or operate these boats.

Research Vessels

Lodging. Accommodation on the research vessels consists of two-person cabins with private toilets and showers. Each ship has laundry facilities.

Telephone. Service is available for personal use at no cost via the Iridium satellite phone system. This "morale phone" is a shared resource and calls should be limited to 10 minutes.

E-mail and Internet. E-mail is sent from the vessel in near real time and received by the vessel on a 30-minute schedule. The message size, including attachments, is limited to 10 MB. There is limited Internet access while at sea. Please consult your POC for the current vessel Internet access policy.

Mail to participants on the research vessels can be routed through Damco in Punta Arenas, using the same general address as for Palmer Station (see above). For cruises originating in New Zealand or elsewhere, please consult your POC for mailing instructions.

Recreation. Both vessels have a small exercise room and a TV lounge with DVDs.

Meals. Cafeteria-style meals are provided.

Motion Sickness. Be aware that travel on USAP 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 depart. See "Travel to Palmer Station" in Chapter 5 for more information.



The research vessel Nathaniel B. Palmer. Photo by Julian Race.

For a detailed vessel orientation guide, go to www.usap.gov/vesselScienceAndOperations/documents/Vessel-Orientation-Guide.pdf.

APPENDIX: Polar Code of Conduct

Introduction

Since its establishment in 1950, the National Science Foundation (NSF) has supported research in the Arctic to better understand the region and its interactions with the rest of the planet. The 1984 Arctic Research and Policy Act designated NSF as the lead federal agency for the Interagency Arctic Research Policy Committee (IARPC) and initiated an emphasis on research in the Arctic that was furthered by the 2013 National Strategy for the Arctic Region. Fieldwork in the Arctic frequently takes place in towns and villages, in other nations, and in collaboration with other U.S. federal agencies and organizations. It is also inherently risky, and it receives considerable attention from the media.

Without interruption since 1956, American scientists have been studying the Antarctic and its interactions with the rest of the planet. The United States Antarctic Program (USAP) carries forward the nation's goals of supporting the Antarctic Treaty, fostering cooperative research with other nations, and protecting the Antarctic environment. By Presidential Memorandum 6646 in 1982, NSF was affirmed as the single-point manager for funding and managing U.S. activities in Antarctica. The USAP has been highly visible and is growing ever more so, often with activities and events making the domestic U.S. and global news cycle on a regular basis.

The preeminence of NSF's Polar Programs is predicated on the dedication and hard work of researchers, support personnel, and other program participants. A high standard of professionalism from all personnel is of the utmost importance.

Purpose

The purpose of this Code of Conduct is to restate important principles and expectations for professional conduct and acceptable behavior by all personnel. While non-exhaustive, this Code is a shared statement of commitment to uphold the ethical, professional, and legal standards required to fulfill these principles and objectives.

Code of Conduct

The National Science Foundation seeks to ensure that the following objectives and guiding principles are complied with and promoted by all personnel:

- The foremost objective of your presence in Antarctica and/or the Arctic is to contribute to accomplishing the mission of the U.S. Government while fully adhering to all applicable international and national legal and policy requirements, including those of the Antarctic Treaty System and the Arctic's state, local, and tribal governments.
- All personnel will treat others with dignity and respect, will exercise the highest level of professional and ethical behavior, and will work cooperatively to resolve differences.
- It is everyone's responsibility to provide a safe workplace and to protect the polar environment.

Scope

This Code applies to all persons working at or visiting a USAP or an NSF-managed Arctic station, field camp, other facility, ship, or aircraft, and this includes researchers, students, contractors, official visitors, federal civilian and military personnel, and others. Further, persons who are financially supported by NSF, through grant, contract, or otherwise, are also expected to adhere to the Code of Conduct while deployed to other field locations in the Arctic and Antarctic. Finally, the Code equally applies to all conduct occurring in foreign countries and logistics gateway cities (e.g., Punta Arenas, Chile; Christchurch, New Zealand; and Kangerlussuaq, Greenland), as personnel travel to and from their polar deployments.

This Code sets minimum expectations for personal and professional behavior. More stringent requirements imposed by third parties (e.g., employing organizations, vessel or station management) remain fully in effect.

While not exhaustive, the following acts are examples of conduct that violate the fundamental principles and objectives of this Code:

- Physical or verbal abuse of any person, including, but not limited to, harassment, stalking, bullying, or hazing of any kind, whether the behavior is carried out verbally, physically, electronically, or in written form.
- Conduct that is offensive, indecent, obscene, or disorderly.
- Possession, use, sale, manufacture, transfer, trafficking in, or being under the influence of illegal drugs, including marijuana, and abuse of legal drugs.
- Violation of applicable policies, including, but not limited, to the NSF Safety and Occupational Health Policy; the USAP Alcohol Policy, and the USAP Lodging Policy.
- Violation of the USAP Information Technology Enterprise Rules of Behavior.
- Violation of the Principles for the Conduct of Research in the Arctic.
- Solicitation of gifts. In general, Federal ethics laws prohibit the solicitation of gifts (for example, any gratuity, favor, food, or entertainment). See e.g. 5 C.F.R. 2635.202(c)(2). Personnel may not solicit gifts.
- Endorsements, expressed or implied, of products, services, or enterprises. Such endorsements are prohibited. See e.g. 5 C.F.R. § 2635.702. USAP and/or NSF facilities, property, logos, or insignias may not be used for endorsement purposes.

Violations of this Code of Conduct may be shared with current and future USAP or Arctic program support contractors, federal agency partners, or grantee institutions. Further, violations of this Code of Conduct may result in adverse consequences to the individual, including, but not limited to, removal from a USAP or Arctic station, field camp, other facility, ship, or aircraft; termination of employment (by the employer); or other administrative, civil, or criminal enforcement actions, as appropriate.

Glossary

62nd Airlift Wing – USAF unit that provides C-17 aircraft support to the USAP.

109th Airlift Wing – Division of the New York Air National Guard that supports the USAP.

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. This is the aircraft payload, based on take-off conditions, landing restrictions, range, weather, and fuel requirements.

AFN – Armed Forces Network; provides television and radio content for McMurdo Station.

AIL – Antarctic Infrastructure and Logistics. NSF/OPP section responsible for material assets and logistics.

AIMS – Antarctic Infrastructure Modernization for Science.

AMC – Air Mobility Command, U.S. Air Force.

ANG – Air National Guard, U.S. Air Force Reserve Component.

ANT – NSF/OPP section that manages research grants.

AOD – Airport of Departure.

APO – Army and Air Force Post Office.

APT – Antarctic Passenger Terminal at the International Antarctic Center in Christchurch, New Zealand.

ASC – Antarctic Support Contract. The primary logistical support contractor to the USAP, managed by Leidos.

ASMA – Antarctic Specially Managed Area.

ASPA – Antarctic Specially Protected Area.

ATO – Antarctic Terminal Operations. Division of ASC that manages the movement of passengers and cargo.

Bag Drag – The process whereby passengers are weighed and checked for ECW gear, carry-on bags are approved, and luggage is palletized for transport.

BEST Recycling – ASC teammate that provides waste and recycling services to the USAP.

BFC – Berg Field Center. The McMurdo building that contains field camp equipment.

Biolab – Palmer Station building containing the biology laboratory.

BizOps – Business Operations. ASC functional work group overseeing finance and budget.

Boomerang – A flight that departs and returns to its origin due to weather or mechanical problems.

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 between New Zealand and McMurdo.

CDC – Clothing Distribution Center in Christchurch, New Zealand

Chalet – Building at McMurdo Station that houses NSF and ASC headquarters staff.

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 station activity.

COMAIR – Commercial airline transport.

COMNAP – Council of Managers of National Antarctic Programs.

COMSUR – Commercial surface vessel transport.

Communications – ASC functional work group overseeing publications, media relations, technical editing, education outreach, photo archiving, and USAP-related news stories.

Condition One – Weather condition when visibility is less than 100 ft., wind is greater than 55 knots, or wind chill is greater than -100°F. Work and travel are severely restricted.

Condition Three – Weather condition in which there are no restrictions to work or travel.

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. There are some travel and work restrictions.

Continental Area – The part of Antarctica that includes McMurdo Station, South Pole Station, and many field camps (including deep-field camps). Does not include the Peninsula area.

CONUS – Continental United States.

Crary Lab – Crary Science and Engineering Center. Main laboratory at McMurdo Station. Also known as Building One, or CSEC.

Damco – ASC teammate providing cargo logistics and operational support in Punta Arenas.

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.

DV – Distinguished Visitor.

ECO – Edison Chouest Offshore LLC. The company that owns and operates the two USAP research vessels.

ECW – Extreme Cold Weather. Used in reference to the special clothing and equipment issued to USAP participants.

Event Number – A number identifying a science group that has received funding from the NSF to perform research in Antarctica.

FAR – Federal Acquisition Regulations.

Facilities – ASC functional area for facilities maintenance, construction, and professional services.

Gana-A' Yoo (GSC) – ASC teammate providing lodging, recreation, food service, retail service, and postal service for the USAP.

Genetically Modified Organism (GMO) – Any organism in which any of the genes or genetic material has been modified by in vitro techniques.

GHG Corporation – ASC teammate providing most of the on-Ice IT and communications support.

Grantee – Any individual who has received or is supported by a grant from the NSF.

GWR – Palmer Station building containing the garage, warehouse, and recreation.

Herbie – Term used to describe a storm with fierce winds and/or snow.

HR – Human Resources.

IAC – International Antarctic Center, Christchurch, New Zealand.

Ice – Slang term for Antarctica, as in “I’m going to the Ice.”

IGY – International Geophysical Year, 1957-1958.

Implementers – The people who work most closely with science projects in Antarctica.

IT&C – Information Technology and Communications. ASC functional work group overseeing telecommunications and computers.

JSOC – Joint Space Operations Center; a building in McMurdo.

KBA – Kenn Borek Air, Ltd. The company that provides small fixed-wing aircraft, pilots, and support.

Kiwi – Nickname for New Zealanders.

Land-line – A regular telephone line, as opposed to radio or other wireless communication.

LC-130 – A ski-equipped, four-engine, Lockheed Hercules turboprop airplane.

Leidos – The prime contractor supporting the USAP; manages the group of companies known as Antarctic Support Contract (ASC).

LMG – Antarctic research and supply vessel ARSV *Laurence M. Gould*.

LTER – Long Term Ecological Research.

MPI – Ministry of Primary Industries, New Zealand.

Mainbody – The period of time between October and February when the majority of USAP activity occurs.

MCC – Movement Control Center, McMurdo Station, Antarctica.

MEC – Mechanical Equipment Center, McMurdo Station, Antarctica.

Medevac – Medical evacuation of a patient.

Milvan – Vernacular for cargo containers used for shipping and storing supplies.

MOGAS – Motor automotive gasoline.

MPC – Marine projects coordinator.

MPSM – McMurdo, Palmer, South Pole Modernization.

MSC – Military Sealift Command.

NBP – Research vessel ice breaker RVIB *Nathaniel B. Palmer*.

NGO – Non-governmental organization.

NPQ or NPQ'd – Not physically qualified.

NSF – National Science Foundation, the agency of the U.S. government that manages the USAP.

NYANG – New York Air National Guard.

NZAP – New Zealand Antarctic Programme.

NZDF – New Zealand Defence Force.

Operations – ASC functional work group overseeing vehicle fleet maintenance and operation, fuels, fire department, station services, and recycling.

PA – Abbreviation for Punta Arenas, Chile; a staging area for Peninsula operations.

PAE – ASC teammate providing infrastructure, operations, transportation, and logistical support for the USAP. PAE New Zealand (PAE NZ) provides Christchurch operations.

Pax – Vernacular for passenger/s.

PESH – Polar Environment, Safety and Health. OPP section responsible for environmental, safety, and health issues.

Peninsula Area – The part of Antarctica that extends up toward South America and includes Palmer Station.

PHI – The company providing helicopters, pilots, and helicopter support.

Phoenix – A runway on compressed snow near McMurdo Station that accommodates wheeled airplanes.

PI – Principal Investigator. Team leader or scientist in charge of a funded research project.

PMO – Program Management Office. ASC functional group that oversees the prime contract.

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 or PQ'd – Physically Qualified.

PSR – Point of Safe Return.

PTH – Abbreviation for Port Hueneme, CA, the port through which most USAP cargo passes.

Radioisotope – Radioactive material used in research.

Redeployment – Passenger transport from destination to origin.

Retrograde – Describes cargo returned 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.

ROS – Required on Site. Date that an item is required to be at a station or on a vessel, usually expressed as a Julian calendar date.

RSP – Research Support Plan. The planned support to be provided for a science project.

SAAM – Special Assignment Airlift Mission, a mission supported by the USAF AMC at the request of the NSF.

SAR – Search-and-rescue.

SCAR – Scientific Committee on Antarctic Research, of the International Council of Scientific Unions, a nongovernmental organization.

Science Planners – ASC personnel in Alexandria, VA who work with science groups to plan their research season.

S&TPS – Science and Technical Project Services. ASC functional work group that works with scientists to ensure their research requirements are met.

SFA – Support Forces Antarctica. The tactical operational name given to U.S. military personnel and equipment in Antarctica.

SIP – Support Information Package, a listing of the resources requested by the grantees.

SOPP – SPAWAR Office of Polar Programs. Agency that provides weather forecasting and air traffic control services for the USAP.

SPoT – South Pole Traverse.

SSC – Science Support Center, a building in McMurdo containing the MEC and field safety instructors.

T&L – Transportation and Logistics, an ASC functional work group overseeing cargo and passenger transport and inventory management.

USAF – United States Air Force.

USAP – United States Antarctic Program. The U.S. government's program for research and related activities in 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.

UTMB – University of Texas Medical Branch. ASC teammate providing medical qualifications and telemedicine services.

V-event – A visitor, approved by the NSF, for visiting USAP locations.

Vessel – Generally 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, also known as the heavy shop.

WinFly – Vernacular for “winter fly-in.” Usually occurs in late August.

Williams Field – A snow skiway airfield located near McMurdo Station.

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Emergency
To get an urgent message to someone in Antarctica, call ASC headquarters (303-790-8606). Explain the emergency and you will be put in contact with the appropriate person.

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