

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.

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.

