

CHAPTER 7:**Stations and Ships**

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



photo by Christine Hush

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

MCMURDO STATION

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

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

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

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

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

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

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

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

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

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

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

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

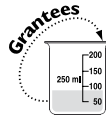
Communication radios and pagers may be checked out through the communications department on station for business use.

Emergency

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

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

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



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

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

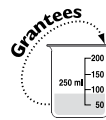
Recreational streaming media is highly restricted at all stations and field camps.

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

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

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

Your address in McMurdo will be:



McMurdo Summer and Winter - Grantees:

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



McMurdo Summer and Winter - RPSC Employees:

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

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

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

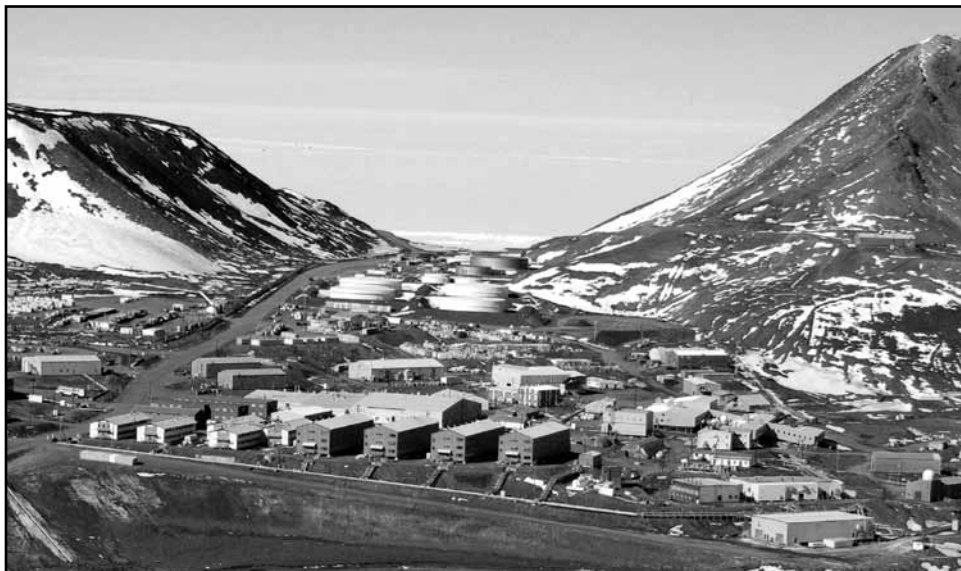


photo by Bob Koch

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

accommodates all religious practices and is available for counseling, both religious and secular. The chapel program provides opportunities for volunteers to use their gifts in ministry and service.

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

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

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

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

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

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

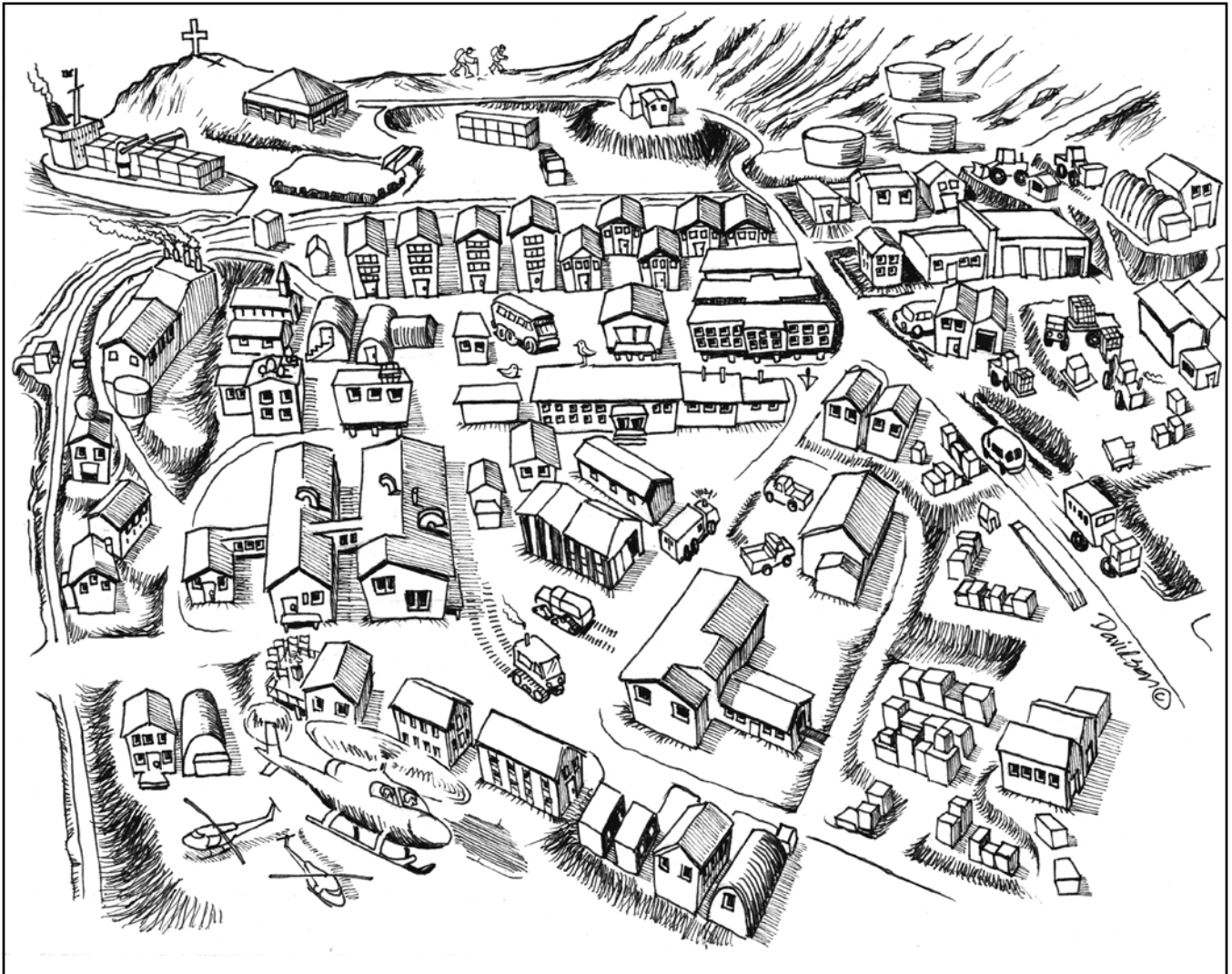
Trash. It is the responsibility of all persons to keep the station presentable by properly sorting and disposing of packing materials and other trash, which is recycled to the extent practical. By entering a U.S. antarctic station, you automatically consent to abide by local procedures prescribed for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

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

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

Chaplain services are provided by a military chaplain and New Zealand Catholic priests, who rotate on one-month intervals. In addition to conducting regular worship services and religious programs, the chaplain

McMurdo Station



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

The Crary Lab is a central building at McMurdo Station, with more than 46,500 feet² (4,320 m²) of working space available. It was built in three phases with five sections, called “pods,” each designed to facilitate research in a different area of the earth sciences and engineering. The main pod contains a library, shared-use computers, conference rooms, administrative offices, shared-use instrument laboratories and equipment/material storage. Three of the pods are designed to support research specific to biology/chemistry, geology and physics/engineering. These pods include laboratory space, office space and specialty areas for microscopes, environmental rooms, analytical chemistry labs, staging space, ice and rock sectioning rooms, chemical storage and an electronics workshop. The fifth pod is an aquarium room with wet labs, running sea water, and a variety of aquarium tanks designed to hold live animals and to test equipment before it is deployed to the field.

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

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

AMUNDSEN-SCOTT SOUTH POLE STATION

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

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

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

February through late October.

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

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

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

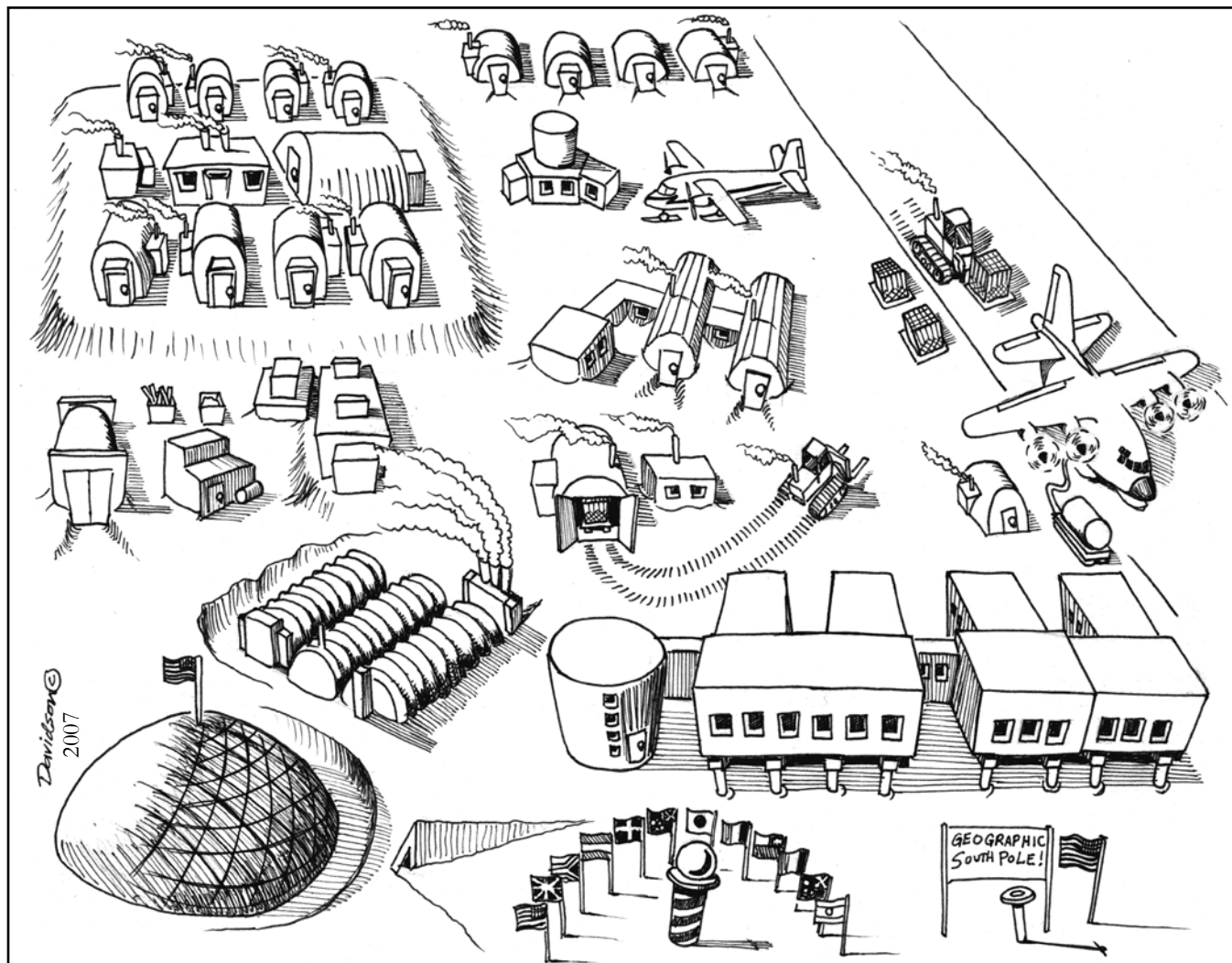
Fax Machine. There currently is no fax machine service available at South Pole. Scanned images of documents are transmitted via e-mail to eFax, a company that faxes the document to the recipient. For incoming service, faxes are sent to eFax, which then e-mails it to the Pole, where it is printed.



Photo by Scot Jackson

An aerial view of Amundsen-Scott South Pole Station.

Amundsen-Scott South Pole Station



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

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

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

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

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

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

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

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

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

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

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

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

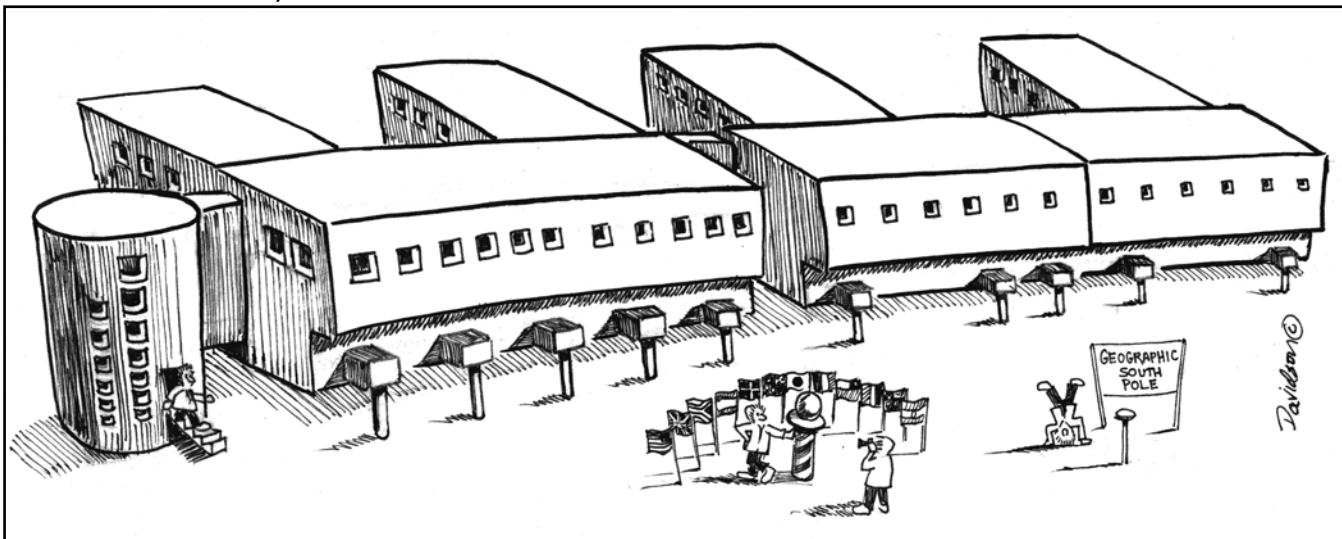
Credit card usage is not available.

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

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

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

Elevated Station, South Pole



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

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

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

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

PALMER STATION

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

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

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

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

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

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



photo by Glenn Grant

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

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

Palmer's **climate** is milder than that of the other U.S. antarctic stations, primarily because it comes under the influence of a polar-maritime air mass. The mean annual temperature is minus 3°C (27°F). Average temperatures range between 2°C (36°F) in

the summer and minus 10°C (14°F) in the winter. The annual average wind is about 10 knots. Compared to other U.S. Antarctic Program stations, precipitation is high with ample rainfall. The water equivalent in snow and rain averages 81cm (32in) per year.

Water conservation is encouraged but usage is not restricted.

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

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

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

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

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

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

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

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

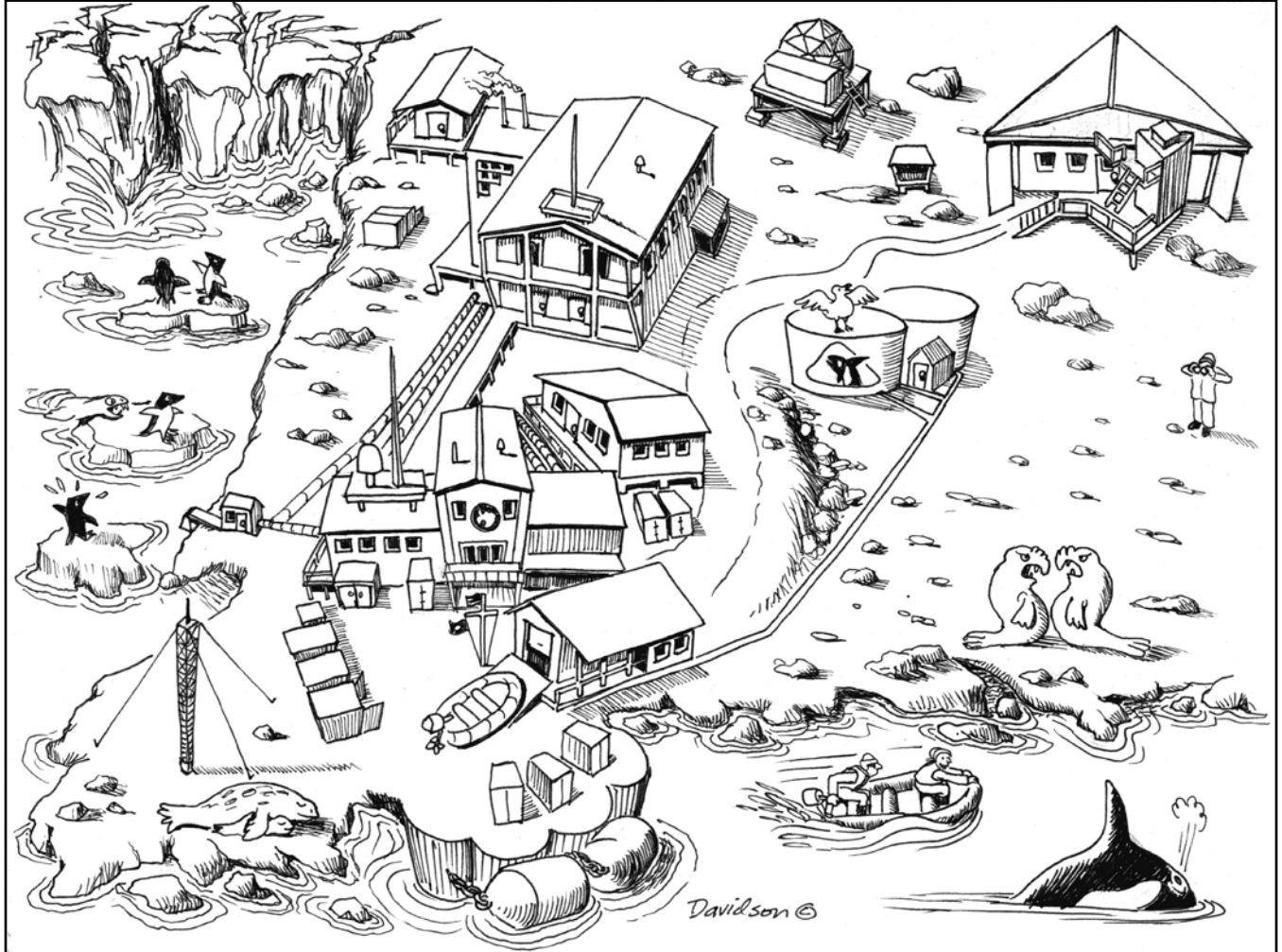
Flat/Letter Mail (first class mail and magazines) should be sent to:

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

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

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

Palmer Station



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

Your packing list must show the following information:

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

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

Via the U.S. Postal Service:

NSF Contractor Representative
 P.O. Box 338
 Port Hueneme, CA 93041
 Forward to:
 [Participant's Name]
 [Palmer Station or Vessel Name]

Via Other Carriers (FedEx, UPS, DHL, etc.):

NSF Contractor Representative
 Building 471 North End
 USN-CBC
 Port Hueneme, CA 93043
 Forward to:
 [Participant's Name]
 [Palmer Station or Vessel Name]

NOTE: If you are placing **catalog or Internet** orders to be shipped to the station, use the appropriate address above and send an e-mail to Port Hueneme letting them know that the package is coming. This will avoid confusion and delays in shipment. Your message should include the vendor name, package contents, your name, final destination and tracking numbers (if known). E-mail: PH-Cargo-Ops@usap.gov

Flat and Package Mail can be shipped directly to Chile via Chilean Postal Service; however, this method can be **unreliable and very slow**. Mail can be forwarded to the station or vessels, or it can be held for you in Punta Arenas depending on how it is labeled. The address is:

[Participant's Name] Palmer Station, Antarctica
c/o AGUNSA
Deposito Franco Antartico
Av. Independencia 772
P.O. Box 60-D
Punta Arenas, Chile

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

Meals are cafeteria style at no charge. Clean-up is done on a rotating schedule by all Palmer Station residents.

Recreation opportunities are available. There is an exercise room with weights and cardio machines. There is also a self-service bar, a TV lounge, billiard and ping pong tables, etc. There are some arts and craft supplies available, as well as a limited selection of cross-country skis and snowshoes. The station also has a small darkroom. Boating (after training has been completed) is available as weather permits and is a popular way to enjoy the wildlife in the area.

A small **station store** stocks a limited supply of toiletries, souvenirs and beverages.

RESEARCH VESSELS

The **R/V *Nathaniel B. Palmer* (NBP)** began science operations in late 1992 when it sailed from Punta Arenas in support of the Russian-United States Ice Camp Weddell. Since then, the 94-meter (308 ft) *NBP* has sailed more than 110 science cruises, and it is now into its second long-term charter in support of U.S. Antarctic Program marine science research.

The *NBP*'s main engines provide a total horsepower of 12,700. This rating, along with hull strength and other criteria, combine to qualify it for classification by the American Bureau of Shipping (ABS) as an ABS Maltese Cross A1, Maltese Cross AMS, Ice Class A2, icebreaker (able to break three ft of ice at a continuous forward speed of 3 knots). A modern, multi-disciplinary research vessel, the *NBP* has six laboratories totaling 353.5 m² (3,800 ft²). It can accommodate 39 scientists and RPSC crew.

The *NBP* has worked in many areas of the Southern Ocean, including the Ross and Weddell seas, the Bransfield Strait, and has completed two circumnavigations of Antarctica in support of research projects.

The **R/V *Laurence M. Gould* (LMG)** began its service in Antarctica on January 16, 1998. A new contract with the NSF ensures that the vessel will continue Antarctic research and re-supply missions until the year 2020. Since 1998, the *LMG* has sailed in support of more than 80 science cruises. This ABS Maltese Cross A1, Maltese Cross AMS, Ice Class A1, 70.2-meter ship, has an available horsepower of 4,576 in open water operations and 3,900 horsepower during operations in ice. The A1 rating classifies the *LMG* as being capable of breaking one foot of first-year ice while maintaining continuous forward progress. It has berthing space to accommodate a total of 28 scientists and RPSC personnel. There are an additional nine bunks for passengers transiting to Palmer Station.



photo by Gerrit Paulham

The R/V *Laurence M. Gould* docked at Palmer Station.

The *LMG* works primarily in the Antarctic Peninsula region, transporting support and scientific personnel and cargo to and from Palmer Station and supporting research throughout the peninsula area. Voyages are also made farther afield, including the Weddell Sea.

Both vessels are equipped with an enclosed Baltic Room, a diverse sonar suite, a specially designed aquarium room, moon pool, and an uncontaminated seawater system delivering water to several labs. The *NBP* seawater supply is also available on the 02 Level's Helo Deck.

Both the *NBP* and *LMG* are owned and operated by Louisiana-based Edison Chouest Offshore (ECO) and were built by North American Ship Building, a subsidiary of ECO located in Larose, Louisiana.

Living conditions on the research vessels include two-person cabins; private toilets and showers are available in each cabin. Each ship has laundry facilities, exercise rooms, and TV lounges with DVDs. Cafeteria-style meals are provided. Be aware that travel on the U.S. Antarctic Program research vessels often involves passing through some of the roughest seas in the world. If you are prone to motion sickness or have never sailed before, consult with your personal physician for the appropriate medication before you leave home.

E-mail is available on both ships and is sent and received at least twice daily. The message size and the use of the attachments in e-mail from the vessels are limited and there is no Internet connection available while at sea. Please consult your POC for the current vessel e-mail policy.

Telephone service via the Iridium satellite phone system is available for personal use at no cost via a morale phone. Calls on this phone should be limited to 10 minutes. INMARSAT is also available 24 hours a day, but at a cost of approximately \$3.00 per minute. Personal calls via INMARSAT must be placed using a credit card.

Mail to participants on the research vessels can be routed through AGUNSA in Punta Arenas. Please consult the mail information described under Palmer Station to find appropriate mailing addresses. For cruises originating in New Zealand or elsewhere, please consult your POC for mailing instructions.

For more information, go to www.usap.gov/vesselScienceAndOperations.

FACILITY ADMINISTRATION

The NSF, a federal agency, plans, funds, manages and coordinates the U.S. Antarctic Program in accordance with U.S. government policy.

The Department of Defense (U.S. Air Force, Air National Guard, Army, Military Sealift Command, and Air Mobility Command) and the Department of Homeland Security (Coast Guard) provide logistics, as requested by the NSF, on a reimbursable basis. The NSF contracts with RPSC for station operating support services, science support services, operation of the research ships, for facilities planning and construction, and logistics services.

Senior U.S. representative in Antarctica. The director of the NSF has designated the OPP office director as the senior U.S. representative in Antarctica, or SUREPA. During the austral summer operating season, the office director sometimes designates ranking officials of the U.S. Antarctic Program to serve as senior U.S. representative in Antarctica. The official designated is normally located at McMurdo Station during the summer operating season. The senior U.S. representative ensures that U.S. policy and directives for the U.S. Antarctic Program are implemented, represents the United States as it interacts with foreign nations in Antarctica, ensures that U.S.-sponsored antarctic activities are carried out consistent with the Antarctic Treaty, and takes appropriate action in personnel matters not subject to military or other authority. At McMurdo, the SUREPA's office is located in the NSF Chalet.

NSF representative. The NSF representative is on the continent throughout the austral summer and is the Foundation's principal representative for implementing the planned field operations. He/she coordinates and establishes on-site priorities for field support of U.S. Antarctic Program activities, coordinates the supervision and direction of the NSF contractor's efforts at McMurdo and the inland sites, and serves as an NSF spokesperson. The NSF representative has an office located in the Chalet at McMurdo Station.

NSF science representative. The NSF science representative is the Foundation's principal representative for antarctic science activities, interacts with investigators and the NSF representative to set science-support priorities, gives on-site direction to the RPSC laboratory services manager on science matters, and serves as the NSF science spokesperson. The position is occupied by different NSF science program managers over the course of the summer. At McMurdo Station, the NSF science representative has an office in the Albert P. Crary Science and Engineering Center.

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

Commander Joint Task Force Support Forces Antarctica (CJTF SFA). The commander of Department of Defense support forces in the U.S. Antarctic Program. The CJTF SFA is located at Hickam Air Force Base, Hawaii.

13th Air Expeditionary Group Commander (13 AEG/CC). The 13th AEG commander is the designated commander of all military forces deployed to the Joint Operations Area as part of Joint Task Force Support Forces Antarctica.

NSF representative, Antarctic Peninsula. The NSF representative, Antarctic Peninsula, is resident at Palmer Station or aboard research vessels during a part of the austral summer. This person coordinates U.S. activities in the Peninsula area.

NSF representative, South Pole is resident at South Pole Station during a part of the austral summer. This person coordinates U.S. activities at South Pole Station.

RPSC area director/station manager. RPSC has an area director/station manager at McMurdo, South Pole and Palmer stations during the austral summer. This person, in conjunction with the senior RPSC representative, oversees all contractor support activities. An RPSC winter site manager serves in this role during the winter months at each station.

Station science leader. The NSF designates a science leader for U.S. Antarctic Program stations. The station science leader is directly responsible to the Office of Polar Programs when no NSF representative is on the continent. Researchers at each station, or working out of the station, are responsible to the station science leader, who coordinates science projects and arranges for the logistics needed to support them. Researchers request support from the station science leader during the winter, who consults with the NSF station manager (at McMurdo) or the station manager (at South Pole or Palmer stations) to arrange the support. The station science leader clears official messages concerning research projects before dispatch.

RPSC winter site manager. This position is responsible for all station support activities including local support for science projects. At McMurdo Station, the NSF station manager is designated as the senior official on station. At South Pole and Palmer, the winter site manager and support personnel maintain the station and support the research projects. In an emergency, the winter site manager is in complete charge of everyone at the station.

Marine project coordinators (MPC) are provided by RPSC on both research vessels who coordinate and direct shipboard activities in conjunction with the ship's master. The MPC and the ship's master make all decisions regarding the safe conduct of the ship.

User committees. RPSC convenes an annual McMurdo Area User Committee (MAUC), a South Pole User Committee (SPUC), an Antarctic Research Vessel Oversight Committee (ARVOC) and a Palmer Area User Committee (PAUC) to review the effectiveness of the various antarctic laboratories. These committees review input collected from grantees, NSF representatives, RPSC laboratory managers, etc., to assess safety, environment and health requirements, space allocation, scheduling, equipment status, staffing, communications, computing and to plan operational requirements for the coming season. Reports are available online at www.usap.gov/conferencesCommitteesAndWorkshops/userCommittees. ■