

CHAPTER 7:

Stations and Ships

McMurdo Station, the largest research station on the Antarctic continent, is the southernmost point on earth you can sail a ship. This photo view is to the south, with the flat white Ross Ice Shelf beyond Observation Hill.



photo by Elaine Hood

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 and overland 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. The Albert P. Crary Science and Engineering Center serves as the primary laboratory and research facility.

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

Approximately 90% of U.S. Antarctic Program participants reside in or pass through McMurdo Station. The austral winter population ranges from 150 to 200, with the summer population varying between 800 - 1,000. The station has routine weekly flights from/to New Zealand

during the busy austral summer, known as Mainbody (October - February), with less frequent flights during the winter months between March and September.

McMurdo has two airfields. Phoenix Airfield, under construction at the time this publication was printed, is located about 18 km (11 mi) from McMurdo on the McMurdo Ice Shelf. Phoenix is expected to replace Pegasus White Ice Runway during the 2017-18 austral summer and will accommodate wheeled aircraft. Williams Field Ski-way, located about 15 km (9 mi) from McMurdo is for ski-equipped aircraft only.

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 vans.

Lodging at McMurdo Station is similar to college dormitories, with a community bathroom down the hall. Linens, blankets and pillows are provided, but towels, slippers or shower shoes, and toiletry containers are not. 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 ASC 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 lodging. 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, so everyone is encouraged to practice conservation.

Telephone calls can be made 24 hours a day from dorm rooms that have phones. Phone calls from Antarctica actually 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 long distance call. If you plan to make personal long distance phone calls, you will need to obtain a personal PIN either via a calling card or from an online company, for which you arrange payment. Business calls are made using a 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.

Fax machine. Fax machines are available for limited use with permission of 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. While 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 can impact the bandwidth available for science and operational traffic. Many high-bandwidth/inappropriate sites are blocked or de-prioritized to ensure mission traffic is able to move back and forth.

McMurdo Station has 24/7 access to the Internet over a very small (17Mb) link which is shared by the entire McMurdo community. Mission traffic takes priority over this link. The internet can be accessed 24/7 from McMurdo, however most sites respond very slowly compared to what you may be used to in the U.S.

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

Mail. The post office at McMurdo offers all regular services (letter and package mail, stamps, etc.) and operates routine hours. It does not send COD mail. The post office only accepts credit/debit cards. There is limited mail service during the winter. Talk to your POC about the winter flight schedule.

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 and before October 15.**

Your address in McMurdo will be:

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

McMurdo Station has an **American Forces Radio and Television Service (AFRTS)** affiliated radio station and television station. They are supported and managed under the directive of the Defense Media Activity. The cable television programming consists of entertainment channels provided by the American Forces Network (AFN) and the Navy Motion Picture Service (NMPS). The programming includes a variety of news, sports, movies and general entertainment. Additional channels provide informational programming and include the emergency alert service, real-time weather and flight information, dining menu and other general community information.

The radio station broadcasts National Public Radio (NPR), AFN feeds consisting of popular music, news, talk radio, and local programming scheduled by volunteer deejays from the community. Participants may wish to bring a small radio for use in their dorm room or work center.

There are **recreational facilities**, including a library, clubs, climbing wall, gymnasium, weight room, aerobics room and band room. Volunteers organize art shows, chili cook-offs, running races, yoga classes, dances, league play, lessons, lectures, etc. DVDs, 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. In addition to conducting regular worship services and religious programs, the chaplain accommodates all religious practices and is available for counseling, both religious and secular. The chapel program provides opportunities for volunteers to use their gifts in ministry and service.

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

There are a variety of food options offered everyday. People with severe dietary restrictions or significant food allergies need to be prepared for limited choices. Gluten free, vegetarian and began menu items are often available, but not guaranteed.

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 **station store** stocks very limited supplies of toiletries and souvenirs.

Medical. The McMurdo Clinic provides health care on 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 hours by calling the fire dispatch emergency number (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 physical qualification. During the winter season, the physician has limited capability to treat and manage dental and rehabilitation needs. The clinic has a limited pharmacy and does not provide over-the-counter medications. You should bring adequate common over-the-counter medications to treat your needs.

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 our population.

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.

Waste. It is the responsibility of all persons to keep the station presentable by properly sorting and disposing of packing materials and other waste, 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 6 for some of the rules. Other details will be provided to you.

Albert P. Crary Science and Engineering Center (CSEC). The Crary Lab was built in the late 1980s and dedicated in November 1991. Its dedicated name is in honor of the geophysicist and glaciologist Albert Paddock Crary (1911-1987), the first person to reach both the North and South Poles. Crary was designed as a state-of-the-art laboratory facility, supporting scientists spanning a great number of fields within biology, geology, physics, chemistry and system sciences.

Crary Lab is one of the main buildings at McMurdo Station, with more than 46,500 ft.² (4,320 m.²) of working space. The lab provides a variety of general use consumables, glassware, equipment, instrumentation, chemicals, cryogenics, cold storage units, laboratory materials and general laboratory Personal Protective Equipment (PPE). Specialized gear and specialized PPE are brought to McMurdo by deploying science teams.

The Crary Lab was built in three phases with a total of five sections. Each section was designed to facilitate a particular purpose. Phase I, South Side, provides the greatest variety with a library, shared-use computers, conference rooms, administrative and staff offices, shared equipment rooms, a cargo receiving area and equipment/material storage areas. Phase I, North Side, contains laboratories for biology and chemistry work, microscope rooms with light, petrographic and fluorescent scopes, office spaces, environmental and walk-in freezer rooms, and a staging area equipped with a carpentry work bench. Phase II, South, and North Side, contains laboratory space for physics, geology, glaciology, and engineering work, Rock sectioning rooms, staging areas, cold rooms for ice core work, office spaces and the IT office. Phase III contains aquarium tanks, a flow

through seawater system and a few wet laboratories designed to support work on live animals, as well as test sea-bound equipment before it is deployed.

The laboratory is managed by ASC with direction from the NSF. Cray is staffed with support personnel including facilities engineers, IT support, materials and supply specialists, lab supervisors, a cryogen/chemical specialist, a research associate, and an instrument technician. The staff provides direct assistance for the hundreds of scientists who that move through the station each year. More specifically the staff allocates and redistributes resources and ensures operations comply with safety, environment and health requirements. All scientists are expected to arrive to McMurdo trained in their respective disciplines or be accompanied by a team member who provides guidance.

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

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 current station was dedicated on January 12, 2008. The winter population is around 45 and the summer population averages 150.

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 -49°C . (-56°F). Average monthly temperatures range between -28°C . (-18°F) in the summer and -60°C . (-76°F) in winter. The record high of -12.3°C . (9.9°F) was recorded in December 2011, and the record low of -82.8°C . (-117°F) was recorded in June 1982. 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 ASC or the NSF.

There 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.

Internet. The satellite infrastructure used to provide off-continent communications in



photo by Paul Sullivan

The Elevated Station at South Pole contains dorm rooms, offices, cafeteria, gymnasium, a store and post office.

Antarctica is limited. While 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 can impact the bandwidth available for science and operational traffic. Many high-bandwidth/inappropriate sites are blocked or de-prioritized to ensure mission traffic is able to move back and forth.

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.

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

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E-mail on the USAP network is available only during satellite coverage. Business, science, or emergency e-mails may be sent or received outside of satellite hour utilizing restricted group-based e-mail accounts.

Mail. South Pole has postal services 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 and before October 15. Your address at South Pole (both summer and winter) will be:

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

Meals. Food service at the South Pole is cafeteria style with three meals served daily. 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. Volunteers provide assistance with dish washing and on special occasions.

Housekeeping chores are shared by all personnel on a rotating basis. All residents participate in cleaning residential bathrooms and most work centers have weekly station chores as well.

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

Money. There is **no ATM nor credit card usage** available at the South Pole due to the limited satellite availability. ASC employees may be able to have funds taken out of their paychecks and obtain this money in cash while on station. There are **no check cashing services** available

at South Pole. **Non-ASC participants (grantees) must bring all of their cash with them to South Pole.**

Lodging. Lodging facilities at the South Pole are very limited. There are 154 rooms in the Elevated Station.

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.

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

Medical. A physician is accessible on station at all times.

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. Altitude medicine 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.

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. There is no airfield for fixed-winged aircraft.

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.

Palmer Station is a community where all residents share responsibility for the station. Everybody participates in station clean up, radio watch and hosting visitors. Residents are encouraged to share their time and talents to improve the station and the community experience.



photo by Julian Race

Palmer Station, the smallest of the three U.S. Antarctic Program research stations is supplied by the research vessel Laurence M. Gould.

Palmer's climate is milder than that of the other U.S. Antarctic stations, as it is farther north and it is influenced by a polar-maritime air mass. Temperatures in the summer season range from just below freezing to above 4°C (40°F). Winter temperatures range between freezing down below minus 10°C (14°F) in the winter. Palmer Station is often windy and wet with both snow and rain. The water equivalent in snow and rain averages 81cm (32in) per year.

Science. The science resources at Palmer Station are managed by ASC with direction from the NSF. It is the responsibility of the ASC Palmer Science Implementation Manager 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.

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

Boating. Training is required before participants are allowed in the small boats. 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.

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

Lodging at Palmer Station is similar to college dormitories with community bathrooms down the hall. Linens, blankets and pillows and towels are provided. Participants are assigned a roommate. Washing machines, dryers and detergent are provided. Everyone participates in cleaning the station, as there is no janitorial staff.

Water conservation is encouraged but usage is not restricted.

Meals. Food service at Palmer Station is cafeteria style. There are a variety of food options offered every day but Sunday, when there are ample leftovers available. 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.

Medical. A physician with emergency dental training, is accessible on station at all times.

Recreation opportunities include an exercise room with weights and cardio equipment. There is also a self-service bar with billiard and ping pong tables. There is a variety of arts and craft supplies and woodworking materials available. The station also has a sauna and an outdoor hot tub.

There is no live TV or radio, but videos and DVDs are available for viewing on a large screen projector in the lounge.

Boating is available to those who have received training. It is a popular recreational activity for viewing local wildlife and is available as weather permits. For outdoor recreation, there is limited selection of cross-country skis and snowshoes and camping equipment for short term use.

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

Telephone calls can be made from Palmer Station and each room has a phone with a Denver, Colorado phone number. You should purchase a rechargeable PIN 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 machine and scanners are available.

Internet. Palmer has a 3 Mbps satellite link which provides Internet, data transfer, and telephone service. The connection is shared by 44 people at Palmer and by up to 97 when the research vessel *Laurence M. Gould* is at the pier. For comparison, cable and DSL Internet connections range from 20 to 250+ Mbps for a single household in the US, and 4G LTE phones average 12 Mbps continuous download speeds.

Due to the very limited Internet bandwidth at Palmer Station, please bring all necessary software, files, and entertainment (movies, TV series, music) with you rather than trying to download once you are at Palmer. Large downloads and streaming media do not work well and impact everyone else on station.

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

Mail. There is no APO service available to Palmer Station and the station has no post office. Mail reaches Palmer Station on each southbound vessel, 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 in advance of the ship's scheduled departure from Punta Arenas. Packages should include a packing list and will be opened and inspected prior to sending on to the station.

Mail should be sent to:

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

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 ASC 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 resupply missions until the year 2020. Since 1998, the *LMG* has sailed in support of more than



photo by Julian Race

The research vessel Nathaniel B. Palmer.

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 ASC personnel. There are an additional nine bunks for passengers transiting to Palmer Station.

The *LMG* works primarily in the Antarctic Peninsula region, transporting support and science 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 every 30 minutes. The message size and the use of the attachments in e-mail from the vessels are limited to 10 MB per message. There is limited Internet access available while at sea. Please consult your POC for the current vessel e-mail and Internet access 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.

Mail to participants on the research vessels can be routed through Damco 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 ASC for station operating support services, science support services, operation of the research vessels, for facilities planning and construction, and logistics services.

Senior U.S. representative in Antarctica. The director of the NSF has designated the Division of Polar Programs director as the senior U.S. representative in Antarctica, or SUREPA. During the austral summer operating season, the 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, a rotating position, 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 ASC 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 and serve as Deputy Marshal. The manager interacts with all organizations represented at McMurdo. In winter, the NSF manager is the ranking U.S. government official at McMurdo and is responsible for managing emergency situations.

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.

ASC area manager. ASC has an area manager at McMurdo, South Pole and Palmer stations during the austral summer. This person, in conjunction with the senior ASC representative, oversees all contractor support activities. An ASC winter site manager serves in this role during the winter months at each station. An Area Manager may be supplemented with a site manager during the austral summer depending on station and scheduled workload.

Station science leader. The NSF designates a science leader for U.S. Antarctic Program stations. The station science leader is directly responsible to the Division 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.

ASC 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.

Marine project coordinators (MPC) are provided by ASC 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. ■