Aircraft Operations

Camp Put-In, Fixed-Wing

Communication and Shelter

Before the put-in aircraft departs, the field team must make radio contact with MacOps. The team must also erect a tent for shelter. The most efficient way to do this is to split the team into two groups. One sets up a tent and lights a stove (well away from the aircraft and turning area), while the other sets up the radio and antenna (also well away from the aircraft) and establishes communication.

Altitude and Grid North

Also, before the plane departs, one member of the field party must obtain the altitude of the camp site and the location of Grid North from the aircraft navigator or pilot. Grid North should be marked immediately with two flagged bamboo poles. The altitude is used to set the altimeter in the meteorological kit. Both parameters are necessary for weather observations and reporting.

Camp Communications, Fixed-Wing

Daily Check-in

At a pre-arranged time every day, field parties must engage in radio communication with McMurdo via MacOps. Radio communication between some areas of Antarctica and McMurdo is poor. Sometimes it is necessary for field parties to relay their daily check-in through South Pole Station, a major field camp, or another remote field party. If a field party fails to make the daily check-in, the Emergency Operations Center (EOC) is activated and the emergency response chain is started, activating the SAR team.

In addition to the daily check-in, field teams may speak with the fixed-wing office any time between 0730 and 1900 daily in order to pass along information or request resupplies, schedule changes, or camp pull-out times.

Weather Observations

Field teams may be required to provide weather observations during daily communications and should be prepared with the information in the correct order. Field teams may also be asked to relay weather information for another field party.

When an aircraft mission to the camp is planned, field team personnel are required to report weather observations hourly, beginning

six hours before the scheduled launch of an LC-130 and three hours before a Kenn Borek aircraft. These observations continue until the aircraft lands. Refer to the Weather section for more information.

Camp Pull-Out, Fixed-Wing

The camp pull-out schedule must be coordinated with Fixed-Wing personnel, who will need detailed information regarding the weight, cube, and type of returning ("retrograde") cargo; the estimated weights and dimensions of any cargo pallets; and the specifics of any scientific samples (e.g., Keep Frozen, Do Not Freeze).

Waste Removal

Remote, deep-field groups must return all waste to McMurdo. This may or may not include human waste. See the Environmental section for more detail.

Equipment Staging

The field camp must be entirely broken down. All gear must be staged and ready for quick loading when the aircraft arrives. For LC-130 flights, all gear must be palletized.

Retrograde Hazardous Cargo

When field parties return hazardous cargo to McMurdo, it must be properly packaged and labeled, in a manner similar to how it was originally shipped (e.g., matches in foil, 12-volt batteries in wooden boxes). Each item must have its own separate and complete hazardous declaration (haz dec) to give to the flight crew. Preserving the packaging, labels, and paperwork generated for the cargo's field deployment flight makes it easier to prepare the cargo for its return flight to McMurdo.

Partially full fuel drums should be tightly capped and tipped on their side to confirm a good seal. **Caution:** When tipping the drums, nsure that spill containment is in place to catch any leakage. Containment must also be used if the drums are shipped on their side. Snowmobiles must have between ¼- and ½-tank of fuel. No more and no less.

Ski-Way Preparation

The ski-way should be prepared well in advance of the aircraft's arrival, per the requirements provided by Fixed-Wing Office staff before the field team deployed.

Communication with Incoming Aircraft

The field team member assigned to the radio is responsible for communicating all requested information to the incoming aircraft. This person should know the condition of the ski-way, the current wind conditions, and the altimeter setting. While on final approach, the aircraft commander will not want to respond to radio transmissions, but he or she will appreciate short statements regarding changes in weather, particularly wind direction.

Note: Do not interfere with the aircraft during final approach unless there is an emergency.

Returning to McMurdo Station

Return all field equipment to the appropriate work center. Package and mark cargo that will be shipped to the U.S. Specific instructions for this process are in “Instructions for Packaging and Shipping,” a document sent to all researchers before they deploy to Antarctica.

Camp Put-In, Helicopter

After passengers disembark the helicopter, the pilot will listen on Channel 7 and will not depart until a field tream member establishes radio contact and calls out the helicopter’s tail number. If communication cannot be established because of radio malfunction, the field party will be flown back to McMurdo. **Note:** Field parties should test radio equipment before deploying to the field.

Helicopter Safety

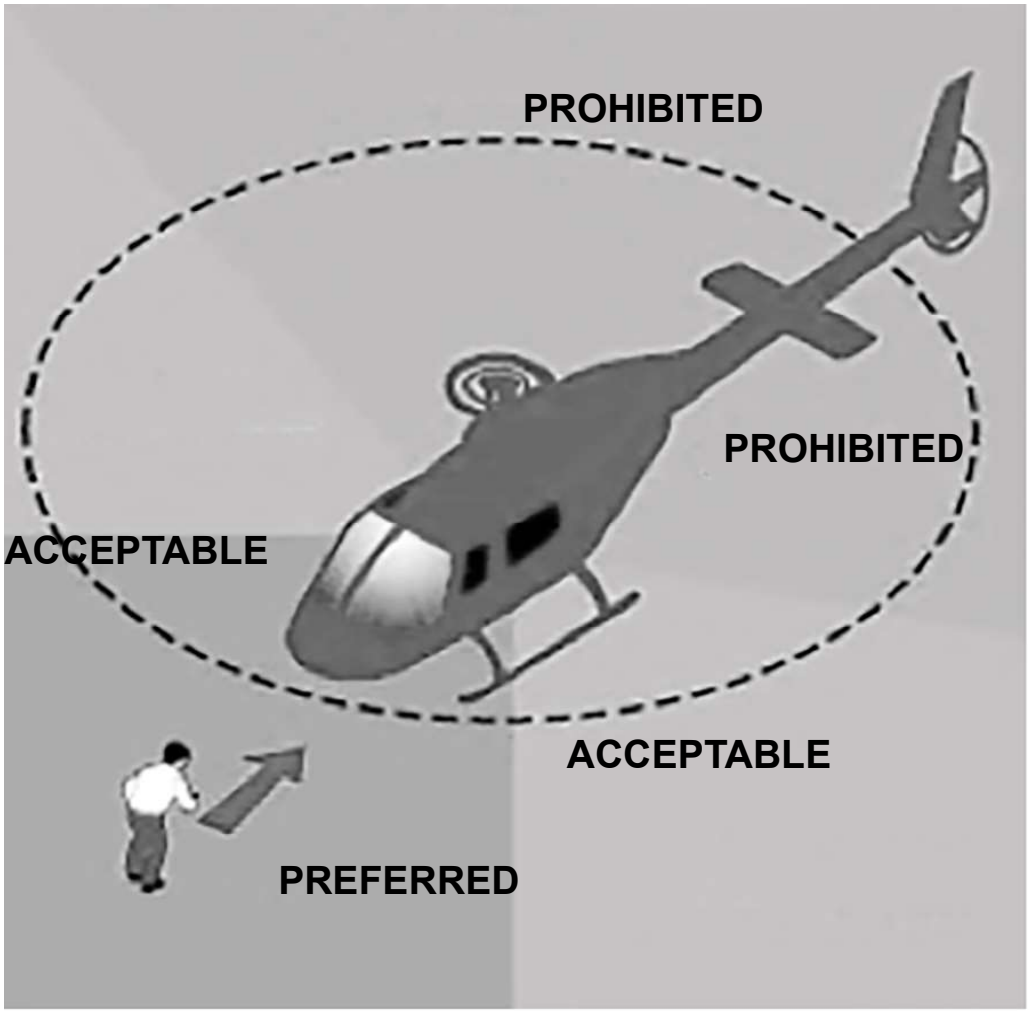
When exiting or approaching the helicopter, remain in the pilot’s view. Proceed in a crouch. Do not approach the helicopter without the pilot’s visual acknowldegment. Never, ever reach up or chase after a hat or other article that has blown away.

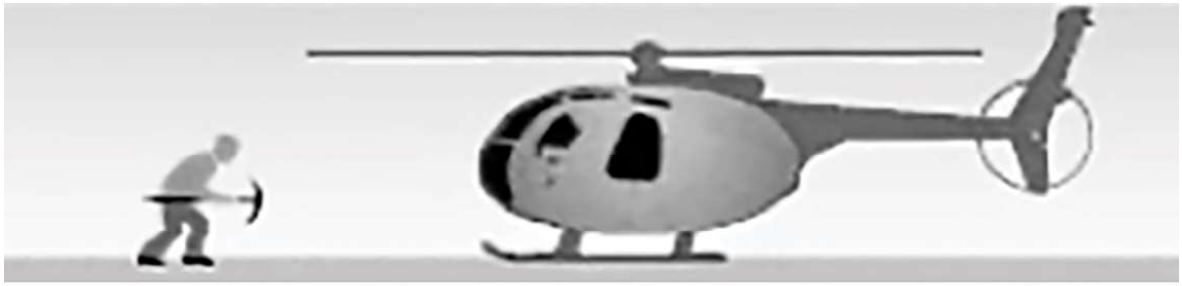
- Any movement on the helicopter pad must be authorized by the heli-pad staff, either on the pad or in the hangar.
- ALWAYS obey the pilot’s orders.
- NEVER approach a helicopter until the pilot gives a thumbs-up signal.
- NEVER walk near the tail rotor; always approach from the front of the helicopter.
- Carry long loads, such as bamboo poles, Scott tents, or survey rods, low and level to the ground.
- Do not smoke in or near the helicopter.
- Remain seated with seat belts fastened at all times.

- Wear a helmet.
- Assume the crash position if so warned by the pilot.
- In the event of an emergency, remain in the aircraft until all motion has stopped.
- Know the location and operation of emergency exits.
- Know the location of first-aid kits.
- Know the location of aircraft survival equipment.

Loading the Aircraft

In McMurdo, the heli-pad staff will load and unload the helicopter. In the field, field team members must perform this function. On most 212-supported missions, a heli-tech will be on board to assist with loading and unloading, but helitechs do not fly on A-Stars, so all field team members are responsible for knowing how to perform this function. The pilot is ultimately responsible for passenger safety and will determine if the helicopter can be loaded or unloaded with the rotors turning. However, all passengers have the right to request that the rotors be shut down if there is any safety concern.





Carry supplies and tools horizontally and below waist level.

Always approach or exit on the downslope for more clearance.

If blinded by snow or grit, stop, crouch lower, or sit down and wait for help.

If disembarking while the helicopter is at a hover, get out and off in a smooth unhurried manner.

Never approach or leave when the engine and rotors are running down or starting up.

NEVER approach a helicopter from the rear.

NEVER move upslope near a helicopter when the rotors are in motion.

Boarding

On 212-supported missions, a heli-tech will lead field team members to the helicopter when the pilot is ready for boarding. On A-Star flights, the pilot will indicate when passengers should board. Once seated, passengers must strap themselves in and connect to the helicopter intercom system. They must not talk to the pilot during takeoff or landing.

Survival Equipment

For all flights, helicopter pad staff will ensure sufficient survival bags are on board to accommodate all passengers.

Camp Communications, Helicopter

Radio Equipment

For a camp put-in, field teams must have the following equipment:

- VHF handsets with the field party frequency plan
- HF radio(s)
- Antennas
- Batteries and recharging capabilities for the duration of the field stay
- A complete back-up radio

Use VHF Channel 7 for direct communications with helicopter pilots, and know the tail number of your support helicopter. **Note:** Channel 7 is line-of-sight only, so arrange for other channels if you anticipate needing a longer range. Call directly back to Helo Ops in McMurdo for more complex communications.

Daily Communications

Overnight field groups must make daily radio contact with MacOps. Established field camps with phones can simply call in. The required daily check-in is extremely important, and a SAR response will be initiated if a field party fails to make its daily check-in.

If a flight is scheduled for a field camp, the field party will be asked to provide a local weather observation between 0715 and 0730 or between 0745 and 0800. Also, if the field party needs to make changes or if there is any other information to convey regarding support for that day, they must contact the helicopter office before 0730, which is when helicopter operations personnel begin developing the operational plan for that day.

Before returning from the field, all field parties need to contact the Lodging department in McMurdo to arrange accommodation.

Field Resupply

In camps with phone access to McMurdo, field parties can call individual departments for resupply items. These departments will notify Helo Ops of the resupply, but in order to ensure timely arrival, field parties should notify Helo Ops as well. Resupply requests can also be communicated via radio to the BFC, or after hours with MacOps. Both will relay the information to Helo Ops.

Schedule Changes

New flight requests and changes to flight schedules must be submitted three business days in advance. Requests may be communicated over the radio or telephone, but if good communications are not available the requests may be written and passed to a pilot for delivery to Helo Ops staff.

Camp Pull-Out, Helicopter

Field teams that return unneeded material and equipment to McMurdo throughout the season will find their camp pull-out relatively easy. To ensure that all camp items are picked up and nothing blows away, two team members should remain in the field to accompany the last flight.

Returning Material from the Field

The most efficient way to return material from the field – and reduce pull-out flights – is to use resupply flights, camp moves, and day-use helicopter flights. During the daily communication with Helo Ops staff, field groups can pass information concerning retrograde material so it can be incorporated into the schedule on flights of opportunity. Remember: helicopters can sling loads back to McMurdo or to Marble Point for staging, so don't let boxes and barrels pile up at camp. Retrograde it early! Label waste properly, per instructions from the environmental and waste management departments.

Scientific Sample Shipment to McMurdo

Introduction

Scientific samples represent the end product of years of planning, months of work, and extensive funding by the NSF. They are irreplaceable. Therefore, all personnel involved with handling or transporting samples must follow an established procedure to ensure the preservation of scientific data.

This procedure addresses the unaccompanied transport of scientific samples from the field to McMurdo Station via helicopters or fixed-wing aircraft. It is designed to minimize the potential for loss or damage of these samples during transport, receipt, and storage. However, it is not meant to reduce flexibility. For example, if a field team member wishes to load samples on a helicopter but does not have the proper form, the samples will still be accepted, and all personnel will do their best to ensure they are properly handled.

Procedure

If a field team intends to send unaccompanied samples from the field to McMurdo Station, team members should discuss the process with the Crary Laboratory staff before deploying to the field. Crary staff will provide the team with either “Sensitive Sample” Chain of Custody (COC) forms and green DayGlo labels or “Non-Sensitive Sample” COC forms and pink DayGlo labels, depending on sample requirements.

In general, grantees package the samples, notify either the Crary Laboratory point of contact (ext. 4188, pager 855, or at mcm-Lab-Samples@usap.gov) or the Science Cargo supervisor, schedule pickup with aviation operations, and make necessary entries on the appropriate COC form.

It is the grantee’s responsibility to package samples in a manner that adequately protects them against temperature variations and vibration during transport. Packaging should be sufficient to cover extended periods due to weather or other delays. Appropriately colored DayGlo notices should be attached to sample boxes for ease of identification and tracking. These brightly colored labels draw attention to the boxes and reduce the likelihood that they will be misplaced or overlooked.

It is also important to enter on the COC form the aircraft tail number and the time samples were placed on the aircraft. The pilots, loadmasters, helicopter technicians, ground crew, Crary personnel, USAP cargo personnel, and others involved in the cargo process will fill out their portions of the COC and deliver the samples to the appropriate location.

The following information should be provided in any correspondence or radio communication regarding the samples:

- Number of containers
- Storage requirements
- Time of pickup
- ETA in McMurdo