



FIELD CAMP OPERATIONS

Overview

USAP opens Support Information Packages (SIPs) between March and April for principal investigators (PIs) to fill out. The SIP covers science objectives, grantee participant team information, USAP equipment requested, cargo, lab consumables, camp equipment needs and personnel support requested. During the SIP process, the field team, implementer and PI discuss the project's scientific objectives and field gear.

Many field locations are well known and utilized each season. They have hard-sided, permanent structures. Locations that lack permanent structures, are less frequently used or are new for field work purposes must be identified using ArcGIS maps and/or satellite imagery and submitted to the ASC Environmental team for review, which may submit a report to NSF for approval based on the project's environmental impacts. Satellite imagery is required for all field work locations that are bound by ice (e.g., glacier, blue ice, sea ice). Any teams conducting work away from their camp site must also utilize satellite imagery to ensure a safe route is viable.

Once teams arrive at McMurdo Station, they determine their plan and field location and Field Area meets with them to fine-tune the plan. This will include meeting with the field risk manager to discuss the overall operational RM plan for the season. If the field season involves technical travel, meeting with and planning with Field Support & Training (FS&T) is also required.

Day Trips

Projects intending to remain in the field for a partial or full day must have at least two people, the correct number of survival bags, proper clothing and two distinct forms of communication with spare batteries. (See the Communications section.) All personnel must keep in mind that weather or other circumstances may cause them to remain in the field overnight.

Field Planning

Before going into the field, all teams are required to create an operational RM plan for the season. This is required for all groups conducting work either on day trips or camping at a field location for the entire season. The plan includes information about all team members, camp and worksite location, work to be completed, a comprehensive list of risks and their respective mitigations and a plan for collaborating as a team. It also details emergency planning, which includes emergency response plans, first-aid certifications, emergency caches and important medical, SAHPR and logistical contacts to call in an emergency. Teams must develop the plan together then meet with the field risk manager for up to 2 hours to discuss it. This occurs shortly after arriving in McMurdo and before departing for the field. The plans are stored on ASC's Emergency Management drive so they are accessible to the many pertinent parties in McMurdo (e.g., Central Comms, EOC, AvOps).

Besides the field teams (i.e., grantees conducting fieldwork or ASC teams assigned to field locations), many USAP participants travel to the field, for either day trips or multiple days based on their work. To track such travel away from the station, participants fill out a field plan on the McMurdo intranet to account for their team and work objectives and ensure they have emergency gear. Whether you are headed to the field for a day or season, take the following steps:

- Develop a general emergency plan.
- Discuss how it should be implemented in different situations the team may encounter.
- Discuss any job or camp hazards before initiating any work.
- Discuss methods of incident and injury prevention.
- Make risk mitigation a daily strategy and discussion topic.

- Emphasize the importance of practical RM given the remoteness of the location.
- Be certain everyone is familiar with the use of all communication equipment, and set up a schedule to check the equipment throughout the time at camp.
- Encourage field team members to be their own advocates and raise any work or camp safety issues they observe.
- Encourage team members to watch out for each other's safety and well-being.
- Revisit the plan as needed or throughout the season.

All field team members have the right to stop any operation if they observe something unsafe.

Field Planning Checklists

All Field Parties

The following checklists reflect the typical timeline for grantee field teams. ASC field parties have more time in town, so their tasks will be extended over several more days or weeks based on the project.

Day 1

- Arrive at McMurdo Station.
- Attend an arrival brief, and receive room keys and station information.
- Meet your POC.
- Find your dorm room and settle in.
- Retrieve bags from BL140.
- Check in with Crary Science and Engineering Center (Crary Lab) staff between 1000 and 1700 hours for building keys and lab or office space (if not provided by the POC and if you have office space).
- Check in with other team members.

Day 2

- Attend the science in-brief, where you will receive your binder outlining specifics for your project and getting to the field.
- Visit the BFC to get the lock combination to the cage holding field gear, and confirm that all your requested gear is in the cage. It is your responsibility to check all your gear (e.g., set up tents, test stoves, check zippers on sleeping bags).
- Meet with the Fixed Wing Office or Helicopter Office to get details on flight times and allowable cabin loads (ACLs).
- Contact the BFC to schedule the food pull and ensure allocated fuel quantities are correct.
- Contact the field risk manager to set up a time for the field plan meeting.
- Retrieve radios and other equipment from the field party communications office.
- Check with the Mechanical Equipment Center (MEC) for any requested mechanical equipment (e.g., snowmobiles, generators).
- Meet with Science Cargo to confirm deadlines for getting cargo to the field and find out where project cargo shipped from the U.S. has been staged.

Days 3–7

- Confirm that resupply items are clearly labeled and stored in the cage.
- Meet with Central Comms personnel to discuss the field communication plan and establish a daily call-in time.
- Prepare any resupplies, and stage them in your cage.
- Check and test all equipment destined for the field, and call Central Comms to test communication equipment.

- Bring all material and equipment collected from the BFC, MEC and other departments to Science Cargo for processing.
- Check that team members have been scheduled for their required training (e.g., Antarctic Field Safety [AFS], Crary Lab, radio and communication, fire extinguisher, environmental, cargo, snowmobile, small engine, light vehicle, tracked vehicle), and schedule any additional training needed.
- Pick up any required office supplies from Central Supply (BL140, upstairs), checking hours of operation before going.
- Consult with the environmental coordinator on proper procedures for handling hazardous material and human waste at the camp site, and procure necessary materials (e.g., spill kits) and correct forms for reporting spills and waste discharge.

Fixed Wing-supported

Week Leading up to Flight

- Make an appointment with McMurdo Medical to pick up a field medical box. (Your Research Support Plan [RSP] or supervisor will advise if you must do this.) Some supported camps will already have the field medical box staged.
- Meet with the field risk manager to discuss your field plan.

Five Business Days Before Flight

- This is the last day to deliver hazardous cargo to Science Cargo at BL073 so cargo handlers have sufficient time to build cargo on pallets and deliver it to the airfield.

Three Business Days Before Flight

- This is the last day to deliver all remaining non-hazardous cargo to Science Cargo at BL073 and help

cargo staff package cargo and assign shipment numbers if assistance is needed.

Two Business Days Before Flight

- Schedule a meeting to go over final cargo weights, cargo priorities and passenger names to the Fixed Wing Office.

One Day Before Flight

- Ensure that Central Comms has your put-in plan, including the camp name, camp leader and number of people in camp, and set a time for the daily check-in.
- Fixed Wing Office staff will confirm that all cargo is ready for flight.
- Check the intranet or televisions for departure times, as the fixed wing flight schedule will be published by 1800 hours.
- If dorm rooms are not being held for field team members, clear the rooms and properly store items not going into the field. Lodging personnel will perform a room inspection.
- Fully charge the batteries for satellite phones, radios, Kestrel weather meters, cameras and other electronic devices.
- Set up the “away” auto-reply on USAP and personal email accounts.

Day of Flight

- Check the flight schedule early in the morning.
- Stay near the phone identified as the team’s contact number, and monitor the pager if the team has one.
- If releasing a dorm room, pack the bedding and leave it in its blue bag outside the door.
- Be at BL140 or Derelict Junction, dressed in ECW gear, at the time indicated on the flight schedule.

- At the airfield, team members may be asked to assist with loading the plane.
- Visually confirm that sleep kits and all critical life safety items (e.g., all required shelters, stove fuel, ignition source, food, required communication devices, water for some locations) are loaded on the plane.
 - Do not allow the plane to take off until crucial safety gear has been confirmed aboard the aircraft.
 - Without critical life safety items, it may be necessary to return to McMurdo Station, delaying your field work.

Delayed/Canceled Flights

- For same-day departures, remain in the passenger area and wait for updates.
- If the flight is canceled, take the shuttle back to McMurdo Station.
- Check with Lodging staff to confirm room assignments.
- Check with the Fixed Wing Office for an updated flight schedule.

Helicopter-supported

Week Leading up to Flight

- Make an appointment with McMurdo Medical to pick up a field medical box. (Your RSP or supervisor will advise if you must do this.) Some supported camps will already have the field medical box staged.
- Meet with the field risk manager to discuss your field plan.

Three Business Days Before Flight

- Confirm the flight request (including estimated cargo weights, number of passengers and list of hazardous cargo) with the helicopter coordinator.

- This is the last day to request changes to the flight schedule.
- This is the last day to deliver hazardous material to Science Cargo.

One Day Before Flight

- Ensure all non-hazardous cargo has been delivered to the helicopter pad.
- Ensure that Central Comms has your put-in plan, including the camp name, camp leader and number of people in camp, and set a time for the daily check-in.
- If dorm rooms are not being held for field team members, clear the rooms and properly store items not going into the field. Lodging personnel will perform a room inspection.
- Fully charge the batteries for satellite phones, radios, Kestrel weather meters, cameras and other electronic devices.
- Set up the “away” auto-reply on USAP and personal email accounts.

Day of Flight

- Check the flight schedule early.
- Monitor the pager if the team has one.
- Stay near the phone identified as the team’s contact number.
- Be at the helicopter pad (helo pad), dressed in ECW gear, 45 minutes before the flight.

Delayed/Canceled Flights

- For same-day departures, remain in the passenger area and wait for updates.
- If the flight is canceled, check with Lodging staff to confirm room assignments.
- Check with Helo Ops staff for an updated flight schedule.

Camp Put-in

Camp put-in can feel chaotic. There is much to remember, so the following checklists (along with direction from ASC implementers, ASC field staff and other support staff) will help you get out the door and off to a successful season. Resources and personnel change with each season, so never hesitate to ask for clarification about put-in procedures and be proactive in your preparation. ASC Field Area is here to ensure you have a productive season.

Before Departing McMurdo Station

- Review environmental EOS report forms and instructions. Be prepared to record EOS data daily.
- Review your fixed wing- or helicopter-supported field planning checklist to ensure all items are complete.
- Turn in your room keys to Lodging staff and lab keys to Crary Lab personnel (unless authorized to keep the keys).
- Ensure all electronic devices are warm and their batteries are fully charged.
- Visually confirm that all sleep kits, communication equipment and required safety gear are loaded on the aircraft. Do not allow the aircraft to depart until this is complete.

At Camp Arrival and Before Aircraft Takeoff

- Assist the flight crew with unloading the aircraft as directed.
- If staying overnight, establish contact with Central Comms using an Iridium phone or radio, and verify the camp name, camp leader, and number of people in camp. Confirm the time of the daily check-in.
- Establish a shelter, setting up a tent away from the landing area.
- Light a camp stove.

- Inform the pilot when the above tasks are complete.
- Confirm with the pilot which is grid north by using a GPS or the sun, as this direction is used to establish directional flags in camp for weather observations.
- Stay well clear of the aircraft and any propeller wash as it departs.
- In fixed wing camps, test the VHF air-to-ground radio (if on hand) with the pilot once the aircraft is airborne.

After Aircraft Departure

- Identify the best location for the camp. Most likely, this was determined during the planning season using imagery.
 - Look for a spot that offers easy access to research sites, avoids hazards and provides protected areas for shelters.
 - Consider storm wind direction and the helo pad or skiway location to optimize the camp's orientation.
- For helicopter-supported camps, keep camp elements at least 25 meters (82 feet) away from the primary flight path. Be aware of rotor wash, and keep a secure landing zone at all times in case of unexpected helicopter landings.
- Set up all tents. Appropriate spacing may vary by location but generally starts at 3 meters (10 feet) between tents in areas with drifting potential.
- Set up the HF radio, solar panel and antenna, and test the radio by contacting Central Comms.
- Set up a camp bathroom area. This may be a tent with a human waste container or a hole in the snow (when allowed in accumulation zones).
- Do the following as soon as practical:
 - Place all fuel containers and equipment (e.g., generators) in containment berms.

- Establish a site for trash, ensuring trash is correctly packaged and labeled for return to McMurdo Station. Trash should be collected into its sorted categories. Once it is full, label it by type of trash, mark its weight, then place it in the trash triwall (i.e., triple-layered, corrugated paperboard box).
- Erect flag lines between tents or cargo lines in case of whiteout conditions, if your location warrants these measures.
- Set up a camp survival cache with spare fuel and food, often near or in the bathroom tent if it is a Scott tent. (Smaller tents [e.g., kiva tents] do not work as well.) Some teams also situate their personal locator beacon with the survival cache or a survival bag.
- Establish GPS coordinates for cargo lines, tents and the survival cache. Store your GPS device in an easily accessible location for a whiteout conditions.

Site Selection

Camp site selection is determined during the SIP process, following ACA protocols and any relevant regulations for ASMAs and ASPAs. The field team can assist in making recommendations. Details such as terrain, weather patterns, flora, fauna, distance to the worksite and logistics are considered when choosing the camp location. Once on site, the field lead is responsible for adjusting the camp site as necessary.

Wildlife, Vegetation and Sensitive Areas

Participants must not interfere with wildlife unless they have an ACA permit and a specific reason to do so. Avoid seabird nests and colonies, paths in which penguins walk to and from the ocean and seal haul-out areas. Consider any existing vegetative ground cover (e.g., mosses, grasses, lichens), and avoid trampling and disturbing it as much as possible. Also avoid camping in areas that drain into sensitive sites (e.g.,

streams, ponds, lakes, nesting areas). At the end of the field season, disassemble any rock cairns and leave the area in its original state.

Topography and Weather

Consider the lay of the land and how storms will impact the camp. Choosing areas with physical features that block wind can be ideal, but know that leeward sites will accumulate snow. Be aware of tide lines, glacier wall calving and rock fall hazards. In addition, select an area where topography does not interfere with VHF radio and Iridium satellite communications. This will be particularly important if you have an emergency.

When possible, position camp near the research study sites to decrease commute times. Conversely, it may be best to establish camp as close to the put-in area as possible to maximize the efficiency and safety of camp put-in and takeout.

McMurdo Dry Valleys

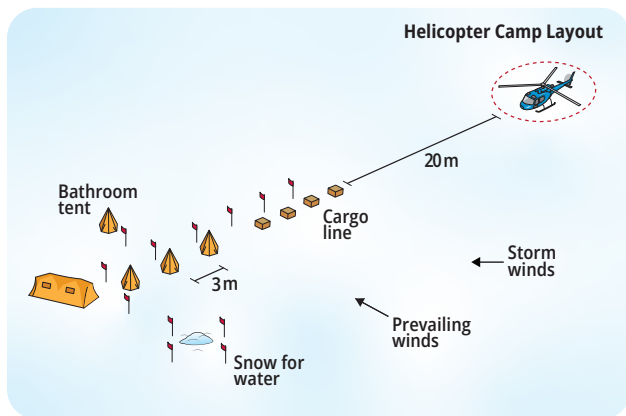
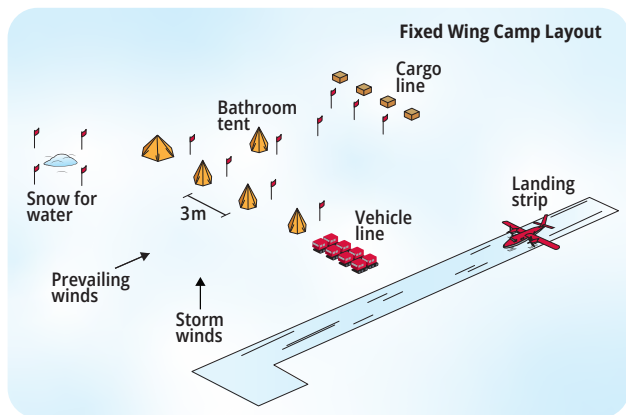
Field teams heading to the McMurdo Dry Valleys must adhere to the region's environmental regulations and consider helicopter restrictions for site selection and camp setup. Consult with ASC Environmental before going. The most commonly visited areas in the Dry Valleys have predetermined camp locations.

When erecting tents in the Dry Valleys, large boulders can provide a wind break, and large rocks or stacks of rocks can be tied off as anchors. If the field team is using metal stakes for anchors, it may take several minutes to hammer each one into the frozen soil. If the team intends to move camp, members should take extra anchors as it may be difficult to remove some from the frozen soil.

Camp Layout

The layout of camp can be discussed ahead of time and adjusted once actual conditions are observed. Consider where to erect tents (e.g., for berthing, kitchen, meeting). Establish a

bathroom area with or without a tent. Store outside gear, and establish an emergency cache. Discuss camp layout regarding possible whiteout conditions, accounting for obstacles between tents and the feasibility of erecting rope lines between berthing, kitchen and bathroom tents. Below are examples of fixed wing- and helicopter-supported camp layouts.



Survival Cache and Emergency Shelter

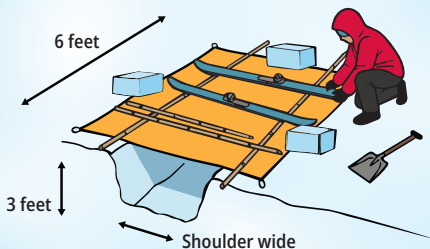
A survival cache should be set up a short distance from camp, about 200 to 300 meters (655 to 985 feet) upwind, in case the main tent with food and supplies is destroyed by fire or storm. The cache must contain a basic assortment of survival gear, with the minimum amount of each item determined by the number of people in camp and remoteness of the location. Critically, this cache must be securely anchored and its items kept dry.

The survival cache can consist of the issued survival bags, supplemented with a radio and batteries, water bottles and other crucial items specific to the field team. The bags can be stashed in a cave, anchored to the ground or buried in snow and flagged.

If the need arises for an emergency shelter, the first and most important order of business is to arrange for protection from wind. Spend some time looking around camp and investigate locations for physical features that provide a break from the prevailing wind and could be used in an emergency. Identifying those locations ahead of time can be crucial to an emergency response.

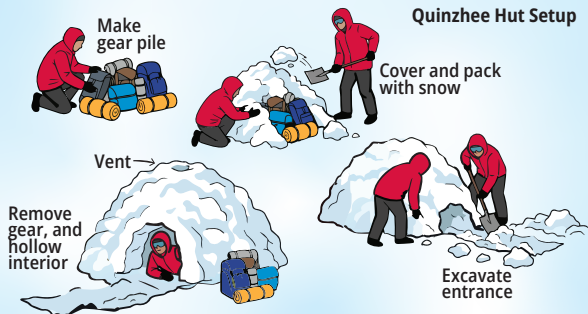
In snow, the quickest emergency shelter to construct is a trench. Dig a roughly three-foot-deep, six-foot-long, shoulder-width trench in the snow, making it long enough for a person to lie down with extra room for gear. Cover the trench with a tarp, and anchor the tarp with snow blocks, bamboo stakes, shovels, sleds or other equipment. Snow blocks or slabs may also be used to cover the trench opening. A trench can accommodate two people if the bottom is excavated to form a bell shape. However, the surface opening should remain shoulder wide.

Snow Trench Setup

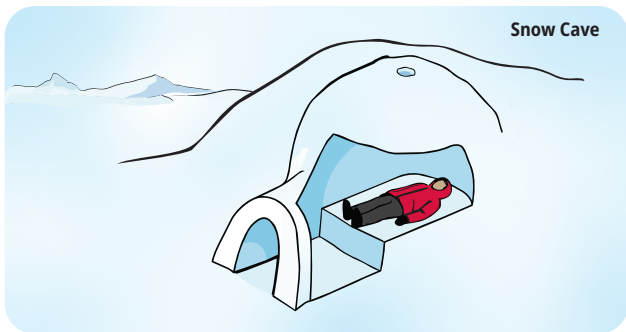


Other emergency snow shelters are quinzhee huts (i.e., snow mounds), snow caves (similar to quinzhee huts but dug directly into the snow) and igloos. Ventilation is critical if a stove will be operated in any snow shelter. On sea ice or a blue ice glacier, a wind break can be created by repositioning snowmobiles and sleds.

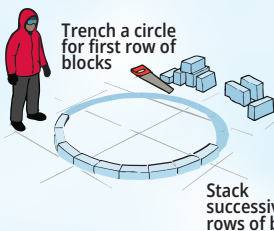
Quinzhee Hut Setup



Snow Cave



Igloo Setup



Shelters

Before teams deploy to the field, they should become experienced in erecting the tents they are issued. Set up tents at McMurdo Station and double-check their condition.

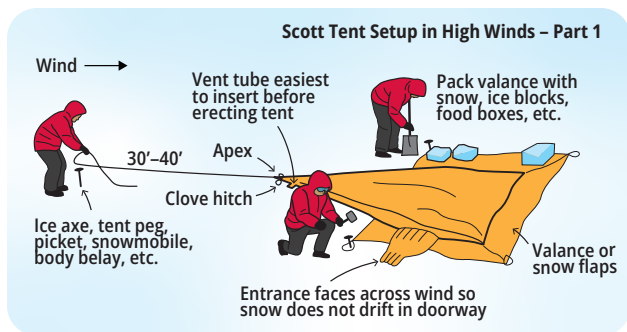
Tents must have a solid anchor for every guyline, and these should be checked daily to ensure they are tensioned. Loose guylines make the tent more prone to wind damage and make catastrophic failures in a storm more likely.

Avoid using “hard” knots (i.e., any knot that cannot be adjusted). Instead, use taut-line hitches or trucker’s hitches, as they are easy to tension and undo. Field team members should practice and become familiar with such knots before deploying. See the References section for steps on making a variety of knots.

Establishing Wind Direction

The most important factor in setting up a tent is securely anchoring it to withstand high winds. Field teams must first determine the prevailing wind direction by observing patterns in the snow or sand. Long rows of snow drifts (i.e., sastrugi) in, for example, a north-south orientation indicate the prevailing wind is either from the north or south. Next, look for etching at the ends. If the prevailing wind is from the south, the snow at the southern end of the sastrugi will be etched. Sand can also form sastrugi-like drifts that help determine wind direction. Shorebirds often face into the wind, so wildlife can be an indicator too.

Orient the tent with the main door opening downwind, at a 45-degree angle to the prevailing wind. This helps prevent drifting that blocks the door and sheds the wind load.



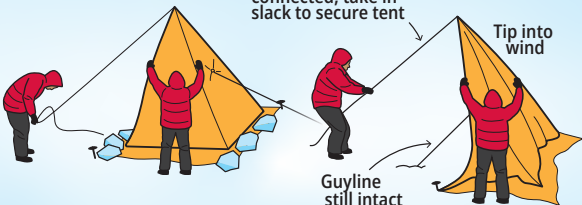
Scott Tent Setup in High Winds – Parts 2 and 3

Wind →

If belay rope still connected, take in slack to secure tent

Tip into wind

Guyline still intact

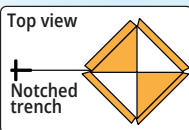
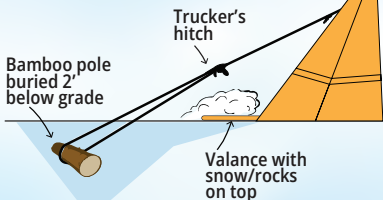


Anchoring the Tent

If tents have a valance (i.e., skirt) on the tent fly or body (see figure part 1 above), these should be fanned out flat and weighted down with snow or rocks to help keep the tent anchored in windy conditions. This also prevents wind from going underneath the valance and lifting and damaging the tent and helps keep it warmer. Do not pile rocks onto the tent wall, which could wear and tear the fabric in high winds.

Securing the Tent Valance

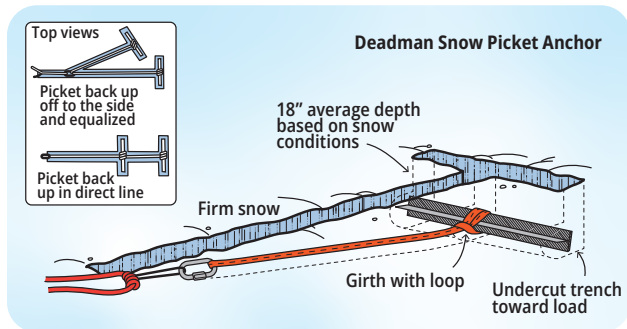
Wind →



Ground level

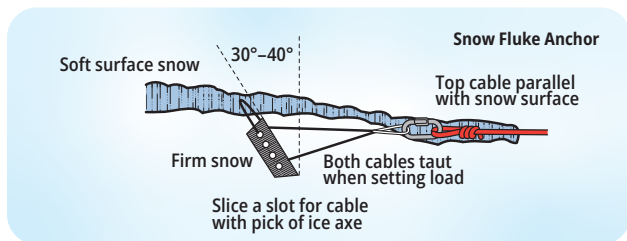
Substrate conditions inform how best to anchor a tent. If the snow or soil surface is **firm** (i.e., hardpacked), hammer in long stakes or sections of bamboo angled slightly away from

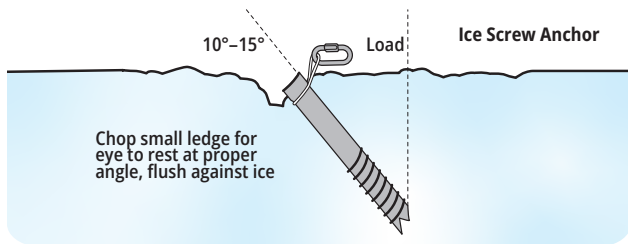
the tent and attach guylines to the stakes. If the snow is **soft**, bury a long stake or piece of bamboo (i.e., deadman) in a slot perpendicular to the angle of pull, with a guyline attached at the midpoint.



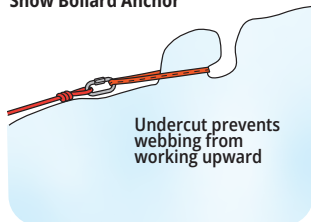
The guyline runs in a straight line from the deadman to the tent via a slot cut in the snow. Do not bury deadman too close to the tent, or it will be pulled upward when the line is tensioned. In very soft snow, the deadman anchor must be buried two feet deep or more. In soft sand and rocky terrain, rock bags can be the best way to anchor a tent. Fill rock bags with rocks, tie them up, then guy the tent to the bag.

Use a looped line or web sling around the deadman so the guylines can be easily tensioned or adjusted daily. Snow flukes and snow bollards are other ways to anchor tents or other objects in hard snow areas.

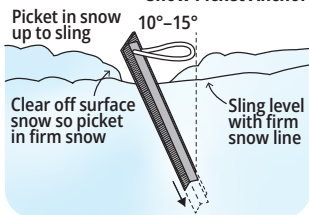




Snow Bollard Anchor



Snow Picket Anchor



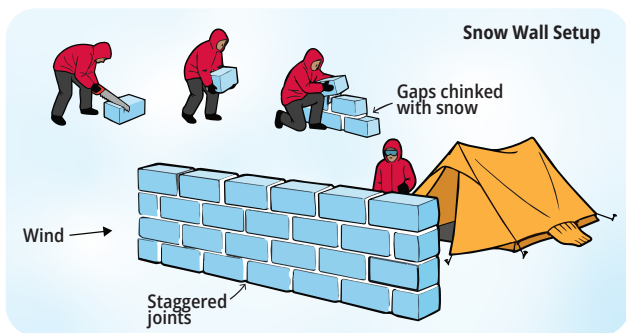
PRO TIPS

- If anchoring on rocky land, especially in a volcanic area with sharp rocks, be aware that the guyline exiting the ground from the deadman could wear down in windy conditions. Frequently monitor the line, and replace it if necessary.
- Alternatively, create a makeshift sheath around the line using rock sample bags or whatever may be on hand. Placing a length of bamboo between the guyline and ground may also help keep the line off sharp rocks.

Snow Walls

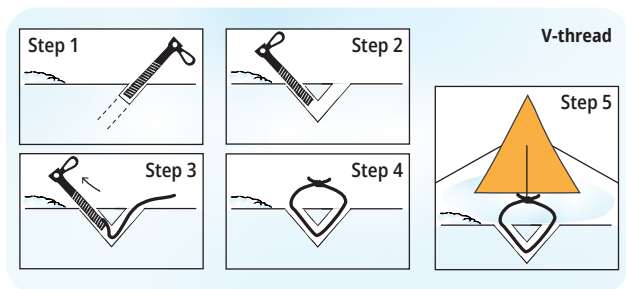
Snow walls (i.e., blocks cut from snow) can shelter tents from wind. If it is a windy day or the camp is at a windy location, field teams may need to construct snow walls before setting up a tent. Ideally, blocks are cut from hardpack with a saw, but a shovel or ice ax may work. Since snow conditions can change over a small area, probe the snow to see if there is an area harder than others. If only soft snow conditions exist, try

packing down the snow with boots then check if it hardens (i.e., sinters) after an hour or more.



Tents on Sea Ice and Blue Ice Glaciers

If the snow on the ice is deep enough, anchor the tent as described above. Otherwise, clear off any snow, and anchor the tent to the ice with ice screws. Team members may also drill V-threads, two holes that intersect to form a V-shaped channel. Use an ice screw or ice drill to create the holes, and feed a guyline through the channel. Feed it to the bottom of the V on one side, then insert an ice screw on the other side. Twist the ice screw, and the teeth should grab the line and pull it out as the ice screw is withdrawn from the hole. The line can then be attached to the tent.



On sea ice, a glacier, rock or dirt, create a wind break by repositioning snowmobiles and sleds. In thick snow, you can opt to dig a trench.

Camp Medical

Before arriving at camp, it is best practice for team members to discuss relevant medical concerns with the designated field safety or medical lead. First-aid kits will be supplied and located in an agreed central location. The field lead (ASC camp manager, field coordinator, field safety coordinator or grantee) will most likely be in control of the prescription medical kit. Any medical interventions at camp involving more than basic first aid must be coordinated by the medical lead with the McMurdo Station physician. Ensure everyone is familiar with the location of medical supplies and knows what to do in case of a medical emergency. See the “United States Antarctic Program Field First-Aid” manual for more information.

Drinking Water

Most continental field camps set up a system to melt snow or glacial ice for their water supply. Some locations filter the meltwater, while others drink it as is. ASC Environmental can share information about when to filter water. For dry camp locations (i.e., many places in the Dry Valleys), water will be transported out in five-gallon jugs via helicopter.

Fire Prevention

Fire prevention is crucial in remote camps. Losing supplies or shelter to fire can immediately create an emergency situation. Before deploying to the field, ensure all field team members know how to properly operate stoves, lamps, heaters and generators. Once in the field and while you establish camp, keep these guidelines in mind:

- Minimize hazards in areas where combustible equipment is set up. Move stove and heater away from tent walls, and keep loose materials such as jackets or towels away.

- Ensure all equipment remains in proper working order during the field season.
- Place small propane heaters only on aluminum tables.
- Check propane cylinders for damage or leaks before using them.
- Store propane cylinders outside the tent whenever possible, with long propane hoses running from the tank to the inside of the tent where the stove or heater is located.
- Release pressure in any liquid fuel canisters outside the tent before packing or storing them.
- Operate and store generators at least 15 meters (~50 feet) away from any tent to prevent carbon monoxide (CO) poisoning.
- Do not dry clothes on a heater or stove. Use a clothespin to hang wet clothing on a string inside the tent.
- Line the inside of the tent behind the cooking stove with foil (duct tape and string can also be used) so the tent is not splattered with cooking grease and becomes a fire hazard. Change the foil frequently. Foil also helps protect the tent fabric from burning or melting.
- Fire extinguishers, CO detectors and smoke detectors are standard issue for field camps. Place them in appropriate and accessible areas, and ensure all field team members know their location and proper use.

Field Camp Daily Tasking

Communications

All Field Camps

- Complete the daily check-in call at or before the appointed time. Inform Central Comms of the number of people at camp and whether all is well.

- Make weather observations and call them into McMurdo Weather (MacWeather) at the prearranged times if this is required for the camp location.
- Call work centers as needed to request or confirm material for any impending resupply.

Fixed Wing-supported Camps

- Make weather observations and call them into MacWeather at the prearranged times.
- Call Central Comms after 1900 hours for the next day's flight schedule, or call the fixed wing supervisor.
- Follow the communications plan established with the Fixed Wing Office to arrange resupplies.
- Inform Fixed Wing Operations of the amount and nature of resupply items expected and the planned delivery date.
- Field teams may contact the Fixed Wing Office any day from 0730 to 1730 hours to transmit information or request a resupply, schedule change or camp takeout time.

Helicopter-supported Camps

- Monitor Channel 7 at all times, especially if a helicopter is in the vicinity, in case the pilot is trying to contact the camp.
- Call Helo Ops three business days in advance of a requested flight and provide all flight details (e.g., passengers, cargo, mission). If you are in Taylor Valley, route flight requests through the Taylor Valley camp manager.
- If expecting a flight that day, make weather observations and call them into Helo Ops between 0700 and 0730 hours.

Housekeeping, Health and Safety

- Inspect the camp area daily. Ensure everything is secure and all tent guylines are taut. Wind can increase at any time, and snow can drift quickly.
- Take daily weather observations, including temperature and wind speed. Maintain awareness of weather conditions.
- Inventory drinking water and cooking water. Haul, melt and boil or filter water as needed.
- As many items have long delivery times, check levels of commonly used items regularly (e.g., propane, food, paper towels, toilet paper, hand sanitizer). Make a list, and call for resupply once a week.
- Check waste levels (e.g., urine, solid human waste, gray water, food waste, biomedical waste), and bag or dispose of waste according to environmental guidelines.
- Check handwashing stations for adequate supplies, and replenish as necessary.
- Ensure the communal tent space is clean, tidy and stocked with essentials.
- Ensure waste and recyclables are properly sorted per McMurdo Station requirements.
- Ensure all Iridium phones, HF and VHF radios, other communications devices and the backup power pack are charged. Set up solar panels, or start up a generator to charge them.
- Refuel generators, stoves and other items that need fuel.
- Check for leaks, and clean up spills of any kind.
- Restock grab-and-go foods and snacks.
- Prepare and cook evening meals as assigned.

Recordkeeping

- Record any pollutant spills using the Field Spill Reporting Sheet.
- Record the required data in the environmental EOS reports (e.g., water and fuel usage, number of people in camp, estimates of human waste and gray water discharge, weather information).
- See the Environmental Policies section for details on the above.

Camp Takeout

Days Before Takeout

- Package equipment and cargo that are not being used. Record the weight, cube and type of retrograde (retro) cargo (i.e., cargo heading in opposite direction) for each box. This information will be passed to the fixed wing or helicopter supervisor for takeout flight planning.
- Package hazardous cargo in its original packaging and label it. Have the original hazardous cargo documentation readily available, as the pilot may request it.
- Identify a staging area next to the landing strip, and place cargo there when it is packaged and ready to go.
- Communicate with the fixed wing or helicopter supervisor to confirm takeout flights and relay cargo details.
- Notify Central Comms of the planned takeout date.
- Plan the takeout in stages.
- Cargo and passengers going on the last takeout flight must include essential gear and survival food for one week, plus a passenger responsible for weather observations, in case the takeout must be aborted.

- Communicate with ASC Lodging at least two days before arriving in McMurdo Station to arrange and confirm room assignments.
- Take GPS coordinates of all release sites for the EOS report.

Day of Takeout

- In fixed wing-supported camps, begin making hourly weather observations six hours before an LC-130 aircraft leaves McMurdo Station and three hours before a Twin Otter or Basler leaves its point of origin.
- Take down all tents.
- Place all remaining camp items in the staging area.
- Conduct a visual sweep of the camp to ensure all items are removed.
- Disassemble all radios and antennas.
- Before takeoff, conduct one last visual sweep to ensure everything and everyone is on the plane!

Hut Tasking

Complete the following tasks before leaving the hut so it is clean and tidy for the next field team:

- Sort and pack all trash and recyclables per waste guidelines, and take them back to McMurdo Station for proper disposal.
- Leave no trash or recyclables in the hut containers.
- Sweep the floor.
- Wipe all tabletops and chairs clean.
- Arrange chairs and tables neatly.
- Conduct a thorough visual sweep of the hut, and remove all personal and project-specific items.
- Wash and put away all dishes, utensils and cookware.

- Neatly package, label and store non-perishable food in its proper area.
- Take perishable food back to McMurdo Station.

On Return to McMurdo

Set aside sufficient time to clean and return all equipment to its proper storage area or department. Field teams are responsible for cleaning their gear, sorting it and ensuring it is checked in by BFC personnel. Gear return can take from one hour to two days based on the type of gear and its condition.

Initial Tasks

- Call the BFC in advance (x42348) to make an appointment for gear return.
- At the appointed time, bring all camp gear to the BFC and make piles of like items (e.g., sleeping bags, Therm-a-Rests) on the floor downstairs.
- Remove all flight tags, cargo stickers and duct tape from the gear.
- Report any damage to BFC staff, or tag it as such.
- BFC staff will inspect the gear, inventory it, check it in and print an “outstanding returns” sheet for any missing items. Locate and return these missing items, or make a note on the sheet explaining what happened to them.

Tents

All communal cook tents must be set up, swept out and scrubbed. Make an appointment with BFC staff so they can assign a location and provide the proper cleaning tools. If there are holes in the tent or any other problems (e.g., cut guylines), affix a tag explaining the problem on the outside of the tent bag.

Kitchen Items

Dishes, Thermos bottles, food coolers, stoves, water coolers and five-gallon buckets must be cleaned. Wash and dry these items, using the sinks at the BFC. Repack the kitchen box, and inform BFC staff of any missing content.

Climbing Ropes and Equipment

Inform BFC staff of any issues with climbing ropes and equipment or of any falls on the rope. Check ropes before returning them. BFC staff will check all equipment during the winter, but field team knowledge and assistance is helpful.

Pee Bottles and Toilet Seats

Soak pee bottles with 10% bleach solution (1:10 bleach-to-water ratio) for 10 minutes. A system with directions is in place at the BFC, downstairs at the sink next to the washing machine, and on the first floor of the MEC.

Trash

Separate, clean and dispose of all trash in the bins outside the BFC. Each category needs to be bagged. Extra bags are in the BFC bay.

Human Waste

Take human waste to the Waste Barn and place in the appropriate container.

Cage

Clean out the cage completely. Throw out garbage, sweep floors, and wipe off shelves. **Do not leave anything in the cage.** It will be inspected by BFC staff.

Fuel Cans aka Jerricans

Label any full or partially full fuel cans with the type of fuel, and place them under the appropriate sign outside the flammables van (across from the BFC). Consolidate like fuel,

and empty all unknown or unmarked jerricans in the waste barrel near the flammables van.

Food

Dry food that is in good condition and unopened can be returned to the BFC. Frozen food cannot be returned, as it may have thawed and become susceptible to decomposition during transport.

Stoves

Clean stoves with a degreaser, and dispose of grease in the designated sink onboard. Dry the stove before putting it away.

Backpacks

Empty all pockets and scrub backpacks with soap. Hang to dry.

