

Chapter 7

McMurdo Area

Fixed Wing Operations



*Figure 7-1: LC-130 at Remote Field Camp.
(photo by Tim Cully)*

7.1 Flight Schedules

Before you start planning and packing to go into the field, it is very important to find out when you are scheduled to leave, and whether you will be flying on an LC-130 or Twin Otter aircraft. This information will determine how you pack, and how quickly the cargo needs to be turned in. You should receive the information during your science meeting from the Fixed-Wing Coordinator.

The Fixed-Wing Coordinator develops the daily LC-130 and Twin Otter flight schedules, makes daily communications with all fixed wing remote field camps, and is your point-of-contact for any flight related questions or schedule changes. The Coordinator is located on the second floor of building 165.

7.2 Planning for LC-130 Transport to the Field

7.2a Load Planning

Ski-equipped LC-130 Hercules aircraft are used for remote field party put-ins. Each aircraft has a different polar operating weight (as much as 2,500 pounds between aircraft), which can pose a problem when planning the cargo load for your put-in flight. You will not know until the day of your flight which aircraft you will be flying on and, therefore, what the aircraft operating weight will be. As a general rule, the put-in Allowable Cabin Load (ACL) should be planned for the aircraft with the lowest load capacity. Exceptions can be made on a case-by-case basis. Contact the Fixed-Wing Operations Coordinator for load-planning advice.

To prepare for a multiple flight put-in, you must plan to put enough food, fuel, and equipment on the first flight in case the second flight is delayed. There have been rare cases where a field party waited two weeks for a second flight that was supposed to arrive on the same day as the first flight! Be flexible and attempt to develop alternative plans for your field work within a “worst case” scenario.

Plan your put-in loads so you can accomplish field work if the second flight is delayed. We suggest that on the first flight you take your scientific equipment, half your food, half your fuel, and half your snowmobile issue. This way you can start working in the field if there is a delay in the second flight.

7.2b Aerial Reconnaissance (Recce)

It may be determined that an aerial reconnaissance (recce) is required prior to the put-in flight. It may be possible to airdrop fuel, food and other supplies during the recce mission to reduce the weight of the put-in flight(s). Consult the Fixed Wing Coordinator if you would like more information on this possibility.

Note: Each bundle of food or fuel that is airdropped has approximately 200 pounds of assorted equipment that must be returned to McMurdo (i.e., parachute, straps, cardboard, and plywood).

The recce flight will be conducted at various altitudes, and as low as 200 feet, to look for crevasses and other surface hazards. It may be determined that a field team member will go on the recce mission. The Fixed-Wing Coordinator will advise the Field team of the date and time of the recce mission and the corresponding flight brief with the flight crew. During the flight brief, the Aircraft Commander (AC) will discuss the objectives of the mission and the role of each member on board the aircraft. Please bring any maps and photos of the put-in location to the flight brief.

As for all Antarctic flights, you will need to wear your

USAP-issued Extreme Cold Weather (ECW) gear or FSTP-certified equivalent and carry your emergency bag of spare clothing. (See Section 1.4 for information on FSTP-certified equivalent clothing.)

7.2c Equipment Packing

When packing your equipment for LC-130 put-in, put essential camp set-up items together and make them easily accessible. The weather may be marginal during your put-in, making it difficult to unpack and sort through equipment without having some of it blow away in the contrail.

Make sure all essential life sustaining equipment is on your first put-in flight. Do not forget radios, sleeping bags, stoves, fuel, matches, food, and tents.

Boxes, triwalls, banding equipment, and pallets are available in the USAP Cargo building (Building 73).

7.2d General Cargo

All cargo must be turned over to USAP Cargo at least 72 hours prior to the flight.

USAP Cargo personnel will help you weigh boxes once they are packed. You must mark each box with its weight and cube. After all of your cargo has been turned over to the USAP Cargo, please contact the Fixed-Wing Coordinator to discuss cargo priorities. The priorities determined by you and the Fixed-Wing Coordinator will be used by the Movement Control Center (MCC) to build pallets in accordance with the Available Cargo Load (ACL).

USAP Cargo will turn over all your cargo (including hazardous) to MCC, along with the proper documentation. The MCC Cargo Yard is responsible for palletizing all cargo for LC-130 flights and then transporting the cargo to the airfields. The Fixed-Wing Coordinator, field team members, and MCC personnel will conduct a “pallet party” in the cargo yard to ensure that the pallets are built in accordance with the cargo priorities, science objectives, and proper cargo building principles.

7.2e Hazardous Cargo

All hazardous cargo must be packaged and flown in accordance with military regulations. A list of common hazardous cargo is in Appendix A of this manual.

Identify all of your hazardous equipment (including science supplies, BFC equipment, and MEC equipment) and turn it over to USAP Cargo, where personnel will package all hazardous materials in accordance with military regulations.

7.2f Frozen Food

Frozen food must be packaged and stored in the BFC Food Room freezer until your cargo is turned over to the MCC. Once turned over, the frozen food is stored in galley freezers. A few hours before your flight, cargo personnel will transport your frozen food to the aircraft.

If the flight is delayed or canceled, it is wise to ensure that all frozen food is returned to the galley freezer. It’s in your best interest to follow up on critical things to ensure that they are done.

7.2g Bag Drag

You'll have a "bag drag" (i.e., a weigh-in of field personnel and their baggage to determine aircraft load) at least twelve hours prior to your flight. Normally "bag drag" is the evening prior to an early morning flight. At this time, you must "check in" all your personal gear (i.e., clothes and all personal items you want with you in the field). These checked-in items will remain with Strip Cargo in the event of a flight cancellation.

You will be allowed one hand-carry bag when you board the plane. Make sure to put shoes, clothes, and a toothbrush in this bag, in case the flight is canceled. Your radios and weather kit must also be hand carried. This is to ensure that the radios will be warm and that you can establish communications with another Field Camp before the plane leaves you in the field.

7.2h The Day of the LC-130 Put-In Flight

- 1. Check the Flight Schedule:** Air Services posts bag drag Information, the flight schedule, and any updates on the Transportation Channel. This information is also posted at MCC and outside the dining facility in Bldg. 155.
- 2. Attend the Pre-flight Briefing:** The PI and/or the most experienced field-team member should attend the preflight briefing at the airfield passenger terminal or other location prearranged with the aircraft commander. Weather considerations and alternative put-in sites may be dis-

cussed. To enhance flexibility, questions such as “Is it possible to traverse to the work area if put-in at a different location?” may arise.

3. **Report to the MCC:** Report to the MCC for transportation to the airstrip two hours before the scheduled departure time.

4. **Inspect Your Gear in the Aircraft prior to departure:** Do not assume that all your cargo and flight details have been taken care of. Inspect your snowmobiles, and make sure you have the keys. You must have survival gear: radios, sleeping bags, tents, stoves, and food. Double-check your cargo manifest against what you can see on the aircraft. If something is missing, don’t be intimidated! Tell the loadmaster that the Aircraft Commander must stop the flight. Cargo representatives will need to be advised that equipment is missing.

All movement around the aircraft is directed by the aircraft loadmaster. Listen and follow his/her directions!

7.3 Planning for Twin Otter Transport to the Field

Sometimes a Twin Otter aircraft is used instead of an LC-130 for remote field party put-ins. The smaller aircraft is traditionally used for small field teams, with moderate cargo, in non-groomed areas. If you know you are being transported by Twin Otter to your field

camp, the way you plan for put-in will be quite different than if you were going on an LC-130.

7.3a General Cargo

The type of equipment you need to pack will be the same as with the LC-130 (see Section 7.2c), but the way that you pack it will be different. The smaller size of the Twin Otter means that instead of packing in large triwalls and building pallets, all cargo must be small enough to fit through a door approximately 5' x 4' in size. (See Table 7.9.) With that in mind, identify all your cargo and determine actual weights and cubes of all field and scientific equipment, food, fuel, and personal gear. (See "Appendix A" of this manual for weight and cube information.). If you have cargo that has special requirements, (i.e. it needs to be kept frozen), please let the BFC staff know and they will show you where to store it. Remember, all your gear will be hand-loaded by you and the Twin Otter crew.

When you have completed your packing, contact the Fixed-Wing Coordinator with the total weight and cube of your cargo. Unlike cargo shipped on the LC-130, you do not turn your cargo over to USAP cargo. Your general cargo will remain in your cage at the BFC, or with you until the day of the flight.

7.3b Hazardous Cargo

All hazardous equipment must be packaged and flown in accordance with FAA regulations. A listing of common hazardous equipment is in Appendix A of this manual.



Figure 7-2: Twin Otter aircraft (photo by Henry Perk)

Identify any and all hazardous items in your field gear, including science supplies, BFC equipment, and MEC equipment, at least 72 hours before the day of your flight. Put them together in one pile in your cage, and give a list to the BFC. If you're unsure what is hazardous, ask USAP Cargo personnel for assistance. It is the responsibility of USAP Cargo to package all hazardous materials in accordance with regulations. The BFC staff will assist you in submitting and staging hazardous cargo, which will remain in the possession of USAP Cargo personnel until the day of the flight.

7.3c Getting to the Aircraft

The day before your scheduled flight, contact the Fixed Wing Coordinator who will coordinate your rendezvous with the Twin Otter crew. Please allow time to take the airfield shuttle to the airfield. Once you've arrived at the Twin Otter, the crew will determine how the cargo

is to be loaded. You will be expected to help load and unload the cargo, as directed by the crew. Please make sure to identify any cargo that needs special handling at this time.

7.4 Radio Communications

Remember to stop at the Field Operations Communication Center (FOCC) to obtain a Frequency Assignment Plan and your radio call sign. Also, every member of your field party should attend the Field Party Shop radio briefing, during which shop personnel will issue your field radios and provide instruction on radio use.

7.5 Weather Briefing

At least two members of your field party should attend the briefing at the McMurdo Weather Office (located on the 2nd floor of Mac Center, Building 165). Weather Office personnel will provide instruction on making weather observations and about how to relay weather observations to McMurdo. You'll also be issued a meteorological kit, which includes a thermometer, an anemometer, an altimeter, and a cloud identification chart. Refer to Chapter 10: Weather for more information on taking and relaying weather observations.

7.6 Ski-Way Marker Equipment

Make sure to pack a few extra bamboo poles, flags, and large black garbage bags to use as ski-way markers for your pull-out flight. The flags also help identify wind speed and direction.

7.7 In-the-Field Procedures

7.7a Camp Put-In Procedures

After the air crew drops you off and before they can leave you in the field, you must make radio contact with a fixed station: McMurdo, South Pole, or any other established field camp (depending on season). You must also erect a shelter (tent). The most efficient way to do this is to split into two groups. One group will set up a tent and light a stove (well away from the aircraft and turning area). The second group will set up the radio and antenna (well away from the aircraft) and establish communications.

7.7b Marking Grid North

One member of your party should consult with the aircraft navigator or pilot in order to set the altimeter (in the meteorological kit) and to determine the location of Grid North. (See Chapter 21: “Antarctic Navigation” for a discussion of Grid North.) Use two bamboo flags to mark Grid North. All heading references given to aircraft and all wind direction information given during scheduled weather reports will be in relation to Grid North. Review the heights and distances of local features (if any) for passing weather information.

7.7c Daily Communication with the FOCC

At a prearranged time everyday, you must have radio communication with McMurdo via the FOCC (call sign “MAC Ops”). Radio communication between some

areas of Antarctica and McMurdo is poor. Sometimes it is necessary for field parties to relay between South Pole Station, a major field camp, or another remote field party for daily check-in. See Chapter 9: “Field Radios” for more detailed information on communications.



*Figure 7-3: Establishing communications with a fixed station.
(photo by Tim Cully)*

You may be required to give weather observations in your daily communications. Be prepared with the proper weather information in the correct order. (Refer to Chapter 10: “Weather.”) You might also be asked to relay weather information for another field party. If field party members fail to make their daily check-in, the SAR Coordinator will be notified and appropriate measures will be taken based on the the circumstances. A Search and Rescue may be initiated.

7.7d Communications with the Fixed-Wing Coordinator

In addition to your daily check-in with the FOCC (call sign “Mac Ops”), you have the option of talking with the Fixed-Wing Coordinator from 0900 to 1900 daily. At this time, you can pass along information, make resupply requests, request schedule changes, or request camp pull-out times.

7.8 Preparing for Camp Pull-Out

7.8a Pull-out Schedule and Retrograde Advisory

Coordinate your pull-out schedule with the Fixed-Wing Coordinator. When doing this, you’ll need to pass information regarding the weight, cube, and type of retrograde cargo you have. Of particular importance is the number of fuel drums (full and partial) for retrograde. Field samples will generally replace the weight of food and fuel that have been consumed.

7.8b Waste Retrograde

Remote deep-field groups must retrograde all waste. This does not include human waste. See Chapter 15: “Waste Handling in the Field” for simple methods of waste handling.

7.8c Equipment Staging

Your camp must be entirely broken down; the gear must

be staged, palletized, and ready for quick loading when the aircraft arrives. All pallets should be right side up (noted by the red stripe along the edge - this indicates the top of the pallet), broken free of snow and ice, and ready to be towed by snowmobile to the rear of the aircraft.

Nansen sleds should be loaded only with Scott tents. If you overload the sleds with other gear, they may be damaged when they are off-loaded. Everything except tent(s) and radio(s) should be arranged as shown in Figure 7-4 on the next page. **Note:** Snowmobiles and fuel drums (both full and empty) should be staged in this pile.

7.8d Hazardous Equipment Repackaging

All hazardous equipment should be repackaged similarly to how it was shipped (e.g., matches in foil, 12-V batteries in wooden boxes, etc.). Partially full drums should be tightly capped and tipped on their side to confirm a good seal.

Snowmobiles must have between 1/4 and 1/2 tank of fuel in them for aircraft transport. No more and no less!

7.8e Ski-Way Preparation

Before going into the field, discuss required ski-way/ski-landing-area markings with the Fixed-Wing Coordinator. You will be given a Air Force procedure 10-3 to follow for marking the ski-way/ski-landing-area.

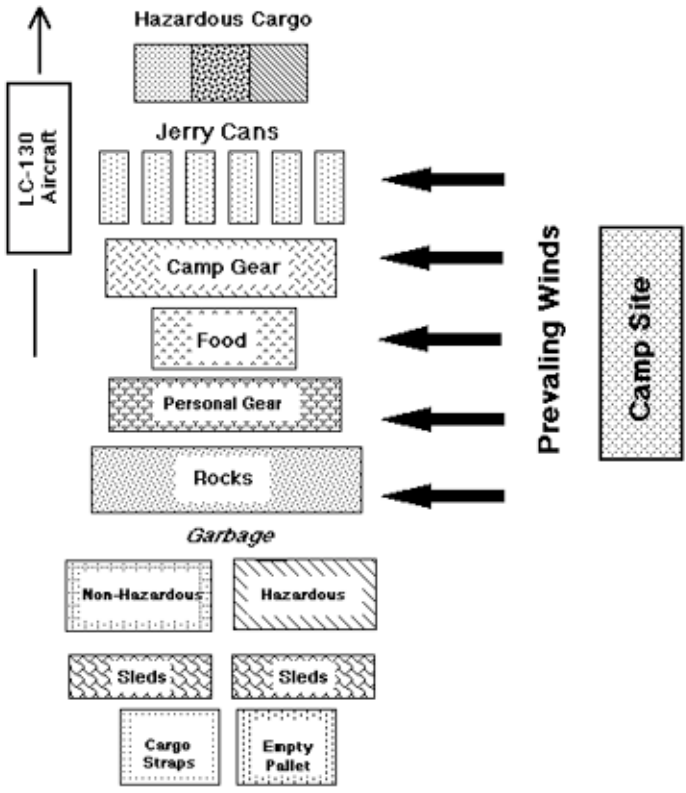


Figure 7-4: Equipment staging.

7.8f Hourly Weather Observations for the Pull-Out Flight

When an aircraft mission to your site is planned, you will be required to begin hourly weather observations six hours prior to the scheduled launch of an aircraft, and continue hourly observations through the landing of the aircraft. See Chapter 10: “Weather” for more detailed instructions on giving weather observations.

7.9 Camp Pull-Out via LC-130 Aircraft

The aircraft will be running during your pickup. If you are not prepared for an expedient loading, you and/or your gear may be left behind due to fuel considerations.

Loading an LC-130 aircraft in the deep field is a slow and smoky process. The engines will be reduced to idle, but will still produce enormous blast, fumes, and noise.

7.9a Communication with Incoming Aircraft

It is the responsibility of the person on the radio to pass along all requested information to the incoming aircraft. Know the condition of the ski-way, the current wind conditions, and the altimeter setting. Using a signal mirror can help the aircraft commander tremendously in making a quick approach to your camp.

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:** Don't interfere with the aircraft during final approach.

7.9b Loading the Aircraft

The loadmaster is responsible for coordinating the loading of the aircraft. One member of your group should approach the loadmaster (when signaled) for instruction on loading.

Arrange for a visit (via the Fixed Wing Coordinator) to the duty loadmaster at the Ice Runway or Williams Field. Spend about an hour to see how the loading system works in the deep field.

Snowmobiles should be driven nose forward onto the aircraft only by those familiar with their operation.

7.9c Last Minute Camp Pull-Out Details

1. Take down the tent(s) and disassemble the radio(s) and antenna(s).
2. Retrieve the ski-way markers.
3. Before takeoff, take one last look to make sure you have everything and make sure everyone in your group is on the plane!

7.10 Returning to McMurdo Station

After returning to McMurdo:

1. Return all your field equipment to the appropriate work center.
2. Package and mark cargo that will be retrograded to the U.S. Specific instructions for this process are outlined in the Instructions for Packaging and Shipping document which is sent to all researchers prior to the field season.