

Communications

Regional Travel Communication Requirements

Travel off established roadways is tracked by MacOps.

Established roadways include: ice road to Ice Runway, snow roads to the Long Duration Balloon (LDB) site and Pegasus Runway, and dirt roads between McMurdo, Scott Base, T-Site, and Arrival Heights.

Requirements:

- o Check-out by radio (to ensure it's working)
- o Check-in before estimated time of return (ETR) (failure to do so initiates emergency response)

Solo Travel Requires NSF authorization and additional requirements.

Defined as: a) single person traveling alone or b) any number of people traveling on a single snowmobile.

Weather Condition 3 - Standard travel procedures in place

Condition 2 - No snowmobile travel / No solo travel

Condition 1 - No travel of any kind allowed

Check-out Procedure Use VHF radio. "MacOps, MacOps, this is (vehicle number or call-sign) calling on (channel name)"

Provide the following when prompted:

- o Vehicle number(s)
- o Event number (or department)
- o Destination
- o Number of people on board
- o Driver name (one name per group)
- o Point of contact (in McMurdo) and phone/pager
- o ETR to McMurdo or estimated time of arrival (ETA) at destination

**Call to extend
return time!
There is NO grace
period!**

Overnight Stays

- o Before departing McMurdo, provide the names of all members
- o Provide one-way check-out to site, morning check-in at site, and one-way checkout for return.

If you are late

After five minutes the Emergency Operations Center (EOC) is activated. This includes the NSF station manager, ASC station manager, emergency communications manager, field science manager, information technology manager, and the fire chief.

Field Camp Communication Requirements

Before Departing McMurdo

- o Comms equipment pickup: contact communications Coordinator at (Bldg 159, ext 2378)
- o Test the gear - call MacOps for comms check

Arrival at Field Site Put-in call required *before* aircraft departs:

- o Location name
- o Camp leader name
- o Number of people (by event number)
- o Confirm daily check-in time

Daily Check-In Call Check-in *before* your scheduled time

- o Location name
- o Number of people (by event number)
- o "All is well"

Return from the Field (Pull-out)

- o Notify MacOps when leaving camp vacant

Aircraft Daytrips

- o No communications with MacOps required - the (flight is tracked by MacCenter and Aviation Ops)
- o Establish communications with helicopter pilot before the helo departs
- o MacOps is available for comms checks, message relays, or to record a location

EMERGENCIES

- o Notify MacOps directly
- o Medical - call MacOps transfer line and indicate if URGENT or not

If you are late

After one hour the Emergency Operations Center (EOC) is activated. This includes the NSF station manager, ASC station manager, emergency communications manager, field science manager, information technology manager, and the fire chief.

McMurdo Vicinity Communication Systems

Telephone Dial 2586 for MacOps (rolls over to four available lines)

HF Radio Speak clearly, loudly, and slowly. Point the antenna at Black Island for comms check with MacOps *before* departing McMurdo.

4.770 MHz	MacOps
7.995 MHz	MacOps
11.553 MHz	MacOps
9.032 MHz	Air Traffic Control - only field party emergencies

Iridium Satellite Phone Multiple units? The lowest phone number is assigned as ALPHA (primary) phone followed BRAVO, CHARLIE, etc.

MR 1	MacOps Iridium 00-8816-763-12464	Calls cannot be transferred from MacOps
MR 2	MacOps Transfer 00-697-720-568-1042	Calls can be transferred to McMurdo business lines
MR 3	MacWeather 00-8816-763-20030	McMurdo Weather Department
MR 4	Helo Ops 00-8816-763-29073	Helo Hangar
MR 5	Medical 00-8816-763-15142	Do not use unless directed Call MacOps for emergencies
MR 6	Search & Rescue 00-8816-763-15141	Do not use unless directed Call MacOps for emergencies

Iridium Text Messages

Receiving Messages – Power up phone, place a call to ensure message download, and call MacOps to confirm you received message.

Sending Messages – Messages can be sent from computer to Iridium but cannot be sent directly from Iridium handset.

Option 1: Send message using website:

<http://inah.pac.disa.mil/sms.shtml>

Option 2: Send message via email using format:

8816xxxxxxx@inah.pac.disa.mil

- o Must be PLAIN text
- o Limit 120 characters
- o Indicate who message is from in the text body
- o Do not include subject, signature, or other 'extras'

Additional phone numbers and dialing sequences available from MacOps

Radios

VHF Radio

VHF Radio is the primary form of wireless communication in and around McMurdo Station. This is a shared resource monitored by multiple users. Proper radio etiquette should be maintained when transmitting on this or any radio network. Always refer to the frequencies by the channel name and not the channel number. Radio communications should be brief and on-topic. This is especially true when using the VHF field-party repeaters, which operate on renewable energy sources and can be disabled in periods of poor weather and heavy communications traffic.

McMurdo deploys three different VHF systems:

- 1) **Simplex.** In this system, each unit communicates directly with other units. All units use the same frequency to transmit and receive, so communications are one-way and one-at-a-time.

These functional areas use a simplex system: Science, Tower/airfield, Utility, Aerospace Ground Equipment/Air National Guard (AGE/ANG), Marine 16, and all air band channels.

- 2) **Simplex with Base Station.** Where buildings and hills block radio signals, a base station is used. An antenna is placed at the highest point, such as a hill, a tall building, or a radio tower. The radio at the tower, called a “base station,” is connected to a remote dispatcher’s console. All units, including the base station, transmit and receive on the same frequency. If two units can’t communicate directly, the dispatcher relays messages.

These functional areas use the McMurdo base station: I-Net, Fire, Fuels, and Helo Ops.

- 3) **Semi-Duplex.** For areas farther from McMurdo, such as for camps in the Dry Valleys, semi-duplex repeaters are used. A repeater is a radio receiver/transmitter combination. The repeater is installed on a hill, a tall building, or a radio tower, and it automatically retransmits the signal it receives on one frequency (F1) on another frequency (F2). The control point at the dispatcher’s desk transmits and receives just like a mobile radio.

These functional areas use the McMurdo semi-duplex system: MacOps, all field party repeaters, all flight-following repeaters, and the Movement Control Center (MCC).

VHF Radio Operations

- o Listen before transmitting (to ensure channel is not in use).
- o Hail MacOps and wait for reply before giving checkout information.
- o Key-pause-talk to ensure entire transmission gets through.
- o Keep batteries warm (and always carry a spare).
- o Do not over-use repeaters (power conservation).

Call Signs

Whenever isolated letters or groups of letters have to be pronounced separately, e.g. to identify unusual words, call-signs, or in conditions of difficult communication, the following phonetic alphabet should be used:

A Alpha	H Hotel	O Oscar	V Victor
B Bravo	I India	P Papa	W Whiskey
C Charlie	J Juliet	Q Quebec	X X-Ray
D Delta	K Kilo	R Romeo	Y Yankee
E Echo	L Lima	S Sierra	Z Zulu
F Foxtrot	M Mike	T Tango	
G Golf	N November	U Uniform	

VHF Frequency Assignments at McMurdo Station

Frequency (MHz)	Name/Description
118.2	APPR (Approach) – Air Traffic Control - frequency for controlled airfields.
118.5	HELOFF (Helicopter Flight Following) – Air Traffic Control - used to coordinate helicopter movements.
121.5	GUARD/VHF (Guard) – aircraft emergency and distress.
123.45	ANG (Air National Guard) – common air-to-air frequency.
126.2	TOWER (Military Common – Air Traffic Control) - frequency for controlled airfields.
129.7	TIBA (Traffic Information Broadcast by Aircraft) – primary Antarctic operational frequency.
134.1	GRND (Ground – Air Traffic Control) - frequency for controlled airfields.

VHF Channel Use

Simplex (Line of sight)	Name	General Use	
	I-Net	Shuttle operations; antenna at T-site (not monitored by MacOps)	
	Science Net	Comms between field parties (not monitored by MacOps)	
	Helo Ops	Comms between helo hangar, helicopters, helo field parties (not monitored by MacOps)	
Duplex (Repeaters increase range)	Name	Repeater Location	Areas of Coverage
	MacOps	Crater Hill (above McM)	McMurdo area, sea ice areas south of Erebus tongue
	Mount Aurora	Black Island	McMurdo area, sea ice area south of Erebus tongue, ice shelf
	Wright Valley	Mount Newall	Wright Valley, New Harbor, sea ice areas
	Taylor Valley	Mount Coates	Taylor Valley (Lake Hoare, Lake Fryxell, Lake Bonney, F6)
	Mount Terror	Mount Terror	Cape Crozier, Windless Bight, areas south of Ross Island
	Mount Brooke	Varies	Repeater location and use varies each season
	Mount Erebus	Mount Erebus	Line of sight to west side of Mount Erebus

Field Party Plan

- 1 I-Net
- 2 Fire
- 3 **MacOps (rpt)**
- 4 Science
- 5 MCC/Fleet Ops (rpt)
- 6 Helo FF (no rpt)
- 7 Helo Ops
- 8 **Taylor Valley (rpt)**
- 9 **Mount Brooke (rpt)**
- 10 **Mount Terror (rpt)**
- 11 **Mount Aurora (rpt)**
- 12 **Wright Valley (rpt)**

*Channels monitored by
MacOps are in **BOLD**.*

*Channels 13-16 not
available on all radios.*

McMurdo Plan

- 1 I-Net
- 2 Fire
- 3 **MacOps (rpt)**
- 4 Science
- 5 MCC/Fleet Ops (rpt)
- 6 Airfield Tower
- 7 Helo Ops
- 8 Utility
- 9 Fuels
- 10 Mount Terror
- 11 **Mount Aurora (rpt)**
- 12 **Wright Valley (rpt)**
- 13 **Taylor Valley (rpt)**
- 14 **Mount Brooke (rpt)**
- 15 **Mount Erebus (rpt)**
- 16 Marine 16

Deep Field to McMurdo

HF Radio

All deep-field camps are issued an HF radio. Users should follow the setup instructions to verify that radio settings are correct. The antenna should be elevated at least four feet off the ground. Ensure all shorting bars are connected, except for the desired frequency. Speak LOUDLY into the microphone. The loss of saved frequency programming in the nine available channels indicates an internal battery failure and does not render the radio inoperable. Manually tune the radio to the desired frequency and operate normally.

Iridium Phone

Deep-field camps are also issued Iridium (satellite) phones. Iridium satellite coverage is not guaranteed in and around McMurdo Sound, and users should keep this in mind when attempting to access the satellite phone network. When possible, move to an area free from obstructions to obtain the best reception possible.

Note: The Iridium phones issued by the USAP are administered by the Department of Defense. Dialing sequences to and from other commercial Iridium phones may vary.

Note: In the USAP, the Iridium with the lowest phone number is designated as the Alpha line. The next ones are Bravo, Charlie, Delta, and so on.

Iridium Phone Instructions

Iridium Dialing

From Iridium to Iridium: Dial 00-8816-763-XXXXX

1. POWER UP the Iridium phone.
2. Wait for the telephone to register with the network and show a signal level in display.
3. Dial 00 to access the satellite network.
4. Dial 8, the country code for Iridium phones.
5. Dial the area code and eight-digit Iridium number.

Example: 00 8 (816) 763-12464 for MacOps

To a commercial (non-USAP) Iridium phone: Dial 00 698 (8816 or 8817) XXX-XXXXX.

From Iridium to a regular phone

(whether in U.S. or McMurdo via Denver)

1. POWER UP the Iridium phone.
2. Wait for the telephone to register and display a signal level.
3. Dial 00 for an international call.
4. Dial 697 to connect to FTS (Federal Telephone System).
5. Dial area code (DO NOT dial "1" before dialing the area code).
6. Dial seven-digit telephone number.

Example: 00 697 (720) 568-1042 for the MacOps Transfer Line

From Iridium to any McMurdo or Scott Base extension

(via NZ Telecom)

1. POWER UP the Iridium phone.
2. Wait for telephone to register and display a signal level.
3. Dial 00.
4. Dial 698 (this code also works for all international calls).
5. Dial NZ country code 64.
6. Dial 2409.
7. Dial McMurdo four-digit phone extension.

Example: 00 698 64 2409 2586 for MacOps

From Iridium to a U.S. Toll Free number

Dial 00 699 1 (800/888/877) XXX-XXXX.

From Iridium to an international number

Dial 00 698 + country code + city code + local number.

To a USAP Iridium from any phone

Any USAP Iridium phone may be dialed via a U.S. domestic phone by using a Hawaii area code. Replace the Xs below with the last four digits of the Iridium number.

If SIM card's last five digits start with a 1: Dial 808-659-XXXX

If SIM card's last five digits start with a 2: Dial 808-434-XXXX

If SIM card's last five digits start with a 3: Dial 808-684-XXXX

If SIM card's last five digits start with a 4: Dial 808-851-XXXX

If SIM card's last five digits start with a 5: Dial 808-852-XXXX

For example, if the Iridium number is 8816 763 2XXXX, dial 808-434-XXXX.

Iridium Text Messages

Friends and family can send short text messages to an Iridium phone. However, unless there is an email data kit installed, an Iridium phone cannot send outgoing texts. People sending a text message should enter the initials of the intended recipient at the start of the message and their own initials at the end. Otherwise, the camp members won't know to whom to pass the message.

Note: Generally, friends and family should only be provided the secondary Iridium number (Bravo Phone), keeping the primary Iridium (Alpha Phone) for business purposes, and they should be informed that the Iridium phones are a shared resource.

Iridium Email

It is possible to send an email to an Iridium phone. The Iridium email address is 8816763XXXXX@inah.pac.disa.mil, where the last five digits of the Iridium are inserted for the X's.

- Select the Plain Text option (it is easy to do this in Outlook, in the "format" tab).
- Leave the subject line blank.
- Type in the body of the email. There is a 120-character limit.
- Abbreviate where possible.
- The message should start with camp recipient's initials, so camp personnel know to whom to pass the message.
- Do not include a signature line or any other extras.

People can also send messages through the Iridium website, which is <http://inah.pac.disa.mil/sms.shtml>. Fill out the form on the homepage by entering the Iridium phone number (Ex.8816763XXXXX) and a message that is no more than 160 characters. To check for Iridium text messages in the field, power up the Iridium and place a call. This begins the message download. The Alpha line may be used.

Iridium Troubleshooting

Disconnect and reconnect all accessories (battery, antenna, adapters, etc.) to ensure there are solid contacts. If possible, move to an area clear of obstructions.

Frequently Used Iridium Numbers

DEPARTMENT	ROUTING	NUMBER
MacOps Iridium	Iridium	00 8816 763 12464
MacOps Transfer	via Denver	00 697 720 568 1042
MacWeather	Iridium	00 8816 763 20030
AVIATION		
Aviation Operations supervisor	via Denver NZ Telecom	00 697 720 568 1043 00 698 64 24 09 2529
Fixed-Wing Operations supervisor	NZ Telecom	00 698 64 24 09 2697
Helo Operations supervisor	Iridium via Denver NZ Telecom	00 8816 763 29073 00 697 720 568 1002 00 698 64 24 09 2277
SCIENCE SUPPORT		
Berg Field Center (BFC)	via Denver NZ Telecom	00 697 720 568 1021 00 698 64 24 09 2348
BFC food room	NZ Telecom	00 698 64 24 09 2461
Crary Lab supervisor	via Denver NZ Telecom	00 697 720 568 1045 00 698 64 24 09 4169
Field Safety Training	NZ Telecom	00 698 64 24 09 2345
Field Support supervisor	NZ Telecom	00 698 64 24 09 2067
Field Support manager	via Denver NZ Telecom	00 697 720 568 1003 00 698 64 24 09 2545
Science & Tech Projects manager	NZ Telecom	00 698 64 24 09 3189
Mechanical Equipment Center (MEC)	NZ Telecom	00 698 64 24 09 2352
Science Construction	via Denver NZ Telecom	00 697 720 568 1016 00 698 64 24 09 2221
INFO TECHNOLOGY		
Comms Techs	via Denver NZ Telecom	00 697 720 568 1061 00 698 64 24 09 2796
Crary IT Support	NZ Telecom	00 698 64 24 09 4242
CHALET		
Chalet Administrator – Grantee Travel	NZ Telecom	00 698 64 24 09 2734
MEDICAL		
Clinic front desk	via Denver NZ Telecom Iridium	00 697 720 568 1048 00 698 64 24 09 2551 00 8816 763 15142
Bold indicates a preferred number.		