Advance Exchange of Operational Information on Antarctic Activities for the 2007–2008 season



United States Antarctic Program

Office of Polar Programs
National Science Foundation

Advance Exchange of Operational Information on Antarctic Activities for 2007/2008 Season

Country: UNITED STATES

Date Submitted: November 2007

SECTION 1 SHIP OPERATIONS

Commercial charter ODEN

Oct 20, 2007 Depart from Landskrona Nov 25-29, 2007 Port Call in Punta Arenas Nov 29, 2007 Depart from Punta Arenas Jan 7, 2008 Arrives at ice edge Jan 8, 2008 Begins channel operations

Jan 21, 2008 Channel operations complete

Feb 9, 2008 Departs McMurdo

U.S. Coast Guard Breaker POLAR SEA

The POLAR SEA will be in back-up support for icebreaking services if needed.

M/V AMERICAN TERN

Jan. 23-25, 2007 Port Call Lyttleton, NZ Feb. 1, 2007 Arrive Ice edge, McMurdo Sound Feb. 2-8, 2007 At ice pier, McMurdo Sound Feb 9, 2007 Depart McMurdo Feb 16-18, 2007 Port Call Lyttleton, NZ

T-5 Tanker, (One of five possible vessels. Specific name of vessel to be determined)

Jan. 22, 2007 Arrive Ice Edge, McMurdo Sound Jan. 22-26, 2007 At Ice Pier, McMurdo. Re-fuel Station

Jan. 27, 2007 Depart McMurdo

R/V LAURENCE M. GOULD

For detailed and updated schedule, log on to: http://www.usap.gov/vesselScienceAndOperations/documents/lmgsched.pdf

R/V NATHANIEL B. PALMER

For detailed and updated schedule, log on to: http://www.usap.gov/vesselScienceAndOperations/documents/nbpsched.pdf

SECTION 2	AIR OPERATIONS
	Information on planned air operations (see attached sheets)
SECTION 3	STATIONS a) New stations or refuges not previously notified: NONE b) Stations closed or refuges abandoned and not previously notified: NONE
SECTION 4	 LOGISTICS ACTIVITIES AFFECTING OTHER NATIONS a) McMurdo airstrip will be used by Italian and New Zealand C-130s and Italian Twin Otters b) McMurdo Heliport will be used by New Zealand and Italian helicopters c) Extensive air, sea and land logistic cooperative support with New Zealand d) Twin Otters and Basler to pass through Rothera (UK) upon arrival and departure from Antarctica e) Italian Twin Otter will likely pass through South Pole and McMurdo. f) The USAP and Antarctica New Zealand (ANZ) will construct a road and drill pad in support of the ANDRILL program. g) McMurdo will support CONCORDIASI, a joint project supported by NSF and the French agencies CNES and CNRS. h) South Pole will support IceCube, an international collaboration including the US, Germany, and Sweden.
SECTION 5	 MAJOR FIELD ACTIVITIES Field camps: Dry Valleys (Multiple Locations) Sea Ice (Multiple Locations) Ross Island (Multiple locations) Siple Dome (81° 30'S, 146°00'W) Western Antarctic Ice Sheet (WAIS) Divide Camp (-79° 28'S, -112° 52'W) Antarctica's Gamburtsev Province - AGAP (multiple locations) Traverse South Pole Heavy traverse. (Traverse expected to extend to make round trip SP to MCM via Leverett Glacier)

SECTION 6	OTHER ANTARCTIC ACT	TIVITIES			
	(a) Governmental: (grantees, ICDS, RPSC) Persons will work with other contracting parties as follows:				
	Mary Albert (+4)	Traverse, Troll Station to South Pole Station, Norwegian Polar Institute			
	Geoffrey Haines-Stiles (+0)	Traverse, Troll Station to South Pole Station, Norwegian Polar Institute			
	Robert Bindschadler (+1) Robert Blanchette (+2) David Harwood (+27)	Pine Island Glacier with British Antarctic Survey Ross Sea Region with Antarctica New Zealand ANDRILL Southern McMurdo Sound drilling with			
	Matthew Lazzara (+5)	New Zealand, Germany, and Italy French IPEV, British BAS, Japan Multiple AWS Sites			
	Umran Inan (+1)	Instrument installation at Vernadsky Station, Ukrainian National Antarctic Program			
	Daniel Costa (+1) Wayne Trivelpiece (+3) Terry Wilson – POLENET (+16)	NOAA at Cape Shirreff, Livingston Island NOAA on R/V Yuzmorgeologiya Transantarctic Mountains seismic/GPS station installation with ANZ; Patriot Hills with Antarctic			
	Ron Naveen (+7)	Logistics & Expeditions; Sky Blu with BAS logistical support Petermann Island transits via M/S Orlova & M/S Endeavour			
	Robert Sherrell (+2)	Amundsen and Ross Seas onboard ODEN, Swedish Polar Research Secretariat			
	Walker Smith (+1)	Amundsen and Ross Seas onboard ODEN, Swedish Polar Research Secretariat			
	David Hutchins (+0)	Amundsen and Ross Seas onboard ODEN, Swedish Polar Research Secretariat			
	Scott Gallager (+0)	Amundsen and Ross Seas onboard ODEN, Swedish Polar Research Secretariat			
	Patricia Yager (+1)	Amundsen and Ross Seas onboard ODEN, Swedish Polar Research Secretariat			
	Xiaojun Yuan (+0)	Amundsen and Ross Seas onboard ODEN, Swedish Polar Research Secretariat			
	Delores Garay (+0) RPSC (+3)	PolarTREC educator onboard ODEN Technicians onboard ODEN			
	(b) Non-governmental:				
	o <i>M/S Explorer II</i> Abercrombie & Kent crew	11 cruises approx. 199 passengers, staff, and each October 24, 2007, to March 13 th , 2008			
		Sites visited will vary depending on weather and ice conditions as well as length of cruise, and may include Point Wild, Arctowski Station, Whalers Bay, Pendulum Cove, Jougla Point, Petermann Island, Mikkelsen Harbot Skontorp Cove, Brown Bluff, Neko Harbor, Esperanza			

SECTION 6 OTHER ANTARCTIC ACTIVITIES Station, Cierva Cove, Palmer Station, Orne Islands, Antarctic Sound, Lemaire Channel, Paulet Island, Aitcho-Barrientos Island, Almirante Brown, Pleneau Island, Half Moon Island, Cuverville Island, Penguin Island, Enterprise Island, and Goudier Island. 2 cruises approx. 122 passengers and 80 staff and crew o M/S Clipper Adventurer November 17, 2007, to January 22, 2008 **Zegrahm Expeditions** Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Snow Hill Rookery, Half Moon, Paradise, Petermann, South Orkney Islands, Elephant Island, Point Wild, Cape Lookout, Esperanza Station, Paulet Island, Devil Island, Brown Bluff, Gourdier Island, Almirante Brown, Bailey Head, Whalers Bay, Pendulum Cove, Neko Harbor, Jougla Point, an d Lemaire Channel. o I/B Kapitan Khlebnikov 1 cruise approx. 108 passengers and 78 staff and crew **Zegrahm Expeditions** October 14, 2007, to October 26, 2007 Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Snow Hill Rookery, Half Moon, Paradise, Petermann, South Orkney Islands, Elephant Island, Point Wild, Cape Lookout, Esperanza Station, Paulet Island, Devil Island, Brown Bluff, Gourdier Island, Almirante Brown, Bailey Head, Whalers Bay, Pendulum Cove, Neko Harbor, Jougla Point, and Lemaire Channel. o M/V Corinthian II 6 cruises approx. 114 passengers, 75 staff and crew Travel Dynamics International December 22, 2007, to February 20, 2008 Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Penguin Island, Brown Bluff, Paulet Island, Cuverville Island, Neko Harbour, Dorian Bay, Lemair Channel, Petermann Island, Almirante Brown, Paradise Bay, Port Lockroy, Whalers Bay, Hannah Point, Palmer Station, Vernansky Station, Pendulum Cove, Half Moon Island, and Aitcho Island. o S/V Seal One cruise, maximum of 6 passengers, 2 crew Sterna Corporation February 19, 2008, to March 19, 2008 Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include

Melchior Islands, Port Lockroy, Argentine Islands, Mutton Cove, Detaille, Horseshoe Island, and Flounder Island

SECTION 6 OTHER ANTARCTIC ACTIVITIES o Private Yacht "Egret" One cruise, maximum of five crew December 28, 2007, to January 31, 2008 Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Whale Harbor, Deception Island, Trinity Island, Murray Harbor, Enterprise Island, Danko Island, Paradise Harbor, Port Lockroy, Palmer Station, Butler Channel, LeMaire Channel, Penola Strait, Galindez Island, Booth Island, Skontorp Cove, Neko Harbor, Gamma Island, Melchior Island, and Andersen Island o Private Yacht "Condesa" One cruise, maximum of three crew February 1, 2008, to February 26, 2008 Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Deception Island, Enterprise Island, Paradise Bay, Pleneau Anchorage, Skua Creek, Charcot Anchorage, and Dorian Private Yacht "Tamara" One cruise, maximum of four crew January 1, 2008, to February 10, 2008 Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Deception Island, Enterprise Island, Almirante Brown, Hovegaard Island, Vernasky Base, Duchaylard Island, Booth Island, Port Charcot, and Melchoir Islands. o M/V Star Princess Two cruises, maximum off 3,100 passengers, 1,060 staff and crew January 10, 2008, to January 26, 2008 **Princess Cruises** February 19, 2008, to March 6, 2008 Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include scenic cruising at Elephant Island, in the Bransfield Strait, the Antarctic Sound, Hope Bay, Gerlache Strait, Neumayer

o Pelagic Australis

Oceans 8/National Geographic

Channel, Paradise Harbour, and Deception Island.

One cruise, maximum of 12 passengers, 2 crew

December 31, 2007, to January 30, 2008

Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include King George Island, Teniente March Station, Bernardo O'Higgins Base, Hope Bay, Duse Bay, James Ross Island, Vega Island, Cockburn Island, and Snow Hill Island.

OTHER ANTARCTIC ACTIVITIES

o M/V Marco Polo Five cruises, maximum of 850 passengers, 360 staff and

crew

Orient Lines December 13, 2007, to December 27

December 28, 2007, to January 4, 2008 January 5, 2008, to January 12, 2008 January 13, 2008, to January 20 2008 January 21, 2008, to February 5, 2008

Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Deception Island, Cuverville Island, Port Lockroy, Jougla Point, Lemaire Channel, Paradise Harbor, and Half Moon

Island

o M/S National Geographic

Endeavour

Lindblad Expeditions

Ten cruises, A maximum of 138 passengers, 77 staff and

crew

November 9, 2007, to November 20, 2007

November 20, 2007, to December 1, 2007

December 1, 2007, to December 12, 2007

December 12, 2007, to December 23, 2007

December 23, 2007, to January 3, 2008

January 3, 2008, to January 14, 2008

January 14, 2008, to January 25, 2008

January 25, 2008, to February 5, 2008 February 5, 2008, to February 16, 2008

February 16, 2008, to March 8, 2008

Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Aitcho-Barrientos Island, Baily Head, Berthelot Islands, Bald Head, Booth Island, Brown Bluff, Cuverville Island, Danger Islands, Detaille Island, Devil Island, Enterprise Island, Esperanza Station, Fish Islands, Gourdier Island, Jougla Point, Melchior Islands, Neko Harbor, Palmer Station, Paulet Island, Pendulum Cove, Petermann Island, Pléneau Island, Point Wild, Sandefjord Bay, Snowhill – Nordenskjolds Hut, Vernadsky Station, Whalers Bay, Yankee Harbor, and Yalour Islands.

o Private Yacht "Australis"

Drop off two Kayakers

January 16, 2008, to February 16, 2008

Traveling aboard the Australian-registered private yacht "Australis," Timothy James (Jim) Osse and Lisa Allen Osse will be dropped off with kayaks at or near Enterprise Island on January 20, 2008, and visit Port Lockroy, LeMaire Channel, Grandidier Channel, and -- weather and ice

	·				
SECTION 6	OTHER ANTARCTIC ACTIVITIES				
		conditions permitting – paddle as far south as Darbel Bay and Kidd Isalnds			
	o M/V Insignia	One cruise, maximum of 1150 passengers, 375 staff and crew			
	Oceania Cruises	December 21, 2007, to January 10, 2008			
		Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Deception Island, Paradise Bay, and Half Moon Island.			
	o M/S Rotterdam	Three cruises, maximum of 1,316 passengers, 597 staff and crew			
	Holland America Line	December 18, 2007, to January 7, 2008			
		January 7, 2008, to January 27, 2008			
		January 27, 2008, to February 15, 2008			
		Sites visited may vary depending on weather and ice conditions, and may include Anvers Island, Palmer Station, Cuverville Island, Paradise Bay, Errera Channel, Neumayer Channel, Lemaire Channel, Petermann Island, Half Moon Island, Livingston Island, Hannah Point, Deception Island, Hope Bay, Esperanza Station, Paulet Island, Endurance Glacier, and Elephant Island.			
	o M/S Prinsendam	One cruise, maximum of 793 passengers, 466 staff and crew			
	Holland America Line	January 3, 2008, to March 11, 2008			
		Sites visited may vary depending on weather and ice conditions, and may include Anvers Island, Palmer Station, Cuverville Island, Paradise Bay, Errera Channel, Neumayer Channel, Lemaire Channel, Petermann Island, Half Moon Island, Livingston Island, Hannah Point, Deception Island, Hope Bay, Esperanza Station, Paulet Island, Endurance Glacier, and Elephant Island.			
	o M/S Andrea	Eleven cruises, maximum of 107 passengers, 48 staff and			
	Elegant Cruises and Tours	Crew November 25, 2007, to December 4, 2007 December 4, 2007, arrive Ushuaia to December 13, 2007 December 13, 2007, to December 22, 2007 December 22, 2007, to December 31, 2007 December 31, 2007, to January 9, 2008 January 9, 2008, to January 18, 2008 January 18, 2008, to February 5, 2008			
I	I	February 5, 2008, to February 14, 2008			

OTHER ANTARCTIC ACTIVITIES

February 14, 2008, to February 23, 2008 February 23, 2008, to March 3, 2008 March 3, 2008, to March 12, 2008

Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Aitcho-Barrientos Island, Cuverville Island, Neko Harbor, Petermann Island, Jougla Point, Whalers Bay, Pendulum Cove, Goudier Island, Hannah Point, Paulet Island, Penguin Island, Pleneau Island, Half Moon Island, Yankee Harbor, Brown Bluff, Danco Island, Lemaire Channel, Damoy Point, Dorian Bay, Telefon Bay, Devil Island, Paradise Bay, Crystal Sound, Fish Islands, Argentine Islands, Wordie Hut, and Wilhelmina Bay.

o M/S Clipper

Clipper Cruise Line

Three cruises, maximum of 122 passengers, 80 staff and

December 4, 2007, to December 18, 2007 December 18, 2007, to January 5, 2008 January 22, 2008, to February 2, 2008

Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Baily Head, Whalers Bay, Hannah Point, Pendulum Cove, Cuverville Island, Pleneau Island, Neko Harbor, Almirante Brown, Lemaire Channel, Enterprise Island, Deception Island, Elephant Island, Petermann Island, Half Moon Island, Paulet Island, Vernadsky Station, Seymour Island, Snow Hill Island, Jougla Point, Devil Island, Gourdin Island, Brown Bluff, and Point Wild.

o M/V Discovery

Discovery World Cruises

Six cruises, maximum of 650 passengers, 317 staff and

November 29, 2007, to December 14, 2007 December 14, 2007, to December 24, 2007 December 24, 2007, to January 7, 2008 January 7, 2008, to January 17, 2008 January 17, 2008, to January 31, 2008 January 31, 2008, to February 10, 2008

Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Elephant Island, Cape Lookout, Coronation Island, Half Moon Island, Lemaire Channel, Hope Bay, Waterboat Point, King George Island, Deception Island, Arctowski Station, and Point Wild.

Two cruises, maximum of 710 passengers, 410 staff and

January 10, 2008, to February 9, 2008

M/V Azamara Journey

Celebrity Cruises

SECTION 6 OTHER ANTARCTIC ACTIVITIES February 9, 2008, to February 27, 2008 Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include scenic cruising to Elephant Island, Deception Island, and Melchior Islands. o M/V Polar Star One cruise, maximum of 100 passengers, 54 staff and crew Cheesemeans' Ecology Safaris December 30, 2007, to January 24, 2008 Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include the South Orkney Islands, Antarctic Peninsula, Paulet Island, Brown Bluff, Deception Island, Cuverville Island, Vernadsky Station, Petermann Island, Paradise Harbour, Niko Harbour, Hannah Point, and Livingston Island. o I/B Kapitan Khlebnikov Four cruises, maximum of 108 passengers, 80 staff and **Quark Expeditions** October 26, 2007, to November 7, 2007 November 7, 2007, to November 19, 2007 November 19, 2007, December 1, 2007 December 1, 2007, to January 7, 2008 Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Aitcho Islands, Hannah Point, Whalers Bay, Cuverville Island, Paradise Harbor, Port Lockroy, Petermann Island, Vernadsky Station, Pléneau Island, Bellingshausen Station (Marathon), Frei Station (Marathon); Snow Hill, Ciereva Cove, Gerlache, Neko Harbor, Orne, Melchior Islands, Paulet Island, Brown Bluff, Penguin Island, Circle, Detali, Goudier & Jougla, Half Moon Island, Hope Bay, Pendulum Cove, Danco Coast, Zavadovsky, Thule, Lemaire Channel, Almirante & Skontrop, Walker Cove, Wilhelmina Bay, Mikkelsen Harbor, South Orkney Islands, Point Wild, Cape Norvegia, Devil Island, Syowa Station, Proclamation Island, Kloa Point, Mawson, Auster, Scullin, Murray, Fram Bank, Amery Shelf, Zongshan, Larsemann, Davis, Prudz Bay, Pack Ice Edge, Neumayer Station, Atka Bay, Rothera Station,, Stonington, Fish Islands, and Gullet.

o M/V Lyubov Orlova

Quark Expeditions

Four cruises, maximum of 110 passengers, 74 staff and crew November 11, 2007, to November 21

November 11, 2007, to November 21 November 21, 2007, to December 1, 2007 December 1, 2007, to December 11, 2007 December 11, 2007, to December 20, 2007 December 20, 2007, to December 29, 2007 December 29, 2007, to January 7, 2008

OTHER ANTARCTIC ACTIVITIES

January 7, 2008, to January 16, 2008 January 16, 2008, to February 3, 2008 February 3, 2008, to February 12, 2008 February 21, 2008, to February 21, 2008 February 21, 2008, to March 2, 2008 March 2, 2008, arrive Ushuaia, to March 12, 2008

Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Aitcho Islands, Hannah Point, Whalers Bay, Cuverville Island, Paradise Harbor, Port Lockroy, Petermann Island, Vernadsky Station, Pléneau Island, Bellingshausen Station (Marathon), Frei Station (Marathon); Snow Hill, Ciereva Cove, Gerlache, Neko Harbor, Orne, Melchior Islands, Paulet Island, Brown Bluff, Penguin Island, Circle, Detali, Goudier & Jougla, Half Moon Island, Hope Bay, Pendulum Cove, Danco Coast, Zavadovsky, Thule, Lemaire Channel, Almirante & Skontrop, Walker Cove, Wilhelmina Bay, Mikkelsen Harbor, South Orkney Islands, Point Wild, Cape Norvegia, Devil Island, Syowa Station, Proclamation Island, Kloa Point, Mawson, Auster, Scullin, Murray, Fram Bank, Amery Shelf, Zongshan, Larsemann, Davis, Prudz Bay, Pack Ice Edge, Neumayer Station, Atka Bay, Rothera Station,, Stonington, Fish Islands, and Gullet.

o M/V Professor Multanovskiy

Quark Expeditions

o Four cruises, maximum of 49 passengers, 31 staff and crew

November 3, 2007, to November 19, 2007 November 19, 2007. to December 7, 2007 December 7, 2007, to December 17, 2007 December 17, 2007, to December 27, 2007 December 27, 2007, to January 9, 2008 January 9, 2008, to January 22, 2008 January 22, 2008, to February 4, 2008 February 4, 2008, to February 22, 2008 February 22, 2008, to March 11, 2008

Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Aitcho Islands, Hannah Point, Whalers Bay, Cuverville Island, Paradise Harbor, Port Lockroy, Petermann Island, Vernadsky Station, Pléneau Island, Bellingshausen Station (Marathon), Frei Station (Marathon); Snow Hill, Ciereva Cove, Gerlache, Neko Harbor, Orne, Melchior Islands, Paulet Island, Brown Bluff, Penguin Island, Circle, Detali, Goudier & Jougla, Half Moon Island, Hope Bay, Pendulum Cove, Danco Coast, Zavadovsky, Thule, Lemaire Channel, Almirante & Skontrop, Walker Cove, Wilhelmina Bay, Mikkelsen Harbor, South Orkney Islands, Point Wild, Cape Norvegia, Devil Island, Syowa Station, Proclamation

OTHER ANTARCTIC ACTIVITIES

Island, Kloa Point, Mawson, Auster, Scullin, Murray, Fram Bank, Amery Shelf, Zongshan, Larsemann, Davis, Prudz Bay, Pack Ice Edge, Neumayer Station, Atka Bay, Rothera Station,, Stonington, Fish Islands, and Gullet.

M/V Akademik Shokalskiy
 Quark Expeditions

Four cruises, maximum of 49 passengers, 31 staff and crew November 5, 2007, to November 23, 2007
November 23, 2007, to December 3, 2007
December 3, 2007, to December 21, 2007
December 21, 2007, to December 31, 2007
December 31, 2007, to January 10, 2008
January 10, 2008, to January 20, 2008
January 20, 2008, to February 7, 2008
February 7, 2008, to February 17, 2008
February 17, 2008, to February 26, 2008
February 26, 2008, to March 8, 2008

Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Aitcho Islands, Hannah Point, Whalers Bay, Cuverville Island, Paradise Harbor, Port Lockroy, Petermann Island, Vernadsky Station, Pléneau Island, Bellingshausen Station (Marathon), Frei Station (Marathon); Snow Hill, Ciereva Cove, Gerlache, Neko Harbor, Orne, Melchior Islands, Paulet Island, Brown Bluff, Penguin Island, Circle, Detali, Goudier & Jougla, Half Moon Island, Hope Bay, Pendulum Cove, Danco Coast, Zavadovsky, Thule, Lemaire Channel, Almirante & Skontrop, Walker Cove, Wilhelmina Bay, Mikkelsen Harbor, South Orkney Islands, Point Wild, Cape Norvegia, Devil Island, Syowa Station, Proclamation Island, Kloa Point, Mawson, Auster, Scullin, Murray, Fram Bank, Amery Shelf, Zongshan, Larsemann, Davis, Prudz Bay, Pack Ice Edge, Neumayer Station, Atka Bay, Rothera Station,, Stonington, Fish Islands, and Gullet.

M/V Ocean NovaQuark Expeditions

Four cruises, maximum of 82 passengers, 41 staff and crew November 8, 2007, to November 18, 2007
November 18, 2007, to November 28, 2007
November 28, 2007, to December 8, 2007
December 8, 2007, to December 26, 2007
December 26, 2007, to January 5, 2008
January 5, 2008, to January 15, 2008
January 15, 2008, to February 2, 2008
February 2, 2008, to February 12, 2008
February 12, 2008, to March 1, 2008
March 1, 2008, to March 11, 2008

Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include

OTHER ANTARCTIC ACTIVITIES

Aitcho Islands, Hannah Point, Whalers Bay, Cuverville Island, Paradise Harbor, Port Lockroy, Petermann Island, Vernadsky Station, Pléneau Island, Bellingshausen Station (Marathon), Frei Station (Marathon); Snow Hill, Ciereva Cove, Gerlache, Neko Harbor, Orne, Melchior Islands, Paulet Island, Brown Bluff, Penguin Island, Circle, Detali, Goudier & Jougla, Half Moon Island, Hope Bay, Pendulum Cove, Danco Coast, Zavadovsky, Thule, Lemaire Channel, Almirante & Skontrop, Walker Cove, Wilhelmina Bay, Mikkelsen Harbor, South Orkney Islands, Point Wild, Cape Norvegia, Devil Island, Syowa Station, Proclamation Island, Kloa Point, Mawson, Auster, Scullin, Murray, Fram Bank, Amery Shelf, Zongshan, Larsemann, Davis, Prudz Bay, Pack Ice Edge, Neumayer Station, Atka Bay, Rothera Station,, Stonington, Fish Islands, and Gullet.

o *M/V Clipper Adventurer* Quark Expeditions

Four cruises, maximum of 82 passengers, 41 staff and crew February 2, 2008, to February 20, 2008 February 20, 2008, to March 1, 2008

Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Aitcho Islands, Hannah Point, Whalers Bay, Cuverville Island, Paradise Harbor, Port Lockroy, Petermann Island, Vernadsky Station, Pléneau Island, Bellingshausen Station (Marathon), Frei Station (Marathon); Snow Hill, Ciereva Cove, Gerlache, Neko Harbor, Orne, Melchior Islands, Paulet Island, Brown Bluff, Penguin Island, Circle, Detali, Goudier & Jougla, Half Moon Island, Hope Bay, Pendulum Cove, Danco Coast, Zavadovsky, Thule, Lemaire Channel, Almirante & Skontrop, Walker Cove, Wilhelmina Bay, Mikkelsen Harbor, South Orkney Islands, Point Wild, Cape Norvegia, Devil Island, Syowa Station, Proclamation Island, Kloa Point, Mawson, Auster, Scullin, Murray, Fram Bank, Amery Shelf, Zongshan, Larsemann, Davis, Prudz Bay, Pack Ice Edge, Neumayer Station, Atka Bay, Rothera Station,, Stonington, Fish Islands, and Gullet.

SECTION 7	EMERGENCY CONTACTS National Operator: National Science Foundation United States Antarctic Program (USAP) 4201 Wilson Boulevard Arlington, Virginia 22230 USA Telephone +01-703-292-8030 Facsimile +01-703-292-9081				
	Emergency C Karl Erb Office Teleph E-mail Address Erick Chiang Office Teleph E-mail Address Operations du Telephone	one ss one	kerb@r +01-703 echiang	3-292-8030 nsf.gov 3-292-8032 @nsf.gov 93-819-0283	
	Name McMurdo (summer) (winter) (24hr/365) Palmer Amundson-S South Pole	Commercial Telephone +01-720-568-1010 +01-720-568-1012 +01-720-568-1000 +01-720-568-2775/6 cott +01-720-568-2803 +881 676 312 608 (Irid	+01-720-568-1092 +01-720-568-1092 +01-720-568-7868	E-mail mcm.nsfrep@usap.gov mcm.nsfstmgr@usap.gov pal.manager@usap.gov pol.nsfrep@usap.gov	

SECTION 7	SHIPS			
(continued)	Name	Inmarsat Telephone	Facsimile	E-mail
	Nathaniel B. Palmer	xxx-764-716-773	xxx-764-717-774	mpc@nbp.usap.gov
		Iridium 1-808-659-5	076	
	Laurence M. Gould	xxx-761-154-122	xxx-761-154-125	mpc@lmg.usap.gov
		Iridium 1-808-659-5	074	
	Polar Sea	xxx-336-787-820	postmasterpolar	sea@polarsea.uscg.mil
		808-659-9427 (Iridi	um)	
	Oden		<u>bf</u> 1	h.oden@seapartner.com

NOTES:

1. INMARSAT Area Codes xxx: Atlantic Ocean - 871 (East)/874 (West)
Pacific Ocean - 872;Indian Ocean - 873

Single Number Access Code (SNAC) - 800

Information on Air Operations (Section 2)

INFORMATION ON PLANNED AIR OPERATIONS IN ANTARCTICA FOR 2007/08 SEASON

CONTACT INFORMATION - AIR OPERATIONS

Part A

Country	Operations/Logistics Contact Officers	Position	Office Telephone/Fax E-mail
Address for correspondence National Science Foundation			
Office of Polar Programs Room 755 4201 Wilson Boulevard	Karl Erb	Director, Office of Polar Programs	Tel: +01-703-292-8030 Fax: +01-703-292-9081
Arlington, Virginia 22230 USA	Erick Chiang	Division Director, Antarctic Infrastructure and Logistics Division	Tel: +01-703-292-8032 Fax: +01-703-292-9080

Part B

•	Please tick [appropriate box					
	No, it is not intended to conduct air operations in Antarctica during the forthcoming summer season.						
¥	Yes, it is inte	ended to conduct air operations in Antarctica during the	forthcoming summer season for which				
	the following	g information sheets are attached:					
			(*delete as appropriate)				
	Sheet 1	Intercontinental Operations	Yes				
	Sheet 2	Continental Operations	Yes				
	Sheet 3 Ship Based Operations Yes						
	Sheet 4 Other Airborne Operations (Balloons) Yes						
	Sheet 5	Aircraft Description	Yes				

Part C

	Station	Lat/Long	INMARSAT Nos
Primary Air Information Stations 2007/08 SEASON	McMurdo Station	77.85S 166.67E	None. Station is accessable via regular telephone at 01-720-568-1000.
	Siple Dome Camp	81.66S 149.02 W	Accessed via McMurdo Station telephone patch
	WAIS Divide Camp	79.47S 112.08W	Accessed via McMurdo Station telephone patch
	South Pole Station	90.0 S 139.27E	Accessed via McMurdo Station telephone patch
Secondary Air Information Stations	AGAP South	84.50S 77.35E	Accessed via McMurdo Station telephone patch
	AGO 1	83.86S 129.59E	Accessed via McMurdo Station telephone patch
	Patriot Hills	80.27S 81.37W	Accessed via McMurdo Station telephone patch
	Shackleton Glacier	85.09S 175.38W	Accessed via McMurdo Station telephone patch

2007/08 SEASON

PART 1 INTER-CONTINENTAL FLIGHTS

Route	No. of Flights	Flight Level or Altitude (ft/m)	Approximate Date or Period of Flight(s)	No. and Type of Aircraft per Flight
Christchurch-	54	Up to 45,000/13720	2 Oct'07– 23 Feb'08	One C-17
McMurdo-			17 April '08	
Christchurch				
Christchurch-	44*	Up to 29,000/8841	22 Oct'07 – 19 Feb 08**	Six to Seven LC-130s
McMurdo-				
Christchurch				
Christchurch-	4	Up to 29,000/8841	8 Oct - 19 Oct '07	C-130H (wheeled)
McMurdo-		_		RNZAF
Christchurch				

^{*}Approximately 3 flights per week **Exclusive of 22-28 Dec 07

Note: Intercontinental flights are shared with the Italian and New Zealand Antarctic programs. See their submissions for flight data pertaining to their aircraft.

PART 2 **INTRA-CONTINENTAL FLIGHTS** 2007/2008 Season

Route	No. of Flight s	Flight Level or Altitude (ft/m)	Approx. Period for Flight(s)	No. and Type of Aircraft
McMurdo Station to:				
AGAP South				
Location: 84.50S 77.35E	9	20,000 –	04 DEC to 22 DEC	Any of 6 LC-130 and/or 2
Elevation: 11,700 feet		25,000ft/7622	0.520.052556	Twin Otters
Distance from McM: 805 nm				
McMurdo Station to:				
AGO 1				
Location: 83.86S 129.59E	3	20,000 – 25,000ft/7622	01 DEC to 10 DEC	Any of 6 LC-130, 2 Twin Otters, and/or 1 Basler
Elevation: 9350 feet		•		,
Distance from McM: 487 nm				
McMurdo Station to:		20.000		6 CL C 100 0 T :
Beardmore Glacier	2	20,000 – 25,000ft/7622	05 DEC to 10 DEC	Any of 6 LC-130, 2 Twin Otters, and/or 1 Basler
Location: 84.00S		- , -		,

Route	No. of Flight	Flight Level or Altitude (ft/m)	Approx. Period for Flight(s)	No. and Type of Aircraft
164.50E				
Elevation: 5900 feet				
Distance from McM: 369 nm				
McMurdo Station to:				
Byrd Camp				
Location: 80.01S 1190.61W	3	20,000 – 25,000ft/7622	01 JAN to 20 JAN	Any of 6 LC-130, 2 Twin Otters, and/or 1 Basler
Elevation: 5230 feet				·
Distance from McM: 800 feet				
McMurdo Station to:				
Long Duration Balloon (LDB) payload drop point	2	20,000 –	20 DEG. 15 IAN	Any of 6 LC-130, 2 Twin
Location: not yet known	3	25,000ft/7622	30 DEC to 15 JAN	Otters, and/or 1 Basler
Elevation: not yet known				
Distance from McM: not yet known				
McMurdo Station to:				
Patriot Hills				
Location: 80.27S 81.37W	7	20,000 – 25,000ft/7622	20 DEC to 26 JAN	Any of 6 LC-130, 2 Twin Otters, and/or 1 Basler
Elevation: 3300 feet				
Distance from McM: 1089 nm				
McMurdo Station to:				
Shackleton Glacier				
Location: 85.08S 175.33W	5	20,000 – 25,000ft/7622	14 NOV to 14 DEC	Any of 6 LC-130, 2 Twin Otters, and/or 1 Basler
Elevation: 4245				·
Distance from McM: 457 nm				
McMurdo Station to:				
Siple Dome		20,000 –		Any of 6 LC-130, 2 Twin
Location: 81.65S 149.02W	8	25,000ft/7622	1 NOV to 26 JAN	Otters, and/or 1 Basler
Elevation: 2145 feet				

Route	No. of Flight s	Flight Level or Altitude (ft/m)	Approx. Period for Flight(s)	No. and Type of Aircraft
Distance from McM: 507				
In/Around McMurdo station (Local helicopter operations)	350- 400	500 – 10,000ft / 3048	6 Oct,07 – 15 April, 08	two AS-350B Helicopters two Bell 212 Helicopters
Fm. McM: 1 – 150mi radius				

HELICOPTER OPERATIONS

Sites in/around McMurdo Station 2007/08 SEASON {8 October 2007 – 17 April 2008}

Site	Latitude (South)			
ANDRILL - McMurdo Ice Shelf	-77.89	167.08		
ANDRILL MIS Drill Site	-77.84	166.67		
Arena Valley	-77.85963333	160.94365		
Asgard Range	-77.64061667	161.6264833		
Beacon Valley	-77.804	160.7100833		
Beaufort Is (ASPA 105)	-76.92511667	166.9357667		
Bent Stream	-77.644279	162.979394		
Big Razorback Is	-77.68083333	166.5035167		
Black Is	-78.12743333	166.14995		
Bonney Riegel	-77.72716667	162.31475		
Bratina Is	-78.01145	165.5501833		
Brimstone Pk	-75.80111667	158.4719		
Bull Pass	-77.51773333	161.8547		
Bull Pass 1	-77.625	161.667		
Bull Pass 2	-77.425	161.7		
Bull Pass 3	-77.375	161.917		
Canada GI (ASPA 131)	-77.62698333	162.97425		
Catspaw GI	-77.69455	161.5975167		
Commonwealth GI	-77.57501667	163.0077667		
Commonwealth Stream	-77.56381	163.44658		
Cones (Mt Erebus)	-77.5346	167.0855		
Cp Bird (ASPA 116)	-77.2205	166.4283833		
Cp Chocolate	-77.90116667	164.5027833		
Cp Crozier (ASPA 124)	-77.5165	169.0950333		
Cp Evans (ASPA 155)	-77.63833333	166.4073333		
Cp Lankester	-79.2548166666667	160.539533333333		
Cp Reynolds	-75.4690	162.4533		
Cp Roberts	-77.03421667	163.1706667		
Cp Royds (ASPA 121)	-77.53166667	166.23555		
Cp Spencer	-77.96705	167.535		
Darwin GI Camp	-79.785	157.8833333		

Site	Latitude (South)	Longitude (East)		
Don Juan Pond	-77.56463333	161.1786		
DVDP-11, Taylor Valley	-77.05139	163.41752		
Explorers Cove	-77.578	163.5211667		
F6	-77.60848333	163.2549667		
Fang GI	-77.46156667	167.27165		
Ferrell	-77.9235333333334	170.818016666667		
Fishtail Pt	-78.92726667	162.5643833		
Garwood Valley	-78.02671667	164.2947		
Granite Harbor	-77.01141667	162.8562		
Herbie Alley	-78.09066667	166.6836833		
High Delta Stream	-77.641777	163.12419		
Hjorth Hill	-77.51611667	163.62045		
Hobbs GI	-77.90116667	164.5027833		
Howard GI	-77.67123333	163.0764833		
Hughes GI	-77.73566667	162.4639333		
Hutton Cliffs	-77.7330	166.8500		
IceRunway	-77.84658333	166.4088333		
Inland WAIS B	-79.26666667	-111.6666667		
Koettlitz Gl	-78.34581667	163.4526		
Kukri Hills	-77.8333	161.7333		
Labyrinth	-77.52958333	160.9236		
Laurie II	-77.549	170.817		
Lewis Bay (ASPA 156)	-77.4425	167.5575		
Lk Bonney	-77.72461667	162.3151667		
Lk Brownworth	-77.43363333	162.7055833		
Lk Fryxell	-77.6063	163.1237833		
Lk Hoare	-77.62376667	162.90525		
Lk Miers	-78.09566667	163.7862833		
Lk Vanda	-77.52706667	161.6755167		
Lk Vida	-77.37733333	161.7926833		
Low Erebus Hut	-77.5105	167.1481833		
Low Miers Valley	-78.09871667	163.7965167		
Marble Pt	-77.41366667	163.6792167		
Marshall Valley	-78.06666667	164.1666667		
McKelvey Valley	-77.28590	160.55558		
McMurdo Station	-77.84935	166.6708833		
Miers Valley	-78.09871667	163.7965167		
Minna Bluff	-78.554	166.691		
Mt Aurora	-78.2326	166.3685333		
Mt Bird	-77.25745	166.8591		
Mt Coates	-77.78596667	161.9704167		
Mt Discovery	-78.36666667	165.0166667		
Mt Erebus	-77.52545	167.1372667		
Mt Feather	-77.93141667	160.4439333		

Site	Latitude (South)	Longitude (East)
Mt Fleming	-77.53336667	160.2727
Mt Friis AWS	-77.747	161.516
Mt Morning	-78.51198333	163.5663833
Mt Newall	-77.50491667	162.6220667
Mt Terror	-77.51326667	168.5712667
Mt Voslips	-77.6886	162.9815167
Mt. Friis	-77.74738	161.5162587
New Harbor	-77.578	163.5211667
Nussbaum Riegel	-77.6752166666667	162.756433333333
Odell Gl	-76.6300	160.0500
Olympus Range	-77.48095	161.2429833
Pegasus South (AWS)	-77.99	166.576
Site	Latitude (South)	Longitude (East)
Pk 1882	-77.6545	162.5430833
Rhone GI	-77.70318333	162.1236833
Round Mountain	-77.66666667	160.9166667
Ross Ice Shelf	-78.5000	172.0000
Salmon Marble	-77.467	161.617
Scott Base	-77.84888333	166.7718667
Stonehenge (McMurdo Sea Ice)	-77.50	165.20
Taylor GI	-77.7404	162.1303667
Taylor Valley	-77.67123333	163.0764833
Terra Nova Bay	-74.6936	164.1117333
The Pyramid	-78.34581667	163.4526
Truncated Cones	-77.53475	167.0850833
Up Wright Valley	-77.44566667	162.5303333
Victoria Valley	-77.3301	162.5326
Victoria Valley 1	-77.271	161.625
Victoria Valley 2	-77.288	161.673
Victoria Valley 3	-77.308	161.700
Victoria Valley 4	-77.313	161.768
Victoria Valley 5	-77.317	161.828
Victoria Valley 6	-77.346	162.033
Von Guerard Str Upper	-77.634559	163.305286
Wales HiDelta	-77.59556	163.51417
Westhaven Nun	-79.85	154.2333333
White Is	-78.18971667	167.49615
Wright Valley	-77.5528	161.3072667
Wright Valley 1	-77.625	162.5
Wright Valley 2	-77.625	162.25
Wright Valley 3	-77.625	162.25

TWIN OTTER/BASLER OPERATIONS

Sites in/around McMurdo Station 2007/08 SEASON

Site	Latitude	Longitude
AGAP South	84.50S	77.35E
AGO1	83.86S	129.59E
AGO2	85.67S	45.62W
AGO3	82.76S	28.59E
AGO4	82.00S	96.78E
AGO5	77.25S	123.50E
AGO6	69.51S	129.99E
BAS MATRIX	75.40S	95.87W
BAS MATRIX East	75.45S	93.72W
Beardmore Glacier	84.00S	164.50E
Beaufort Island	76.93S	166.94E
Brianna	83.89S	134.15W
Byrd Camp	80.01S	119.61W
Cape Archer	76.85S	162.81E
Cape Hallett	72.32S	170.21E
Cape Lankester	79.25S	160.36E
Cape Reynolds	75.47S	162.45E
Cape Roberts	77.03S	163.17E
Cape Selbourne	80.43S	160.62E
Cape Washington	74.65S	165.42E
Carolyn	79.97S	175.85E
Cox's Peak	86.50S	153.50W
Darwin Glacier	79.79S	157.88E
Deverall Island	81.48S	161.98E
Dome A	80.37S	77.37E
Dome C	75.10S	123.40E
Dufek Massiv	82.60S	52.50W
Elaine	83.13S	174.17E
Elizabeth	82.60S	137.84W
Emelia	78.50S	173.12E
Erin	84.90S	128.83W
Ford Range	77.22S	142.74W
Fosdick Mountains	76.58S	145.39W
Franklin Island	76.08S	168.32E
Gill	79.99S	178.69W
GM01 (AGAP)	84.00S	104.55E
GM02 (AGAP)	79.43S	97.54E
GM03 (AGAP)	80.89S	86.28E
Grosvenor Mountains	85.50S	174.00E
Haag Nunatak	77.00S	281.70E
Harry	83.00S	121.39W
Henry	89.01S	1.02W

Site	Latitude	Longitude
Horlick Mountains	85.38S	121.00W
Howard Nunatak	77.53S	273.23E
Inland Kamb Ice Stream	81.95S	135.00W
Ice Stream B	84.20S	152.00W
ISA grounding line	85.26S	150.31W
ISB1 grounding line	84.50S	162.40W
ISB2 grounding line	83.58S	164.44W
ISC grounding line	82.83S	156.38W
ITASE Winterover Site	80.31S	144.69E
Karo Hills	85.50S	154.70W
La Gorce Mountains	86.65S	148.00W
Larkman Nunatak	85.77S	179.00E
Layman Peak	84.83S	179.50E
Lettau	82.52S	174.45W
Lonewolf Nunatak	81.35S	152.73E
Marilyn	79.95S	165.13E
Mario Zucchelli Station	74.69S	164.12E
McMurdo Station	77.85S	166.67E
Megadunes	80.78S	124.50E
Mercer Ice Stream	84.96S	153.22W
Merrik Mountains	75.33S	287.50E
Midpoint C	75.54S	145.82E
Miller Range	83.30S	155.70E
Mt Cecily	85.87S	174.25W
Mt Durham	85.56S	208.80E
Mt Hope	83.52S	171.27W
Mt Howe	87.37S	210.50E
Mt Paterson	78.02S	204.97E
Mt Takahe	76.15S	112.37W
Nascent Glacier	78.13S	178.73W
Nico	89.00S	90.04E
North Graves Icefield	86.50S	140.35W
N124 (AGAP)	82.07S	107.64E
N148 (AGAP)	81.87S	91.56E
N173 (AGAP)	81.09S	77.35E
N198 (AGAP)	79.88S	65.98E
Odell Glacier	76.66S	159.95E
Otway Massif	85.45S	172.00E
Patriot Hills	80.27S	81.37W
Pecora Escarpment PIG Shelf	85.63S 75.20S	291.30E
Pine Island Glacier		100.00W 95.93W
P061 (AGAP)	77.57S 84.50S	95.93VV 7735E
P080 (AGAP)	82.79S	7735E
Reedy Glacier	85.63S	132.02W
Reedy Glacier Rockefeller Mountains	85.635 78.29S	132.02W 155.22W
Kocketellet Montalis	18.293	100.227

Site	Latitude	Longitude
Roosevelt Isand	79.35S	160.32W
Rothera	67.57S	68.13W
Round Mountain	77.67S	160.92E
Scott Glacier Icefield	87.02S	148.47W
Seismic Center	80.25S	140.63E
Shackelton Glacier	85.08S	175.33W
Shackelton Range	80.80S	25.40W
Shackelton Icefalls	85.13S	164.00E
Siple Dome	81.66S	149.02W
Sky Blu	74.85S	288.43E
South Graves Icefield	87.14S	138.82W
South Pole Station	90.00S	139.27E
SW Pecora Icefields	85.85S	71.40W
Swithinbank	81.20S	126.18W
Tamseis Camp	81.65S	122.59E
Taylor Dome	77.79S	158.79E
Taylor Ridge	85.67S	153.75W
The Pyramid	78.33S	163.45E
Theresa	84.60S	115.81W
Thwaites Glacier	75.50S	107.00W
Turret Nunatak	82.42S	158.00E
Urbanek Peak	84.63S	248.08E
Up-Kamb Ice Stream	82.43S	135.80W
Upper Marsh Icefield	84.20S	157.35E
Vostok	78.47S	106.82E
WAIS Divide	79.47S	112.08W
WGN	77.13S	115.21W
Whichaway Nunatak	81.55S	331.50E
Wilson Nunatak	80.33S	278.58E

PART 3 SHIP-BASED OPERATIONS (USCG POLAR SEA) 2007/08 SEASON

Route	No. of Flight Level or Flights Altitude (ft/m)		Approximate Date or Period of Flight(s)	No. and Type of Aircraft per Flight		
There will be no ship-based air operations during the 2007-08 season.						

PART 4 OTHER AIRBORNE OPERATIONS (e.g. balloons, rockets, etc.) 2007/08 SEASON

Route	No. of Flights	Flight Level or Altitude (ft/m)	Approximate Date or Period of Flight(s)	No. and Type of Aircraft per Flight
Possible balloon circumnavigation of the South Pole LDB	7 flights total [5 pathfinders + 3 Data flights]. Three large Data balloon flights (28 million cubic ft.); 5 small pathfinder balloons (181,000 cubic ft.)	130,000 ft.	December 5 through January 25. Large balloons launched ~ mid-Dec; aloft 10-30 days.	1 balloon each flight, polyethylene, zero- pressure balloons

PART 5 **AIRCRAFT DESCRIPTION 2007/08 SEASON**

Full Name of Aircraft	Short Name	F/R [a]	W/S [b]	No. of Aircraft	Flight Level or Altitude (ft/m) [c]	Pax Capacity	Radio Equipment	Navigation Equipment	Max Range Miles/km	Type of Fuel Used	SAR Equipment
LC-130 Hercules	Herc or LC	F	S	8	Up to 29,000/8841	60	S/U/V/H	INS/GPS/Doppler	2,500/4025	JP-8	Yes
AS350B2	A-Star or Squirrel	R	skids	2	14,000/4,268	5	S/U/V/H	GPS	325/523	JP-5/8	Yes
Bell 212	Huey	R	skids	2	12,000/3,658	9	S/U/V/H	GPS	200[350]/ 322[564] *	JP-5/8	Yes
DHC-6	Twin Otter	F		3	18,000/5,488	18	S/V/H	INS/GPS/Doppler	700/1127	JP-8	Yes
Basler DC-3T	Basler	F	S	1	14,500/4,300	18	S/U/V/H	INS/GPS/Doppler	1100/1771 2478/3989*	JP-8	Yes
C-17	Globemaster III	F	S W	1	45,000/13,720	102	S/U/V/H	INS/GPS/Doppler	5000/8050	JP-8	Yes

- [a] Fixed (F) or rotary (R)
- [b] Wheeled (W) or ski (S) Equipped
- Refer to Notes under Section 2 [c]
- For helicopters, also indicate maximum range over water (in brackets) [d]

S=Satellite; U=UHF; V=VHF; H=HF;

Aux Fuel Tanks