

United States Antarctic Activities 2005-2006

This site fulfills the annual obligation of the United States of America as an Antarctic Treaty signatory to report its activities taking place in Antarctica. This portion details planned activities for July 2005 through June 2006. Modifications to these plans will be published elsewhere on this site upon conclusion of the 2005-2006 season.



**National Science Foundation
Arlington, Virginia 22230
October 1, 2005**

Introduction

Organization and content of this site respond to articles III(1) and VII(5) of the Antarctic Treaty. Format is as prescribed in the Annex to Antarctic Treaty Recommendation VIII-6, as amended by Recommendation XIII-3.

The National Science Foundation, an agency of the U.S. Government, manages and funds the United States Antarctic Program. This program comprises almost the totality of publicly supported U.S. antarctic activities—performed mainly by scientists (often in collaboration with scientists from other Antarctic Treaty nations) based at U.S. universities and other Federal agencies; operations performed by firms under contract to the Foundation; and military logistics by units of the Department of Defense.

Activities such as tourism sponsored by private U.S. groups or individuals are included. In the past, some private U.S. groups have arranged their activities with groups in another Treaty nation; to the extent that these activities are known to NSF, they are included. Visits to U.S. Antarctic stations by non-governmental groups are described in Section XVI.

This document is intended primarily for use as a Web-based file, but can be printed using the PDF option. Its internal cross links and links to other sites present more information than in the print publications of past years. These links also are intended to facilitate easy use of the site.

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I. Ships and Aircraft

Section I of the 2005-2006 season plans lists the names, types, numbers, descriptions, and armament of ships, aircraft, and other vehicles introduced to the Antarctic Treaty area and information on military equipment, if any, and its location in the area.

Ships

- **Icebreakers**

Ship: Russian Icebreaker *Krasin*
Armament: None

- **Supply/Tankers**

Ship: Resupply Vessel-*American Tern*
dry cargo
Armament: None

Ship: TBA - Champion Class T-5 Tanker
Armament: None

- **Research Vessels**

Ship: R/V *Laurence M. Gould*
Armament: None

Ship: R/V *Nathaniel B. Palmer*
Armament: None

Ship: R/V *Yuzmorgeologiya*
Armament: None

Aircraft

Six LC-130 transport aircraft operated by the 109th Air Wing.

Two Bell 212 helicopter based at McMurdo Station.

Two Aerospatiale AS-350B-2 helicopters based at McMurdo Station

Note: No armament

Air Mobility Command

Between October and November 2005, and January and February 2006 and C-17 aircraft of the U.S. Air Force Air Mobility Command (AMC) will transport cargo and personnel to and from Christchurch, New Zealand, and McMurdo Station, Antarctica.

No armament

Other Aircraft

Royal New Zealand Air Force C-130 aircraft will transport cargo and personnel on intercontinental flights between Christchurch, New Zealand, and McMurdo Station, Antarctica, during November and December 2005 in support of the U.S. and New Zealand Antarctic Programs.

Note: Two DeHavilland DHC-6/300 Twin Otters will be used; both aircraft will arrive at McMurdo in early November 2005, and depart early February 2006.

Note: No armament

II. Expedition Dates

Section II of the 2005-2006 season plan includes information concerning vessel and aircraft operations along with estimated dates of expeditions and other significant events.

Winfly Activities

Annual augmentation of the U.S. Antarctic Program (USAP) begins with austral winter flights (WINFLY), departing Christchurch, New Zealand, and arriving McMurdo Station, Antarctica, about 20 August 2005. The aircraft will carry scientists and support personnel to start early pre-summer projects, to augment maintenance personnel, and to prepare skiways and ice runways at McMurdo Station. This will involve 4 U.S. Air Force C-17 flights and will increase station population from the winter-over level of about 154 to a transition level of about 530 (376 personnel expected to deploy at WINFLY).

Mainbody Activities

Austral summer activities will be initiated on 04 October 2005 with wheeled aircraft operations between Christchurch, New Zealand and the sea-ice runways at McMurdo Station, Antarctica. This will involve approximately 19 C-17 flights of transport aircraft of the U.S. Air Force Air Mobility Command (AMC), and 12 flights by C-130 transport aircraft of the Royal New Zealand Air Force. The sea-ice runway operations will cease about mid December 2005. Williams Field will open for the ski-equipped LC-130 aircrafts and at the same time approximately 2 days pass the Ice Runway closure, Pegasus Blue Ice Runway will be open for wheeled aircraft from Christchurch to McMurdo. From approximately early January to the end of the season 21 USAF C-17 flights will finish out the airlift movement. The 109th ANG Airlift Wing will fly north from McMurdo to Christchurch on Saturdays and south from Christchurch to McMurdo on Sundays from 30 October through 6 February.

The 109th Air Wing of the Air National Guard in Schenectady, New York will provide six LC-130 aircraft and six crews for intra-continental flights from late October 2005 through mid-February 2006 when McMurdo Station closes.

Significant Dates

Other significant dates for the summer season include:

1. 28 September 2004 - Palmer Station – Summer Operations Commence
2. 04 October 2005 - McMurdo Station – Summer Operations Commence
3. 07 October 2005 - Marble Point opens
4. 10 October 2005 - Cape Crozier opens
5. 11 October 2005 - Copacabana Field Camp opens
6. 12 October 2005 - Black Island Camp opens
7. 14 October 2005 - New Harbor Camp opens
8. 15 October 2005 - Odell Glacier Camp opens
9. 15 October 2005 - Lake Hoare Camp opens
10. 16 October 2005 - Lake Bonney Camp opens
11. 17 October 2005 - F6 Camp opens
12. 18 October 2005 - Lake Fryxell Camp opens
13. 21 October 2004 - South Pole Station – Summer Operations Commence
14. 27 October 2005 - WAIS Divide Camp opens
15. 5 November 2005 - Siple Dome Camp opens
16. 10 November 2005 - Lower Erebus Hut opens
17. 12 November 2005 - Cape Royds Camp opens

18. 14 November 2005 - Cape Shirreff Field Station opens
19. 16 November 2005 - Petermann Island Camp opens

Ship Movements

Resupply Vessel

The resupply vessel (*American Tern*) is scheduled to complete one trip to McMurdo this season. The ship will depart Port Hueneme, California, in late December 2005 after on loading cargo and transit directly to Port Lyttelton, New Zealand. The Resupply Vessel will again on load additional cargo and depart New Zealand for McMurdo Station, Antarctica. Cargo will be off-loaded between 24 January – 2 February, after which the ship will depart McMurdo and proceed to Lyttelton, New Zealand to offload cargo destined for New Zealand. It will depart on approximately 11 February for Port Hueneme, CA to off-load waste and recyclable materials from McMurdo Station, approximately 28 February 2005 arrival at Port Hueneme, CA.

R/V *Nathaniel B. Palmer*

The R/V *Nathaniel B. Palmer* will conduct cruises in the Southern Ocean surrounding Antarctica; and will conduct a second annual cruise to acquire sediment cores via a shipboard drill rig mounted over the vessel's moon pool. Scientific research conducted onboard will include the following disciplines: Marine Biology, Marine Geology and Geophysics, and Physical and Chemical Oceanography.

The vessel is scheduled for work in the Antarctic polar regions as well as in the mid-latitudes of the Pacific Ocean during the 2005-2006 season, including the Pacific and Southern Oceans and Ross Sea. Ports of call will include: Lyttelton, New Zealand; McMurdo Station, Antarctica; Punta Arenas, Chile, and Palmer Station, Antarctica. The NBP will sail in support of approximately nine science cruises during the 2005-2006 season.

R/V Laurence M. Gould

The R/V *Laurence M. Gould* will conduct cruises in the Antarctic Peninsula area of the Southern Ocean and Drake Passage. Research projects supported during the 2005-2006 season will include Marine Biology, Chemical and Physical Oceanography, and Marine Geology and Geophysics. The R/V *Laurence M. Gould* will also provide logistics support to transport scientists, cargo, and personnel to and from Palmer Station from its primary port of Punta Arenas, Chile.

The R/V *Laurence M. Gould* will provide transport as described above and provide oceanographic and field camp research support in and around the Bransfield Strait area of the Antarctic Peninsula. Ports of call will include: Punta Arenas, Chile and Palmer Station, Antarctica. During the 2005-2006 season, the vessel will sail in support of six science cruises, three peninsula research field camp openings and numerous Palmer Station staff and resupply shuttles in the Antarctic Peninsula area.

R/V Yuzhmorgeologiya

The R/V *Yuzhmorgeologiya* is contracted by the Korean Polar Research Institute as a supply ship to service the Korean Antarctic base at King George Island and to conduct research cruises in the Drake Passage and Bransfield strait off of the Antarctic Peninsula.

III. Stations

Section III of the 2005-2006 season plans lists the names, locations, and opening dates of the Party's bases and subsidiary stations established in the Antarctic Treaty Area, and whether they are for summer and/or winter operations.

Year Round Stations

McMurdo Station

Location: Hut Point Peninsula on Ross Island in McMurdo Sound
77° 55'S Latitude
166° 39'E Longitude
Annual Relief: 04 October 2005

Amundsen-Scott South Pole Station

Location: 90° 00'S Latitude
Annual Relief: 21 October 2005

Palmer Station

Location: Anvers Island near Bonaparte Point
64° 46'S Latitude
64° 05'W Longitude
Annual Relief: 29 September 2005

Austral Summer Camps

Siple Dome Camp

Location: 81° 39'S Latitude
149° 04'W Longitude

Open: 05 November 2005

Close: 28 January 2006

Odell Glacier Camp

Location: 76° 37'S Latitude
160° 03'E Longitude

Open: 15 October 2005

Close: 07 February 2006

WAIS Divide Camp

Location: 79°40.87'S Latitude
112°5.16'E Longitude

Open: 27 October 2005

Close: 01 February 2006

Lake Bonney Camp

Location: 77°42'S Latitude
162°27'E Longitude

Open: 16 October 2005

Close: 01 February 2006

Lake Hoare

Location: 76°38'S Latitude
162°57'E Longitude

Open: 15 October 2005

Close: 03 February 2006

Lake Fryxell

Location: 77°36'S Latitude
163°07'E Longitude

Open: 18 October 2005

Close: 03 February 2006

F6 Camp

Location: 77°21'S Latitude
163°09'E Longitude

Open: 17 October 2005

Close: 02 February 2006

New Harbor Camp

Location: 77°34'S Latitude
163°31'E Longitude

Open: 14 October 2005

Close: 07 February 2006

Marble Point Camp

Location: 77°25'S Latitude
163°41'S Longitude

Open: 07 October 2005

Close: 10 February 2006

Black Island Camp

Location: 78°08'S Latitude
166°09'E Longitude

Open: 12 October 2005

Close: 11 February 2006

Lower Erebus Hut Camp

Location: 77°30'S Latitude
167°10'E Longitude

Open: 10 November 2005

Close: 29 January 2006

Cape Crozier Camp

Location: 77°30'S Latitude
169°40'E Longitude

Open: 10 October 2005

Close: 02 February 2006

Cape Royds Camp

Location: 77°33'S Latitude
166°08'E Longitude

Open: 12 November 2005

Close: 27 January 2006

Copacabana, King George Island

Location: 62° 10'S Latitude
58° 28'W Longitude

Open: 11 October 2005

Close: 06 March 2006

Cape Shirreff Field Station, Livingston Island

Location: 62° 28'S Latitude
60° 47'W Longitude

Open: 14 November 2005

Close: 08 March 2006

IV. Personnel

Section IV gives the names of the officers in charge of each of these bases, subsidiary stations, ships and aircraft; the number, occupation and specialization of personnel (including any designated by other Governments), who are or will be stationed at each of these bases and subsidiary stations and onboard these ships and aircraft, including the number of personnel who are members of the military services, together with the rank of any officers and the names and professional affiliations of personnel engaged in scientific activities:

Oversight

The United States Antarctic Program is managed by the National Science Foundation (NSF). The NSF designates a Senior U.S. Representative in Antarctica, and designates an NSF Representative, Antarctica, to coordinate all field activities. Unless otherwise specified, the Senior U.S. Representative in Antarctica is the Director, Office of Polar Programs (OPP), located at the National Science Foundation.

NSF Representatives in Antarctica (TBA) will be stationed at McMurdo, Palmer, and South Pole Stations during the austral summer operating season. Additionally, Raytheon Polar Services Company (RPSC), under contract to the National Science Foundation, will provide station management year round.

Officers in Charge of Bases

Each U.S. station has a station manager for operations/logistics support and a station science leader. Station managers for the 2005-2006 season will be:

McMurdo Station

Eric Hobday (winter over)	(12 Feb 2005 – Aug 2005)
Joseph Pettit	(Aug 2005-Mar 2006)
TBA	(Mar 2006 – Aug 2006)

Amundsen-Scott South Pole Station

William Henriksen	(Feb 2005 - Nov 2005)
Bettie Katherine Grant	(Nov 2005 – Feb 2006)
TBA	(Feb 2006- Nov 2006)

Palmer Station

James Slaughter (winter over)	(24 Mar 2005 -21 Feb 2006)
Robert Farrell	(21 Sep 2005 - Feb 2006 -)
TBA	(Feb 2006 – Sep 2006)

Officers in Charge of Ships

Russian Icebreaker <i>Krasin</i>	Viktor Kovalchuk
Champion Class T-5 Tanker (fuel tanker)	TBA
Cargo Re-supply Vessel, <i>American Tern</i>	TBA
R/V <i>Nathaniel B. Palmer</i>	Captain Mike Watson
R/V <i>Laurence M. Gould</i>	Captain Mike Terminel

Numbers, Occupations and Specialization of Personnel

McMurdo

	Summer		Winter	
	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>
Headquarters	3	56	0	14
Science Support	0	65	0	8
Operations	23	305	0	79
Logistics	66	125	0	28
SPSM/SPSE	0	44	0	2
Engineering/Construction	0	115	0	90
Information Systems	0	49	0	12
Aviation	209	28	5	0
Scientists	0	149	0	0
Working Visitors	32	77	0	3

South Pole

	Summer		Winter	
	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>
Headquarters	1	7	0	4
Science Support	0	7	0	5
Operations, EH&S	0	38	0	7
Logistics	0	10	0	4
SPSM/SPSE	0	91	0	43
Engineering/Construction	0	21	0	7
Information Systems	0	9	0	5
Aviation	3	12	0	0
Scientists	0	51	0	10
Working Visitors	0	42	0	1

Palmer Station

	Summer		Winter	
	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>
Headquarters	0	6	0	2
Science Support	0	11	0	10
Operations	0	9	0	12
Logistics	0	1	0	3
Engineering/Construction	0	8	0	8
Information Systems	0	5	0	5
Scientist	0	19	0	6
Working Visitors	0	4	0	4

West Antarctic Ice Sheet (WAIS) Divide Camp

	Summer Only	
	<u>Military</u>	<u>Civilian</u>
Camp Supervisor	0	1
Camp Supervisor, Asst	0	1
Medic	0	1
Meteorologist Technician	0	1
Cook	0	3
Heavy Equipment Mechanic	0	1
Equipment Operator	0	2
Engineering/Construction	0	10
Scientists	0	40

Siple Dome Camp

	Summer Only	
	<u>Military</u>	<u>Civilian</u>
Camp Supervisor	0	1
Meteorologist Technician	0	1
General Assistant	0	1
Carpenters	0	0
Scientists	0	12

Odell Glacier Camp

	Summer Only	
	<u>Military</u>	<u>Civilian</u>
Camp Supervisor	0	1
Equipment Operator	0	1

Lake Hoare Camp

	Summer Only	
	<u>Military</u>	<u>Civilian</u>
Camp Supervisor	0	1
Meteorologist Technician	0	1
Scientists	0	30

SHIPS

Russian Icebreaker Krasin

	<i>Number of Personnel</i>
Crew	68

Champion Class T-5 Tanker

	<i>Number of Personnel</i>
Crew	24

Resupply Vessel- American Tern

	<i>Number of Personnel</i>
Crew	21

R/V Nathaniel B. Palmer

	<i>Number of Personnel</i>
Crew	21
Scientists/RPSC	39

R/V Laurence M. Gould

	<i>Number of Personnel</i>
Crew	21
Scientists/RPSC	36

Names and Professional Affiliation of Personnel Engaged in Scientific Activities

Further details are found in Section VI (Appendix II), and are cross-referenced here according to the project identification code. (Note: suffix M=McMurdo, S= South Pole, P=Palmer Station, N=R/V Nathaniel B. Palmer, L=R/V Laurence M. Gould, E=Other). The numbers in parentheses besides the principal investigator's name represent the anticipated number of field party members. Projects are listed by scientific discipline under each major field location or platform.

MCMURDO STATION (443 Scientists)

Aeronomy & Astrophysics (107 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Engebretson (0)	A-102-M	Augsburg College
Hernandez (4)	A-110-M	University of Washington
Weatherwax (0)	A-111-M	Siena College
Weatherwax (3)	A-112-M	Siena College
Bieber (1)	A-120-M	University of Delaware
Müller (13)	A-125-M	University of Chicago
Deshler (6)	A-131-M	University of Wyoming
Seo (27)	A-137-M	University of Maryland
Mitchell (11)	A-140-M	NASA
Stepp (17)	A-145-M	National Scientific Balloon Facility (NSBF)
Binns (17)	A-149-M	Washington University
Murcray (3)	A-255-M	University of Denver

Biology & Medical Research (167 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Devries (8)	B-005-M	University of Illinois Urbana
Manahan (6)	B-006-M	University of Southern California
Garrott (8)	B-009-M	Montana State University Bozeman

Kim (7)	B-010-M	San Jose State University
Uhle (4)	B-011-M	University of Tennessee
Bowser (3)	B-015-M	Polar Oceans Research Group
Dye (3)	B-027-M	University of Rochester
Marsh (6)	B-029-M	University of Delaware
Ainley (9)	B-031-M	H.T. Harvey & Associates
Emslie (4)	B-034-M	University of North Carolina
Blanchette (3)	B-038-M	University of Minnesota
Smith (4)	B-047-M	Virginia Institute of Marine Sciences
Priscu (4)	B-195-M	Montana State University Bozeman
Ponganis (10)	B-197-M	Scripps Institution of Oceanography
Castellini (7)	B-199-M	University of Alaska Fairbanks
Lyons (6)	B-259-M	Ohio State University
Gooseff (7)	B-268-M	Utah State University
Pitman (4)	B-289-M	National Oceanic and Atmospheric Administration
Chin (10)	B-300-M	Ohio State University
Ward (6)	B-310-M	Princeton University
Palinkas (1)	B-321-M	University of California San Diego
Conrad (8)	B-330-M	NASA
Lyons (5)	B-420-M	Ohio State University
McKnight (7)	B-421-M	University of Colorado Boulder
Priscu (6)	B-422-M	Montana State University Bozeman
Virginia (4)	B-423-M	Dartmouth College
Wall (5)	B-424-M	Colorado State University
Fountain (5)	B-425-M	Portland State University
Doran (3)	B-426-M	University of Illinois Chicago
Kennicutt (4)	B-518-M	Texas A & M University

Geology & Geophysics (85 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Mullins (5)	G-052-M	United States Geological Survey
Marchant (9)	G-054-M	Boston University
Marsh (27)	G-056-M	Johns Hopkins University
Harvey (4)	G-057-M	Case Western Reserve University

Harvey (10)	G-058-M	Case Western Reserve University
Putkonen (5)	G-076-M	University of Washington
Kemerait (4)	G-078-M	United States Air Force
Wilson (8)	G-079-M	Ohio State University
Kyle (10)	G-081-M	New Mexico Institute of Mining and Technology
Johns (3)	G-295-M	UNAVCO

Glaciology (56 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Hallet (8)	I-139-M	University of Washington
Holt (12)	I-141-M	University of Texas Austin
Stone (6)	I-175-M	University of Washington
Borns (4)	I-187-M	The University of Maine
MacAyeal (8)	I-190-M	University of Chicago
Kreutz (5)	I-191-M	University of Maine
Anandakrishnan (7)	I-205-M	Pennsylvania State University
Tulaczyk (6)	I-345-M	University of California Santa Cruz

Ocean & Climate Systems (16 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Warren (3)	O-201-M	University of Washington
Stearns (2)	O-202-M	University of Wisconsin Madison
Avallone (3)	O-251-M	University of Colorado Boulder
Stearns (5)	O-283-M	University of Wisconsin Madison
Hansen (3)	O-314-M	Magee Scientific Company
Dempsey (5)	O-316-M	Clarkson University

Technical Projects (8 Personnel)

	<u>I.D. No.</u>	<u>Institution</u>
Lubin (0)	T-312-M	Scripps AARC
Osborne (6)	T-396-M	University of Alaska Fairbanks
Griffin (2)	T-927-M	Honeywell

Writers & Artists Program (4 Personnel)

	<u>I.D. No.</u>	<u>Institution</u>
Fox Rogers (1)	W-218-M/S	Bard College
Glasberg (2)	W-219-M	N/A
Walker (1)	W-223-M	N/A

SOUTH POLE STATION (202 Scientists)

Aeronomy & Astrophysics (184 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Lange (15)	A-033-S	California Institute of Technology
Engebretson (0)	A-102-S	Augsburg College
Caldwell (4)	A-103-S	NASA Ames Research Center
Mende (0)	A-104-S	University of California Berkeley
Inan (1)	A-108-S	Stanford University
Gaisser (0)	A-109-S	University of Delaware
Hernandez (4)	A-110-S	University of Washington
Weatherwax (0)	A-111-S	Siena College
Weatherwax (3)	A-112-S	Siena College
Jefferies (6)	A-115-S	University of New Mexico
Ejiri (2)	A-117-S	National Institute of Polar Research
Bieber (1)	A-120-S	University of Delaware
Besson (2)	A-123-S	University of Kansas Lawrence
LaBelle (1)	A-128-S	Dartmouth College
Sivjee (3)	A-129-S	Embry Riddle Aeronautical University
Morse (26)	A-130-S	University of Wisconsin Madison
Lessard (0)	A-136-S	Dartmouth College
Murcray (3)	A-255-S	University of Denver
Avery (6)	A-284-S	University of Colorado, Boulder
Halzen (52)	A-333-S	University of Wisconsin Madison
Lessard (2)	A-362-S	Dartmouth College
Church (10)	A-366-S	Stanford University
Bristow (3)	A-369-S	University of Alaska Fairbanks
Stark (12)	A-371-S	Smithsonian Institution

Carlstrom (7)	A-373-S	University of Chicago
Peterson (2)	A-375-S	Carnegie-Mellon University
Novak (7)	A-376-S	Northwestern University
Stacey (3)	A-377-S	Cornell University
Holzapfel (7)	A-378-S	University of California Berkeley
Carlstrom (2)	A-379-S	University of Chicago

Geology and Geophysics (5 Scientist)

	<u>I.D. No.</u>	<u>Institution</u>
Mullins (2)	G-052-S	United States Geological Survey
Butler (3)	G-090-S	United States Geological Survey

Glaciology (3 Scientist)

	<u>I.D. No.</u>	<u>Institution</u>
Cole-Dai (3)	I-355-S	South Dakota State University

Ocean & Climate Systems (9 Scientist)

	<u>I.D. No.</u>	<u>Institution</u>
Stearns (0)	O-202-S	University of Wisconsin, Madison
Hofmann (9)	O-257-S	NOAA

Writers & Artists Program (1 Person)

	<u>I.D. No.</u>	<u>Institution</u>
Samaras (1)	W-221-S	University of California, Irvine
Bentley (2)	T-250-S	University of Wisconsin, Madison

PALMER STATION -(36 Scientists)

Aeronomy & Astrophysics (2 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Inan (1)	A-306-P	Stanford University
Zesta (1)	A-357-P	University of California, Los Angeles

Geology & Geophysics (0 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Mullins (0)	G-052-P	United States Geological Survey
Butler (0)	G-090-P	United States Geological Survey

Biology & Medical Research 33 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Day (5)	B-003-P	Arizona State University
Fraser (4)	B-013-P	Polar Oceans Research Group
Vernet (5)	B-016-P	Scripps Institution of Oceanography
Ross-Quetin (4)	B-028-P	University of California Santa Barbara
Smith (3)	B-032-P	University of California Santa Barbara
Ducklow (4)	B-045-P	Virginia Institute of Marine Sciences
Fraser (3)	B-198-P	Polar Oceans Research Group
Lee (5)	B-256-P	Miami University

Ocean & Climate Sciences (0 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Stearns (0)	O-202-P	University of Wisconsin, Madison
Hofmann (0)	O-264-P	NOAA

Technical Projects (0 Personnel)

	<u>I.D. No.</u>	<u>Institution</u>
Lubin (0)	T-312-P	Scripps AARC

Writers & Artists Program (1 Person)

	<u>I.D. No.</u>	<u>Institution</u>
Nutter (1)	W-220-P	Ladies Cross

R/V Laurence M. Gould (66 Scientists)

Biology & Medicine Program (58 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Fraser (2)	B-013-L	Polar Oceans Research Group
Vernet (4)	B-016-L	Scripps Institution of Oceanography
Martinson (0)	B-021-L	Columbia University
Ross-Quetin (7)	B-028-L	University of California Santa Barbara
Smith (2)	B-032-L	University of California Santa Barbara
Sidell (4)	B-036-L/P	The University of Maine
Ducklow (6)	B-045-L	Virginia Institute of Marine Sciences
Hollibaugh (1)	B-114-L	University of Georgia
Hildebrand (2)	B-239-L	Scripps Institution of Oceanography
Halanych (13)	B-281-L	Auburn University
Kremer (17)	B-307-L	University of Connecticut

Oceans & Climate Systems (8 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Takahashi (5)	O-214-L	Columbia University
Takahashi (0)	O-214-L	Columbia University
Sprintall (1)	O-260-L	Scripps Institution of Oceanography
Emerson (2)	O-271-L	University of Washington

R/V Nathaniel B. Palmer (70 Scientists)

Biology and Medicine Program (43 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Kiene (7)	B-002-N	University of South Alabama
Smith (8)	B-047-N	Virginia Institute of Marine Sciences
Jeffrey (6)	B-200-N	University of West Florida
Neale (4)	B-203-N	Smithsonian Institution
Goes (4)	B-206-N	Bigelow Marine Laboratory

Gast (8)	B-207-N	Woods Hole Oceanographic Institution
Kieber (4)	B-266-N	State University of New York Syracuse
Thiele (2)	B-280-N	Deakin University

Geology and Geophysics (11 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Stock (5)	G-071-N	California Institute of Technology
Stock (6)	G-071-N	California Institute of Technology
Anderson (16)	G-083-N	Rice University

Ocean and Climate Systems (16 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Gordon (13)	O-215-N	Columbia University
Firing (3)	O-315-N	University of Hawaii Manoa

Technical Projects (0 Persons)

	<u>I.D. No.</u>	<u>Institution</u>
Lubin (0)	T-312-P	Scripps AARC

V. Armaments

Section V details the number and type of armaments possessed by personnel at the main Antarctic stations and on research vessels. Signaling devices such as flare pistols are not included.

McMurdo Station

No armaments are currently stored or in use at McMurdo Station.

Palmer Station

- 1 shotgun, 12-gauge, Magnum, pump action, Remington [SN: S346543M]
- 1 mini ranch rifle, 223-calibre, Ruger [SN: 188-32652]

Note: SN = Serial Number

South Pole Station

No armaments are currently stored or in use at South Pole Station.

R/V Nathaniel B. Palmer

No armaments are currently onboard the *R/V Nathaniel B. Palmer*.

R/V Laurence M. Gould

No armaments are currently onboard the R/V *Laurence M. Gould*.

VI. Project Descriptions

*Section VI details the planned field research projects for the
2005-2006 season and is available in Appendix II
of this document.*

VII. Scientific Equipment

Section VII lists the principal scientific equipment available at McMurdo, South Pole, and Palmer stations and onboard USAP research vessels.

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Astrophysics Aeronomy						
Analyzer, Logic		X				
Antenna, VLF Loop	X	X	X			X
Camera, All-Sky	X	X				X
Camera, Video, Towed Benthic, SCUDIVA				X	X	
Centrifuge, Refrigerated 12K RPM Micro				X	X	
Chart Recorder, Eight Channel		X				
Chart Recorder, Three Channel				X	X	
Chromatography, High Performance Liquid System (HPLC)	X			X		
Cryogen, Transfer Equipment	X	X	X	X	X	
Cryogen Transfer Lines	X	X				
Dewar, Liquid Helium	X	X				
Dewar, Liquid Helium Storage	X	X				
Dewar, Liquid Nitrogen Storage	X	X	X	X	X	
Dewar, Liquid Nitrogen Storage, 160 liter	X	X	X	X	X	
Filtration Apparatus, Membrane	X			X	X	
Heating Unit, Air		X				
Hi-Vacuum System		X		X	X	
Ice Maker	X	X	X	X	X	
Incubator, Percival		X		X	X	
Interferometer		X				

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Ionosonde, Digital		X				
Laboratory, Portable (Radiation)				X	X	
Leak Detection and Vacuum Pump Equipment	X	X				
Lidar	X	X				
Line Connector, 1.2 KVA		X				
Liquid Nitrogen Plant	X	X				
Magnetometer, Three Component Air Core Induction		X				
Magnetometer, Three Axis Fluxgate	X	X				
Neutron Monitor, Super Multisection	X	X				
Nitrogen Liquifier	X	X				
Oscilloscope	X	X		X	X	
Oxygen-Analyzing System		X	X	X	X	
Photometer, Auroral	X	X				X
Pipette Puller	X					
Power Conditioner	X	X		X	X	
Pump, Turbomolecular	X	X				
Radiotelescope, Microwave		X				
Receiving System, VLF		X	X			
Riometers, 30 & 50 MHz	X	X				X
Scintillator Array, 16-element		X				
Sky Monitor, Mid Infrared		X				
Sky Monitor, Near Infrared		X				
Signal Generator		X				
Spectral Analyzer		X				
Spectrometer, X-ray (high altitude, long- duration)		X				
Spectrometer, Infrared		X				
Spectroradiometer, Ultraviolet	X	X	X	X	X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Tape Transport, Dual Density		X				
Tape Drive, Giga Tape 5 Mb		X				
Telescope, 12" (Optical)		X				
Telescope, Gamma Ray		X				
Telescope, Microwave		X				
Telescope, Mid-Infrared		X				
Telescope, NCAR Infrared		X				
Telescope, Optical		X				
Telescope, Submillimeter		X				
Telescopes, Astronomical		X				
Thermal Electric Generator (TEG)					X	X
Time Domain Reflectometer (TDR)		X			X	
Transport, Liquid Helium (leased)		X				
Transport, Liquid Nitrogen		X				
Uninterrupted Power Supply (UPS)	X	X	X	X	X	
Water Chiller		X			X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Biology						
Aquaria	X		X	X	X	
Analyzer, Carbon/Nitrogen/Sulfur	X		X			
Analyzer, Infrared, Carbon Dioxide	X					
Analyzer, Infrared, Hydrocarbon	X					
Analyzer, Lactate	X					
Analyzer, Total Organic Carbon	X		X			
Autoanalyzer	X		X	X	X	
Autoclave	X	X	X	X	X	
Balance, Electronic	X	X	X	X	X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Bath, Hybridization	X					
Bath, Water	X	X	X	X	X	
Bath, Water, Circulating	X		X	X	X	
Bath, Water, Shaking	X		X	X	X	
Calorimeter			X		X	
Camera, Digital Still	X	X	X	X	X	
Camera, Solid State, for Microscopic Image Analysis	X		X	X	X	
Camera, Still, Underwater	X			X	X	
Camera, Video, for Microscopy	X		X	X	X	
Camera, Video, Underwater, w/time lapse capability and remote viewing	X		X	X		
Cell Disrupter	X		X	X		
Cell Injector, Micro	X					
Centrifuge, Clinical	X		X	X	X	
Centrifuge, 20K RPM	X		X	X		
Centrifuge, Refrigerated Speed Vac	X		X	X	X	
Centrifuge, Refrigerator				X	X	
Chart Recorder, Single Channel	X		X			
Chart Recorder, Dual Channel	X		X			
Chart Recorder, Three Channel	X		X	X		
Chiller, Aquarium	X		X			
Chromatography Equipment	X		X			
Chromatography, High Performance Liquid System (HPLC)	X		X	X		
Chromatography, Gas, System	X		X		X	
Chromatography, Ion, System	X					
Collector, Fraction	X		X	X		
Colorimeter	X		X			
Compressor, Air, Scuba Tank	X		X	X	X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Cooler, Immersion	X		X	X	X	
Counter, Gamma	X					
Counter, Geiger Muller	X		X	X	X	
Counter, Particle	X					
Counter, Scintillation, DPM Output	X		X	X	X	
Counter, Liquid Scintillation	X		X	X	X	
Cryostat	X	X				
Data Acquisition System	X	X	X	X	X	
Datalogger	X		X	X	X	
Deck Unit/Transducer	X		X	X	X	
Detector, Column Absorbance	X					
Dewar, Liquid Nitrogen Storage	X	X	X	X	X	
Dive Propulsion Systems	X					
Dry Ice Maker	X	X	X	X		
Dry Shippers, Liquid Nitrogen	X	X	X	X	X	
Electrocardiograph	X	X				
Electrophoresis Equipment	X		X	X		
Electroporator	X					
Environmental Room, Temp. Controlled	X		X	X	X	
Evaporator, Rotary	X		X			
Filtration Apparatus, Water	X		X	X	X	
Filtration Apparatus, Membrane	X		X			
Fluorometer	X		X	X	X	
Fluorometer, DNA	X					
Freeze Dryer	X		X			
Freezer, to -20°C	X	X	X	X	X	
Freezer, to -70°C	X		X	X	X	
Freezer, Walk-in	X				X	
Furnace, Graphite	X					

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Furnace, Muffle	X		X	X	X	
Gas Partitioner	X					
Hematology Equipment	X	X	X			
Hi-Vacuum System	X	X				
Homogenizer	X		X	X		
Hood, Fume	X		X	X	X	
Hood, Portable Fume Absorber			X		X	
Ice Maker	X	X	X	X	X	
Ice Maker (dry ice)	X	X	X		X	
Incubator,Hybridization	X					
Incubator, Low Temperature	X		X	X	X	
Incubator, Percival	X		X	X	X	
Laboratory, Portable (for sea ice)	X			X		
Laminar Flow Bench	X		X		X	
Light Pipette	X					
Lipid Analysis System	X					
Luminometer			X			
Melter, Ice Hole	X				X	
Meter, Microoxygen	X		X			
Meter, Oxygen	X	X	X			
Meter, pH	X	X	X	X	X	
Microbalance	X		X			
Microcentrifuge	X		X	X	X	
Microscope, Compound, Epifluorescence	X		X	X	X	
Microscope, Compound (for light/dark field microscopy)	X	X	X	X	X	
Evap Microscope, Cold Stage	X					
Microscope, Differential Interference Contrast (DIC)	X		X	X	X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Microscope, Dissecting (for light/dark field microscopy)	X	X	X	X	X	
Microscope, Compound (for phase contrast microscopy)	X		X	X	X	
Microscope, Image Analysis System	X		X	X		
Microscope, Inverted, Epifluorescence	X		X			
Microplate Reader	X					
Microtome	X					
Microtome, Cryostat	X					
Oscillograph, Recording, Thermal, 8 Channel	X					
Oscilloscope	X	X	X	X	X	
Osmometer, Vapor Pressure	X		X			
Oven	X	X	X	X	X	
Oxidizer, Biological	X					
Oxygen-Analyzing System	X				X	
Photometer, Integrating (for ATP)	X					
Photometer, Flame	X					
Photosynthesis System	X		X			
Phototrans illuminator	X		X	X		
Plotters, Thermal				X	X	
Processor, Tissue	X		X			
Projector, Digital	X		X	X	X	
Pump, Suction		X	X	X	X	
Pump, Vacuum	X	X	X	X	X	
Receiver, ATS	X		X			
Receiver, VHF Radio	X		X	X	X	
Refrigerator, Explosion Proof	X		X	X	X	
Respirometer, Gilson	X		X			
Scale, Platform, Sled Mountable	X					
Sediment Trap	X					

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Sensor, Irradiance (for dry use)	X		X	X	X	
Sensor, Irradiance (for submersible use)	X		X	X	X	
Sequencing System	X				X	
Spectrophotometer, Atomic Absorption	X					
Spectrophotofluorometer	X		X	X	X	
Spectrophotometer	X		X	X	X	
Spectrophotometer, Diode Array	X		X			
Spectroradiometer	X		X	X	X	
Stage, Cooling, Microscope	X		X			
Thermocycler	X		X			
Thermocycler, PCR	X		X	X	X	
Thermometer, Digital	X		X	X	X	
Transponder Reader	X					
Ultracentrifuge	X		X	X	X	
Ultrafiltration Unit	X		X	X		
UV Sensor, Portable	X					
VCR, High Resolution	X		X			
Vibration-free table	X		X	X	X	
Video System, Underwater	X		X	X	X	
Voltage Clamp	X					
Water Purification System	X	X	X	X	X	
Workstation, PICO Tag	X					

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Computers						
<u>MacIntosh:</u>						
Laptop	X	X	X	X	X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Desktop	X	X	X	X	X	
<u>PC:</u>						
Desktop	X	X	X	X	X	
Laptop	X	X	X	X	X	
<u>Workstation:</u>						
HP 9000			X			
SGI 02					X	
SGI Challenge L (Multibeam computers)					X	
SGI Iris					X	
SPARC IPX	X	X				
Sun SPARC 10	X		X			
Sun U450	X					
Sun Ultra1	X					
Sun Ultra2	X					
Sun SPARC 2	X	X	X		X	
SGI Indy				X	X	
<u>Printers</u>						
Dot Matrix	X	X	X	X	X	
Dye Sublimation, Color	X				X	
Ink Jet, Color	X	X	X	X	X	
Laser	X	X	X	X	X	
<u>Miscellaneous</u>						
CDRom - R	X	X	X	X	X	
CD Writer	X	X	X			
Magneto-optical Drive	X				X	
Digitizer	X					
Plotter, Ink Jet, Monochrome	X			X	X	
Plotter, Pen, Color	X	X	X		X	
Zip Drive	X	X	X	X	X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Environmental Monitoring						
Acoustic Release	X			X	X	
Analyzer, CO	X				X	
Analyzer, NOx	X					
Analyzer, Pesticide/PUF	X					
Analyzer, SO ₂	X					
Calibration System, Multigas	X				X	
Concentrator, Turbo-Vap II	X					
Current Meter	X			X	X	
Deck unit/Transducer	X			X	X	
Sampler, Air, Hi-Vol.	X	X				
Toxicity Analyzer	X					
Water Quality Logging System	X					
Water Quality System	X		X			

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Geology/Geophysics						
Ball Mill	X		X			
Chronology Clock				X	X	
Data Translation D/A Converters				X	X	
Diamond Drill and Associated Equipment	X					
Echo Sounder, Bathy 2000 "chirp" sub-bottom profiler					X	
Echo Sounder, Knudsen, Sub-bottom Profiler				X	X	
Echo Sounder, Simrad EK500					X	
Gravimeter, Portable					X	
Gravimeter, Air-Sea					X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Heliocoder	X	X				
Jack Hammer	X		X			
Jumbo Piston Corer					X	
Kasten Corer				X	X	
Microscope, Electronic Stage w/point counter	X					
Microscope, Polarizing with Camera	X					
Microscopes, Petrographic	X	X	X	X	X	
Petrographic Scope	X				X	
Rock Saws	X					
Rock Polisher, Automatic	X			X		
Seismic, Benthos, Single Channel					X	
Seismic Bolt, Long-Life Array, 6 guns, 3000 cubic inches total					X	
Seismic, G/I air-guns (210 cu in)					X	
Seismic, G/I water-gun (25 cu in)					X	
Seismic, ITI multi-channel streamer (48 channel, 25m group interval)					X	
Seismic, ITI single channel streamer					X	
Survey System, GPS	X	X	X	X	X	
Swath bathymetric mapping system					X	
Thin-Section Machine	X			X		
Time Standard		X	X		X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Geomagnetism						
Antennas, Dipole		X		X	X	
Gradiometer, Magnetic--towed					X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> ³
Magnetometer, Portable	X	X				
Magnetometer, Quartz, Horizontal		X				
Magnetometer, Standard Induction		X				
Magnetometer, Towed					X	
Magnetograph, Three-component, Standard, Low Sensitivity		X				
Magnetograph, Three-component, Rapid Run, Low Sensitivity		X				
Magnetometer, Visible Recording		X	X			
Time Standard		X			X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> ³
Glaciology						
Drill, Jiffy w/ Power Head	X		X	X	X	
Drill, Shallow (100 meters)	X					
Drill, Ice Coring, Intermediate (500-1000m)	X					
Generator, Shear Wave	X					
Geoceivers	X	X				
Ice Auger, SIPRE	X	X	X			
Rigsby Stage	X					

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Meteorology						
Barometers	X	X	X	X	X	X
Data Loggers	X	X	X	X	X	
Detectors, Aerosol and CN (balloon-borne)		X				
Laser Ceilometer		X	X			
Precipitation Gauges	X		X			
Pressure Indicators	X	X	X			
Pygeometers	X			X	X	
Pyranometer	X		X	X	X	
Receiver, High Resolution Picture (Terascan)	X		X		X	
Recorder, Four-Channel	X	X				
Satellite Receiving Data Manipulation System	X		X		X	
Set of Pyranometers, Tyrhelometers and Net Radiometers		X		X	X	
Temperature Probe Aspirators, Quali-metrics/Weather Measure		X				
Temperature Probes, RTD-Platinum	X	X	X	X	X	
Temperature Thermometers	X	X	X	X	X	X
Transmitters, PTT	X		X			
Weather Station	X	X	X			X
Weather Stations, Automatic	X	X	X			
Weather System			X	X	X	
Wind System and Recorder with Transmitter	X		X	X	X	
Wind Anemometers	X	X	X	X	X	
Wind Indicators	X	X	X	X	X	X
Wind Translators		X		X	X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Oceanography/Limnology						
A-Frame				X	X	
Acoustic Doppler Current Profiler				X	X	
Acoustic Release with Surface Command Unit	X			X	X	
Nutrient Analyzer	X		X	X	X	
Conductivity Temperature Depth Instrument (CTD)	X		X	X	X	
Current Meter, Electromagnetic	X					
Data Acquisition System	X		X	X	X	
Deep Sea Coring System				X	X	
Depth Finder	X		X	X	X	
Echo Sounder, Biosonics Acoustic Profiler			X	X		
Fluorometer, Fast Repetition-Rate			X	X		
Fluorometer, Flow-through				X	X	
Go-Flo Bottles	X		X	X		
Hood Laminar Flow, Portable			X	X	X	
Hydraulic Boom				X	X	
Hydrodavit				X	X	
Inflatable Boat, Zodiac			X	X	X	
Isotope Van			X	X	X	
Laboratory Van				X	X	
Garage/Clean Laboratory Van				X		
Launcher, XBT				X	X	
Liquid Helium Vapor Recovery System		X				
Messenger	X		X	X	X	
Metering Sheave	X		X	X	X	
Niskin Bottle	X		X	X	X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> ³
PC02 Instrument				X	X	
Plankton Net	X		X	X	X	
Pressure Transducer	X			X	X	
Radar				X	X	
Rosette				X	X	
Salinometer	X		X	X	X	
SAT P-Code GPS				X	X	
Sediment Trap	X			X		
Sonar, Side Scan				X	X	
Thermosalinograph				X	X	
Transmissometer			X	X	X	
Trawl Gear				X	X	
Winch, Deep Sea Trawl				X	X	
Winch, Hydrographic				X	X	
Winch, Portable, Electric	X		X	X	X	
Winch, Portable, Gasoline	X		X			
Winch, Portable Hand			X			

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> ³
Seismology						
Gravimeter		X				
Gravimeter, Lacoste & Romberg (Marine)					X	
IRIS System		X	X			X
Receiver, GPS	X	X	X	X	X	X
Seismograph	X	X	X		X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Other						
Cryogen Vaporizer	X	X				
Data Link, Satellite	X	X	X	X	X	X
Drill Press	X	X	X	X	X	
Frequency Counter	X		X	X	X	
Global Positioning System	X	X	X	X	X	X
Handheld Global Positioning System	X	X	X	X	X	
Lathe	X	X	X	X	X	
LOX Transport	X					
Maritime Fixed Station (INMARSAT)	X		X	X	X	
Meter, Multi	X	X	X	X	X	
Meter, RCL	X				X	
Mill		X				
Milling Machine, Vertical		X				
Nitrogen Generator	X	X				
Projector, Video	X	X	X	X	X	
Resistors and Capacitors, Decade	X		X	X	X	
Scanner	X	X	X	X	X	
Tracking System, Satellite	X	X	X			
Transceivers, Satellite, ATS-3	X	X	X			
Un-interruptible power supply (UPS)	X	X	X	X	X	
Video Camcorder	X	X	X	X	X	

1 = R/V Laurence M. Gould

2 = R/V Nathaniel B. Palmer

3 = Automated Geophysical Observatory

VIII. Transportation & Comms

Section VIII details the number and type transportation facilities and communications equipment for use within the Antarctic treaty area.

Surface, Marine, and Air Transportation Vehicles

McMurdo Station

Truck, (light and heavy)	95
Carrier, Personnel and Cargo (tracked and wheeled)	60
Trailer, (tracked and wheeled)	35
Front-end loader, bucket and forklift	40
Forklift, warehouse	20
Motor toboggans	120
Crane	3
Road grader	4
Roller	4
Tractor, crawler	41
Tractor, wheeled	2
Sweeper, magnet	1
Snow plane	5
Truck, fire, pumper	8
Aircraft, LC-130	6
Helicopters, Aerospatiale AS-350B-2	3

Helicopters, Bell 212	1
Scraper	2
Backhoe	2

Amundsen-Scott South Pole Station

Cranes	3
Excavator	1
Front Loader, tracked	7
Motor Toboggans	12
Personnel Carrier	4
Snow Plane	2
Tele-handler	1
Tractor Crawler	7
Trencher	1
Truck, light and heavy	4

Palmer Station

Front-loader (wheeled)	2
Motor toboggans	2
Boats, rubber (Zodiac)	16
Forklift, all terrain	1
Telescopic material handler	1
Vehicle, all terrain, 4-wheel	4

Description of Communications Facilities

Note: For information on frequencies, see attached Comms forms (Attachment A).

McMurdo

1. VYTEK taper transmitter
2. USES upgrade
3. Microwave radio replacement for Long Duration Balloon project

South Pole and Palmer stations

No new communications related projects are planned at South Pole or Palmer stations during the reporting period.

Description of Airfields

McMurdo Station

Air Facilities

1. Williams Field - 2 x 10,000ft, skiways on ice shelf
2. Sea Ice Runway - TBD
3. Pegasus Glacier Ice runway -1 x 10,000
4. McMurdo Helicopter landing pad

Crash Equipment/Fire Equipment

1. Two Canadian Foremost Chieftains, 1200 gallons AFFF (each)
2. Two Nodwell Flex-Trac equipped with 1350 lb. PKP, 200 gallon AFFF
3. One Nodwell Flex-Trac equipped with 3,000 lb. PKP
4. Two Ford F-550 Mattrack equipped with 500lb Dry Chemical and 300 gallon aerosol foam
5. Seven 150 lb. PKP sled-mounted extinguisher on the flight line
6. Two 3,000 lb. PKP sled-mounted extinguishers at the heli-pad
7. One Tanker, 3,400 gallons of water
8. Two Pumpers, 750 gallons (H₂O), 1000 GPM

Navigation Aids

1. Precision (course & glide slope) Approach Radar (PAR) and Approach Surveillance Radar (ASR) on primary landing runways, AN/FPN-36 radar
2. AN/TRN-26 TACAN
3. AN/URN-25 TACAN
4. T-1109/GRT-22 UHF radio beacon
5. Terminal Approach Control Radar (GPN-27)
6. Precision Approach Path Indicator (PAPI)
7. Mobile Microwave Landing System (MMLS)
8. Microwave Landing System (MLS) (Projected operational capability November 2005)

Amundsen-Scott South Pole Station

Air Facilities

1 x 14,000 ft. skiway

Crash Equipment

One 500 lb. Dry chemical unit mounted on Ford F-350 Flatbed truck

Three 350 lb. dry chemical units

Navigation Aids

1. PAR and ASR radar, AN/FPN-36
2. AN/URN-25 TACAN
3. T-1109/GRT-22 UHF beacon

Palmer Station

Air Facilities

None. Open field landings on glacier possible

Crash Equipment

None

Navigation Aids

T-1109/GRT-22 UHF beacon

Marble Point Camp

Air Facilities

One helicopter landing pad

Crash Equipment

1. Three 150 lb. dry chemical unit (PKP)

Navigation Aids

None

IX. Assistance Facilities

Section IX details the facilities available for rendering assistance in Antarctica, including medical, transport services and emergency shelters.

McMurdo Station

Medical Facilities

During the winter-over period there is a four-bed medical and dental facility with 1 doctor, 1 Physician Assistant, and a Physical Therapist. These personnel are augmented with up to 12 Emergency Medical Technicians assigned to the Fire Department. During the summer this facility is staffed with 2 civilian Physicians, 1 ANG Physician, 1 Physicians' Assistant or Nurse Practitioner, 1 Dentist, 1 Radiographic Technician, 1 Laboratory Technician, 1 Physical Therapist, and 2 Nurses. These personnel are augmented with up to 40 Emergency Medical Technicians assigned to the Fire Department. There is limited x-ray and medical lab capability on station. Telemedicine capabilities are available with specialist consultation services through the University of Texas Medical Branch at Galveston, Texas.

Transport Services

From October to mid-February, airlift from McMurdo to Christchurch via C-17 and C-130 aircraft is available. Limited airlift within the continent during this period is via ski-equipped LC-130 or Twin Otter aircraft. Transport via surface may be available (see Section II for dates available).

Available Shelter

Over 90 covered structures are available at McMurdo Station.

Amundsen-Scott South Pole Station

Medical Facilities

One civilian doctor and one Physician Assistant are on-station at South Pole year round. There is limited x-ray and medical lab capability on station. Telemedicine capabilities are available with specialist consultation services through the University of Texas Medical Branch at Galveston, Texas, hours subject to satellite availability.

Transport Services

LC-130 aircraft are available only on-call from McMurdo Station from November to mid-February.

Available Shelter

South Pole Station consists of a large elevated structure, of which several wings currently are operational. Demolition of older facilities housed under a large geodesic dome have begun, and these are no longer available for use.

From November through mid-February, additional seasonal-use buildings and tent structures are available.

Palmer Station

Medical Facilities

One civilian doctor is assigned to Palmer Station year round. There is limited x-ray and medical lab capability on station. Telemedicine capabilities are available with specialist consultation services through the University of Texas Medical Branch at Galveston Texas.

Transport Services

The R/V *Lawrence M. Gould* is the primary means of transport to and from Palmer Station. In extreme circumstances, Twin Otter landings are possible on the glacier behind the station.

Available Shelter

Two buildings comprise the available shelter at Palmer Station.

Marble Point Camp

Medical Facilities

None

Transport Services

Helicopter support from McMurdo Station is available (weather dependent).

Available Shelter

Three structures comprise Marble Point Camp with two structures for berthing up to six persons, and one that houses a generator and workshop.

X. Tourism

Section X presents planned itineraries for U.S. based non-governmental activities in the Treaty area.

Abercrombie & Kent International, Inc.

Explorer Shipping Corporation and Abercrombie & Kent International, Inc. of Oak Brook, Illinois, are planning eleven cruises to the Antarctic Peninsula during the 2005-2006 season using the *M/S Explorer II* (aka *Alexander von Humboldt*)

M/S Explorer II

The *Explorer II* was built in 1996 at T. Mariotti in Genoa, Italy. She is registered in the Bahamas. The *Explorer II* is 133 meters in length, 30 meters in the beam, and has a draft of 5.8 meters. She has a gross tonnage of 12,500 and a cruising speed of 16 knots. The ship is ice-strengthened, and has bow thrusters and retractable stabilizers to assist in maneuverability. The *Explorer II* can accommodate 300 passengers, but only plans to carry no more than 198 while in Antarctica. The ship has staff and crew of about 146 and carries 199 passengers.

ITINERARY: Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include South Shetland Islands, Antarctic Peninsula, Paradise Harbor, Baily Head, Deception Island, Pléneau Island, Pendulum Cove, Hannah Point, Livingston Island, Petermann Island, Paulet Island, Aitcho Islands, Penguin Island, Weddell Sea, Lemaire Channel, Neumayer Channel, Port Lockroy, Anvers Island, Cape Lookout, Elephant Island, Mikkelsen Harbor, Point Wild, Turret Point, King George Island, Robert Point, Robert Island, Devil Island, Gourdin Island, Hydruga Rocks, Orne Island, Ronge Island, Danco Island, Yalour Islands, and Prospect Point.

Schedules for each of the cruises follows:

- 0. Depart Stanley November 2, 2005, arrive Ushuaia November 10 (in Treaty area November 4 - 7);
- 0. Depart Ushuaia November 12, arrive Ushuaia November 26 (in Treaty area November 21 - 23);
- 0. Depart Ushuaia November 26, arrive Ushuaia December 11 (in Treaty area December 6 - 8);
- 0. Depart Ushuaia December 11, arrive Ushuaia December 21 (in Treaty area December 13 - 18);
- 0. Depart Ushuaia December 21, arrive Ushuaia January 5, 2006 (in Treaty area December 30, 2005 - January 2, 2006);
- 0. Depart Ushuaia January 5, arrive Ushuaia January 16 (in Treaty area January 9 - 13);
- 0. Depart Ushuaia January 16, arrive Ushuaia January 27 (in Treaty area January 20 - 24);
- 0. Depart Ushuaia January 27, arrive Ushuaia February 7 (in Treaty area January 31 - February 4);
- 0. Depart Ushuaia February 7, arrive Ushuaia February 17 (in Treaty area February 9 - 14);
- 0. Depart Ushuaia February 17, arrive Ushuaia March 4 (in Treaty area February 26 - March 1);
- 0. Depart Ushuaia March 6, arrive Ushuaia March 25 (in Treaty area March 9 - 11).

Quark Expeditions

Quark Expeditions of Darien, Connecticut, is planning approximately 47 cruises to the Antarctic during 2005-2006 season using four chartered vessels. The *Akademik Shokalskiy* will conduct 10 cruises, the *Professor Molchanov* will conduct 10 cruises, the *Professor Multanovskiy* will conduct 11 cruises, the *Lyubov Orlova* will conduct 12 cruises, and the *Kapitan Khlebnikov* will conduct four cruises.

ITINERARY: Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Zhongshan Base, Larsemann Hills, Amanda Bay, Davis Station, West Ice Shelf, Queen Mary Coast, Davis Sea, Shackleton Ice Shelf, Petersen

Bank, Casey Station, Ross Sea, Victoria Land, Robertson Land, Cape Adare, Cape Hallett, Edisto Inlet, Possession Islands, Terra Nova Bay, Drygalski Ice Tongue, Campbell Glacier Tongue, Cape Roget, Coulman Island, Cape Washington, Franklin Island, Dry Valleys, Ross Island, Cape Royds, Cape Evans, Hut Point, Ross Ice Shelf, McMurdo Sound, McMurdo Station, Scott Base, Balleny Islands, Weddell Sea, Princess Martha Coast, Cape Norvegia, Atka Bay, Neumayer Station, Paulet Island, Antarctic Sound, Antarctic Peninsula, Elephant Island, South Shetland Islands, Deception Island, Paradise Harbor, Neko Harbor, Port Lockroy, Neumayer Channel, Lemaire Channel, Petermann Island, Portal Point, Hannah Point, and Aitcho Islands.

M/V Akademik Shokalskiy

The vessel is of Russian registry and is 235 feet long, 42 feet wide and has a draft of 15 feet. Its gross registered tonnage is 1754. The hull's ice classification is KM*UL[1]A2, Canadian Type A. The *Shokalskiy* is powered by two 2,300 kW diesel engines and has both bow and stern thrusters. The vessel carries 45 passengers and 35 crew.

Schedules for each of the cruises follow:

- 0. Depart Ushuaia November 11, 2005, arrive Ushuaia November 21 (in Treaty area November 14 - November 18);
- 0. Depart Ushuaia November 21, arrive Ushuaia December 1 (in Treaty area November 24 - 28);
- 0. Depart Ushuaia December 1, arrive Ushuaia December 11 (in Treaty area December 4 - 8);
- 0. Depart Ushuaia December 11, arrive Ushuaia December 20 (in Treaty area December 14 - 17);
- 0. Depart Ushuaia December 20, arrive December 29 (in Treaty area December 23 - 26);
- 0. Depart Ushuaia December 29, arrive Ushuaia January 8, 2006 (in Treaty area January 1 - 5);
- 0. Depart Ushuaia January 8, arrive Ushuaia January 18 (in Treaty area January 11 - 15);

8. Depart Ushuaia January 18, arrive Ushuaia January 28 (in Treaty area January 21 - 25);
0. Depart Ushuaia January 28, arrive Ushuaia February 7 (in Treaty area January 31 - February 4);
0. Depart Ushuaia February 7, arrive Ushuaia February 25 (in Treaty area February 19 - 22).

M/V Professor Molchanov

The vessel is of Russian registry and is 235 feet long, 42 feet wide and has a draft of 15 feet. Its gross registered tonnage is 1754. The hull's ice classification is KM*UL[1]A2, Canadian Type A. The *Molchanov* is powered by two 2,300 kW diesel engines and has both bow and stern thrusters. The vessel carries 44 passengers and 32 crew.

Schedules for each of the cruises follow:

0. Depart Puerto Madryn November 7, 2005, arrive Ushuaia November 25 (in Treaty area November 18 - 22);
0. Depart Ushuaia November 25, arrive Ushuaia December 5 (in Treaty area November 28 - December 2);
0. Depart Ushuaia December 5, arrive Ushuaia December 14 (in Treaty area December 8 - 11);
0. Depart Ushuaia December 14, arrive Ushuaia December 27 (in Treaty area December 16 - 24);
0. Depart Ushuaia December 27, arrive Ushuaia January 6, 2006 (in Treaty area December 29, 2005 - January 3, 2006);
0. Depart Ushuaia January 6, arrive Ushuaia January 24 (in Treaty area January 17 - 21);
0. Depart Ushuaia January 24, arrive Ushuaia February 3 (in Treaty area January 26 - 31);
0. Depart Ushuaia February 3, arrive Ushuaia February 16 (in Treaty area February 5 - 13);
0. Depart Ushuaia February 16, arrive Ushuaia February 26 (in Treaty area February 18 - 23);
0. Depart Ushuaia February 26, arrive Ushuaia March 8 (in Treaty area March 1 - 5).

M/V Kapitan Khlebnikov

The vessel was built in 1981 at the Waratsila Shipyard, Helsinki, Finland. The ship is owned by FESCO, Vladivostok. The call letters are UTSU. The *Khlebnikov* is 132.4 meters in length, 26.5 meters in breadth, has an 8.5 meter draft and has a displacement of 18,000 tons. Diesel-electric motors producing 22,000 h.p power the vessel, driving 3 propellers permitting a maximum speed of 19 knots. The vessel is classified as an icebreaker. The *Khlebnikov* carries four Mark V heavy-duty zodiacs, in addition to two MI2 helicopters for ice reconnaissance and passenger transport. Approximately 112 passengers and 50 crew members will be onboard for each cruise.

Schedules for each of the cruises follow:

- 0. Depart Hobart November 9, 2005, arrive Lyttelton December 4 (in Treaty area November 15 - 29);
- 0. Depart Lyttelton December 5, arrive Hobart December 29 (in Treaty area December 10 - 23);
- 0. Depart Hobart December 29, arrive Lyttelton January 21, 2006 (in Treaty area January 4 - 16);
- 0. Depart Lyttelton January 21, arrive Hobart February 14 (in Treaty area January 25 - February 8).

M/V Professor Multanovskiy

The vessel was during the 1980's at the Waratsila Shipyard, Helsinki, Finland, and refurbished in 1997. The ship is owned by FESCO, Vladivostok. The *Multanovskiy* is 71.6 meters in length, 12.8 meters in breadth, has a 4.5 meter draft, and has a displacement of 2,140 tons. The vessel is powered by diesel-electric motors producing 1,560 h.p., permitting a maximum speed of 19 knots. The vessel is ice-strengthened. Approximately 49 passengers and 20 crew members will be onboard for each cruise.

Schedules for each of the cruises follows:

- 0. Depart Stanley November 5, arrive Ushuaia November 21 (in Treaty area November 8 - 18);
- 0. Depart Ushuaia November 21, arrive Ushuaia December 9 (in Treaty area December 3 - 6);

- 0. Depart Ushuaia December 9, arrive Ushuaia December 18 (in Treaty area December 12 - 15);
- 0. Depart Ushuaia December 18, arrive Ushuaia December 27 (in Treaty area December 21 - 24);
- 0. Depart Ushuaia December 27, arrive Ushuaia January 5, 2006 (in Treaty area December 30, 2005 - January 2, 2006);
- 0. Depart Ushuaia January 5, arrive Ushuaia January 23 (in Treaty area January 17 - 20);
- 0. Depart Ushuaia January 23, arrive Ushuaia February 1 (in Treaty area January 26 - 29);
- 0. Depart Ushuaia February 1, arrive Ushuaia February 11 (in Treaty area February 4 - 8);
- 0. Depart Ushuaia February 11, arrive Ushuaia February 21 (in Treaty area February 14 - 18);
- 0. Depart Ushuaia February 21, arrive Ushuaia March 3 (in Treaty area February 24 - 28);
- 0. Depart Ushuaia March 3, arrive Ushuaia March 13 (in Treaty area March 6 - 10).

M/V Lubov Orlova

The vessel was built in 1976 in Yugoslavia and refurbished in 1999. The *Orlova* is 90.9 meters in length, 16.2 meters in breadth, and has a 7 meter draft. The vessel is powered by diesel-electric motors permitting a maximum speed of 14 knots. The vessel is ice-strengthened, with an ice classification of 100 1A... Approximately 110 passengers and 53 crew members will be onboard for each cruise.

Schedules for each of the cruises follows:

- 0. Depart Ushuaia November 9, 2005, arrive Ushuaia November 19 (in Treaty area November 12 - 16);
- 0. Depart Ushuaia November 19, arrive Ushuaia November 29 (in Treaty area November 22 - 26);
- 0. Depart Ushuaia November 29, arrive Ushuaia December 9 (in Treaty area December 2 - 6);
- 0. Depart Ushuaia December 9, arrive Ushuaia December 19 (in Treaty area December 12 - 16);
- 0. Depart Ushuaia December 19, arrive Ushuaia December 28 (in Treaty area December 22 - 25);

- 0. Depart Ushuaia December 28, arrive Ushuaia January 6, 2006 (in Treaty area December 31, 2005 - January 3, 2006);
- 0. Depart Ushuaia January 6, arrive Ushuaia January 15 (in Treaty area January 9 - 12);
- 0. Depart Ushuaia January 15, arrive Ushuaia February 2 (in Treaty area January 27 - 30);
- 0. Depart Ushuaia February 2, arrive Ushuaia February 11 (in Treaty area February 5 - 8);
- 0. Depart Ushuaia February 11, arrive Ushuaia February 20 (in Treaty area February 14 - 17);
- 0. Depart Ushuaia February 20, arrive Ushuaia March 1 (in Treaty area February 23 - 26);
- 0. Depart Ushuaia March 1, arrive Ushuaia March 11 (in Treaty area March 4 - 8).

Orient Lines, Inc.

Orient Lines, Inc. of Fort Lauderdale, Florida, plans to conduct 6 cruises to the Antarctic during the 2005-2006 season using the *M/V Marco Polo*.

M/V Marco Polo

The vessel is ice-strengthened and was built by VEB Mathias-Thesan Werft of Wismar, Germany in 1965 and re-built during 1991-93 under the supervision of Knud E. Hansen, naval architects, and A. & M. Katzourakis, ship designers. Call letters of the vessel are C6JZ7 and it is registered in the Bahamas. The *Marco Polo* is 176.28 meters (578.4 feet) in length, 23.6 meters (77.4 feet) in breadth, has a draft of 8.2 meters (26.9 feet), and is 20,502 tons GRT. Power is provided by 2 Saulzer 7 RND 76 diesel engines with power output of 10,500 bhp each. The vessel has twin-screw propellers and is fitted with Denny Brown (UK) fin stabilizers. There are 6 SKL diesel generators capable of producing approximately 3,500 kW. The *Marco Polo* is equipped with the latest radio and satellite communications systems (INMARSAT 1306215) and state-of-the-art navigation equipment. The vessel was redesigned to comply with all 1992 "Marpol" rules for waste disposal including an onboard biological treatment plant with a liquid waste disposal system, refuse sorting, pulping and a treatment plant, in addition to a modern refuse incinerator. All lifeboats are semi-enclosed, engine propelled and capable of saving 1,200 persons. The vessel is also equipped with two high-speed all-purpose

passenger tenders and 10 inflatable zodiac landing craft. The staff and crew capacity is 375 whereas the passenger capacity is 850. However during cruises to the Antarctic Treaty area, Orient Lines only intends to carry 400-550 passengers.

ITINERARY: Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Half Moon Island, Paradise Harbor, Port Lockroy, Deception Island, Cuverville Island, Lemaire Channel, Neumayer Channel, Shingle Cove, Coronation Island, Elephant Island, Cape Lookout, and Hope Bay

Schedules for each of the cruises follows:

0. Depart Punta Arenas December 28, 2005, arrive Ushuaia January 4, 2006 (in Treaty area December 31, 2005 - January 2, 2006);
0. Depart Ushuaia January 5, arrive Ushuaia January 12 (in Treaty area January 7 - 10);
0. Depart Ushuaia January 13, arrive Ushuaia January 20 (in Treaty area January 15 - 18);
0. Depart Ushuaia January 21, arrive Ushuaia January 28 (in Treaty area January 23 - 26);
0. Depart Ushuaia January 29, arrive Ushuaia February 5 (in Treaty area January 31 - February 3);
0. Depart Ushuaia February 6, arrive Stanley February 13 (in Treaty area February 8 - 11).

Clipper Cruise Lines

Clipper Cruise Lines, of St. Louis, Missouri, plans to conduct 6 cruises to the Antarctic during the 2005-2006 season using the *M/V Clipper Adventurer*.

M/V Clipper Adventurer

The vessel was built in 1975 and rebuilt in 2002. The call letters are C6PG6. The *Clipper Adventurer* is 100 meters in length, 16.24 meters in breadth, has a 4.65 meter draft and displacement of 4,364 tons. The vessel has an average cruising speed of 14.5 knots. The vessel is classified by the Lloyd's Register as a 100 A1 Ice Class 1A Passenger Ship LMC. The *Clipper Adventurer* carries four 50-person life boats and three 25-person life

rafts, in addition to ten 15-person Mark V heavy-duty zodiacs. Approximately 122 passengers and 80 crewmembers will be onboard for each cruise.

ITINERARY: Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include South Orkney Islands, Antarctic Peninsula, Paulet Island, Brown Bluff, Deception Island, Elephant Island, Paradise Harbor, Neko Harbor, Lemaire Channel, Petermann Island, Aitcho Islands, Penguin Island, Turret Point, Cuverville Island, Pléneau Island, Hannah Point, Port Lockroy, Neumayer Channel, Vernadsky Station, and Galindez Island.

Schedules for each of the cruises follows:

0. Depart Ushuaia November 11, 2005, arrive Ushuaia November 22 (in Treaty area November 13 - 19);
0. Depart Ushuaia November 22, arrive Ushuaia December 3 (in Treaty area November 26 - 30);
0. Depart Ushuaia December 19, arrive Ushuaia January 5, 2006 (in Treaty area December 29, 2005 - January 2, 2006);
0. Depart Ushuaia January 23, arrive Ushuaia February 3 (in Treaty area January 27 - 31);
0. Depart Ushuaia February 3, arrive Ushuaia February 14 (in Treaty area February 7 - 11);
0. Depart Ushuaia February 14, arrive Ushuaia February 25 (in Treaty area February 18 - 22).

Lindblad Expeditions

Lindblad Expeditions of New York City, New York, plans to conduct 8 cruises to the Antarctic during the 2005-2006 season, using the *M/V Endeavor*.

M/V Endeavor

The *M/V Endeavor* was built in Germany in 1966, and is registered in the Bahamas. The vessel is 295 feet long, 46 feet wide, and has a draft of 21 feet. The ship can accommodate up to 108 passengers.

Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Aitcho Island, Baily Head, Booth Island, Brown Bluff, Cape Lookout, Cape Valentine, Charlotte Harbor, Coronation Island, Crystal Hill, Cuverville Island, Damoy Point, Detaille Island, Devil Island, Enterprise Islands, Fort Point, Gibbs Island, Gourdien Island, Hannah Point, Hydrurga Rocks, James Ross Island, Lallemand Fjord, Lindblad Cove, Neko Harbor, Palmer Station, Paradise Harbor, Paulet Island, Pendulum Cove, Penguin Island, Petermann Island, Pléneau Island, Port Lockroy, Prospect Point, Sandefjord Bay, Shingle Cove, Snowhill Island, Telefon Bay, Torgersen Island, Whalers Bay, Wild Point, Wilhelmina Bay, Yalour Islands, and Yankee Harbor

Schedules for each of the cruises follows:

0. Depart Ushuaia November 16, 2005, arrive Ushuaia November 27 (in Treaty area November 19 - 24);
0. Depart Ushuaia November 27, arrive Ushuaia December 8 (in Treaty area November 30 - December 5);
0. Depart Ushuaia December 8, arrive Ushuaia December 29 (in Treaty area December 23 - 26);
0. Depart Ushuaia December 29, arrive Ushuaia January 9, 2006 (in Treaty area January 1 - 6);
0. Depart Ushuaia January 9, arrive Ushuaia January 20 (in Treaty area January 12 - 17);
0. Depart Ushuaia January 20, arrive Ushuaia January 31 (in Treaty area January 23 - 28);
0. Depart Ushuaia January 31, arrive Ushuaia February 11 (in Treaty area February 3 - 8);
0. Depart Ushuaia February 11, arrive Ushuaia March 4 (in Treaty area February 14 - 19).

Oceanities of Chevy Chase, Maryland plans to have approximately 20 researchers travel to various sites in the Antarctic Peninsula region to conduct research in support of the Antarctic Site Inventory Project. They will be transported from various locations during each of the above cruises of the *M/S Endeavor*. Sites visited may vary depending on weather and ice conditions as well as length of each cruise.

Discovery World Cruises

Discovery World Cruises of Fort Lauderdale, Florida is planning to conduct three cruises to Antarctica during the 2005-2006 season.

M/V Discovery

The *M/V Discovery* is registered in Bermuda and can accommodate 751 passengers, and 304 staff and crew.

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

Schedules for each of the cruises follows:

0. Depart Stanley January 17, 2006, arrive Ushuaia January 24 (in Treaty area January 19 - 22);
0. Depart Ushuaia January 25, arrive Ushuaia February 1 (in Treaty area January 27 - 30);
0. Depart Ushuaia February 1, arrive Punta Arenas February 9 (in Treaty area February 3 - 6).

Elegant Cruises and Tours

Elegant Cruises and Tours of Port Washington, New York plan to operate the *M/S Andrea* on 9 cruises to the Antarctic during the 2005-2006 season.

M/S Andrea

The *M/S Andrea* was built in 1960, refurbished in 2002 and is registered in Liberia. She is 287 feet long and has a 43.5 feet beam and a gross tonnage of 2,620. Her cruising speed is 16 knots and she can accommodate approximately 115 passengers and 48 staff and crew.

ITINERARY: Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Point Wild, Half Moon, Penguin Island, Maxwell Bay, Hannah Point, Paulet Island, Gourdin Island, Whalers Bay, Fumarole Bay, Telefon Bay, Pendulum Cove, Cuverville Island, Orne Harbour, Enterprise Island, Cierva Cove, Mikkleson Harbor, Neko Harbor, Dorian Bay, Petermann Island, Port Lockroy, Paradise Bay, Lemaire Channel, Melchior Island, Aitcho Islands, and Brown Bluff.

Schedules for each of the cruises follows:

0. Depart Stanley November 23, 2005, arrive Ushuaia December 7 (in Treaty area November 30 - December 6);
0. Depart Ushuaia December 7, arrive Ushuaia December 16 (in Treaty area December 9 - 14);
0. Depart Ushuaia December 16, arrive Ushuaia December 25 (in Treaty area December 18 - 23);
0. Depart Ushuaia December 25, arrive Ushuaia January 3, 2006 (in Treaty area December 27 - 31, 2005);
0. Depart Ushuaia January 3, 2006, arrive Ushuaia January 12 (in Treaty area January 5 - 9);
0. Depart Ushuaia January 12, arrive Ushuaia January 21 (in Treaty area January 14 - 18);
0. Depart Ushuaia January 21, arrive Ushuaia January 30 (in Treaty area January 23 - 28);
0. Depart Ushuaia January 30, arrive Ushuaia February 16 (in Treaty area February 1 - 6);
0. Depart Ushuaia February 16, arrive Stanley March 2 (in Treaty area February 18 - 23).

Princess Cruises

Princess Cruises of Santa Clarita, California plans to operate the *M/S Royal Princess* during one cruise to the Antarctic during the 2005-2006 season.

M/S Royal Princess

The *Royal Princess* is registered in the United Kingdom and can accommodate 1,200 passengers and 539 staff and crew. No landings in the Treaty Area are planned.

ITINERARY: Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Elephant Island, Esperanza Station, Bransfield Strait, Antarctic Sound, Hope Bay, Gerlache Strait, Neumayer Channel, Melchior Islands, Intercurrence Island, Sigma Island, and Deception Island.

Schedules for each of the cruises follows:

0. Depart Stanley January 16, 2006, arrive Ushuaia January 24, 2005 (in Treaty area January 18 - 21).

Travel Dynamics International

Travel Dynamics International of New York, New York plans to operate the *M/V Corinthian II* for 6 cruises to the Antarctic Peninsula during the 2005-2006 season.

M/V Corinthian II

M/V Orion was built in 1992 and refurbished and redecorated in 2004 and early 2005. The vessel is ice-strengthened and served by 70 experienced European officers and crew. The ship can accommodate 114 passengers.

ITINERARY: Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Penguin Island, Half Moon Island, Aitcho Islands, Almirante Brown Station, Port Lockroy, Petermann Island, Paradise Harbor, Deception Island, Errera Channel, Cuverville Island, Whalers Bay, Hannah Point, Brown Bluff, Paulet Island, Elephant Island, Neko Harbor, Melchior Island, Hope Bay, and Palmer Station.

Schedules for each of the cruises follows:

0. Depart Ushuaia December 24, 2005, arrive Ushuaia January 3, 2006 (in Treaty area December 27 - 31, 2005);

0. Depart Ushuaia January 3, 2006, arrive Ushuaia January 13 (in Treaty area January 6 - 10);
0. Depart Ushuaia January 13, arrive Ushuaia January 23 (in Treaty area January 16 - 20);
0. Depart Ushuaia January 23, arrive Ushuaia February 2 (in Treaty area January 26 - 30);
0. Depart Ushuaia February 2, arrive Ushuaia February 12 (in Treaty area February 5 - 9);
0. Depart Ushuaia February 12, arrive Ushuaia February 22 (in Treaty area February 15 - 19).

Holland American Line

Holland America Line of Seattle, Washington, plans to operate the *M/S Rotterdam*, Netherlands registry, on two cruises that will enter the Treaty Area for approximately 72 hours for scenic cruising. In addition, they plan to operate the *M/S Prinsendam* for one cruise to the Treaty area. No landings are planned.

M/S Rotterdam

The *M/S Rotterdam* was built at Fincantieri shipyard in Marghera, Italy. She is registered in the Netherlands. The *Rotterdam* is 778 feet in length, has a beam of 105.8 feet, a gross tonnage of 59,652, and a maximum speed of 25 knots. She can accommodate 1,316 passengers, and 593 staff and crew.

ITINERARY: Sites visited may vary depending on weather and ice conditions, and may include Anvers Island, Palmer Station, Paradise Harbor, Errera Channel, Neumayer Channel, Lemaire Channel, Petermann Island, Deception Island, Hope Bay, Esperanza Station, Paulet Island, Elephant Island, and South Orkney Islands.

Schedules for each of the cruises follows:

0. Depart Buenos Aires December 27, 2005, arrive Ushuaia January 5, 2006 (in Treaty area December 31, 2005 - January 3, 2006);
0. Depart Ushuaia January 17, arrive Stanley January 23 (in Treaty area January 19 - 21).

M/S Prinsendam

The *M/S Prinsendam* was built at Fincantieri shipyard in Marghera, Italy. She is registered in the Netherlands. The Amsterdam is 669 feet in length, has a beam of 106 feet, a gross tonnage of 38,000, and a maximum speed of 22 knots. She can accommodate 793 passengers, and 443 staff and crew.

ITINERARY: Sites visited may vary depending on weather and ice conditions, and may include Anvers Island, Palmer Station, Paradise Harbor, Errera Channel, Neumayer Channel, Lemaire Channel, Petermann Island, Deception Island, Hope Bay, Esperanza Station, Paulet Island, Elephant Island, and South Orkney Islands.

Schedules for each of the cruises follows:

Depart Ushuaia February 3, 2006, arrive Cumberland Bay, South Georgia February 10 (in Treaty area February 5 - 8).

Other

LAND BASED

◆ Antarctic Logistics & Expeditions (ALE) of Arlington, Virginia, plans several 11-17-day excursions to the interior of the Antarctic continent. Travel from Punta Arenas, Chile, to Adventure Network's Patriot Hills base camp (80°20'S, 81°20'W) is via a South African chartered C-130 cargo/passenger aircraft. These various inland excursions will occur during November 2005 - mid-January 2006 using two chartered Twin Otters and their own Cessna C-A185F aircraft.

ITINERARY: A number of flights to and within Antarctica are planned, according to the following itinerary. All expeditions depart from and return to Punta Arenas via base camp at Patriot Hills. Site visits may vary depending on weather and ice conditions.

- *Mt. Vinson* (exploration of Vinson Massif): November 22, 2005 - December 5; December 5 - 19; December 19 - 29; December 29 - January 15, 2006; January 9 - 23.

- o *South Pole Flight* (flights from Patriot Hills to South Pole): November 28, 2005 - December 5; December 5 - 12; December 12 - 19; December 29 - January 4, 2006; January 9 - 15.
- o *Ski Last Degree* (ski trips to South Pole from 85-89°S): December 5 - 19, 2005; December 19 - January 4, 2006; December 29, 2005 - January 15, 2006.
- o *Antarctic Odyssey* (exploration of area around Patriot Hills): November 28 - December 5, 2005; December 12 - 19.
- o *Ellsworth Mountains Safari* (exploration of Ellsworth Mountains): December 19 - 29, 2005; January 9 - 23, 2006.
- o *Ice Marathon* (marathon race in Patriot Hills area): January 4 - 9, 2006.
- o *South Pole All the Way* (ski expedition from Hercules Inlet and Filchner Ice Shelf to South Pole): November 14, 2005 - January 26, 2006.

◆ Ralph Fedor and approximately 21 passengers will travel to Peter I Island, onboard the *M/V DAP Mares*, of Chilean registry, to conduct an amateur radio expedition and to record propagation during sunspot minimum. Participants will arrive on Peter I Island on February 8th via helicopter from the *M/V DAP Mares* and depart the same way on February 22. Dates of arrival and departure and length of stay may vary depending on weather and ice conditions.

- o Fly via DAP DASH -7 aircraft from Punta Arenas to King George Island: February 2, 2006;
- o Depart King George Island aboard M/V DAP Mares: February 3;
- o Arrive Peter I Island: February 8;
- o Depart Peter I Island aboard M/V DAP Mares: February 22;
- o Arrive Punta Arenas: March 1.

◆ Justin Foley and 6 other individuals will travel to Antarctica onboard the *Onora*. They may visit Deception Island, King George Island, Danco Island, Almirante Brown Station, Petermann Island, Port Lockroy, and Omega Island.

- o Depart Porto Williams December 19, 2005, arrive South Georgia February 5, 2006 (in Treaty area December 26, 2005 - February 2, 2006).

- ◆ Michael J. Libecki and 2 others will fly to and within Antarctica for skiing and mountaineering in the Orvin Mountains according to the following itinerary, which is dependent upon weather conditions and aircraft availability.
 - Fly via IL-76TD from Cape Town to Novolazarevskaya Station: November 28, 2005;
 - Fly via AN-2CX from Novolazarevskaya Station to vicinity of Ulvetanna Peak, Orvin Mountains: November 30;
 - Fly via AN-2CX from vicinity of Ulvetanna Peak, Orvin Mountains, to Novolazarevskaya Station: January 2, 2006;
 - Fly via IL-76TD from Novolazarevskaya Station to Cape Town: January 6.

- ◆ Rochelle Charters will conduct a cruise with a maximum of 30 passengers, 15 staff and crew to the Treaty Areas during 2005-2006. Sites visited may vary depending on weather and ice conditions as well as length of the cruise, and may include Port Lockroy, Arthur Harbor, Palmer Station, Argentine Islands, Petermann Island, Biscoe Islands, Mutton Cove, Matha Strait, Detaille Island, Hanusse Bay, Paradise Harbor, Deception Island, Half Moon Island, Yankee Harbor, Maxwell Bay, Admiralty Bay, and South Shetland Islands.
 - Depart Punta Arenas February 15, 2006, arrive Punta Arenas February 28 (in Treaty area February 19 - 25).

XI. Refuges

Section XI provides information on existing refuges and survival caches in the McMurdo area, as well as deactivated camps and stations elsewhere on the continent.

McMurdo Area Antarctic Refuges and Survival Caches

Following are the existing refuges consisting of huts or caches that may be used in emergency survival situations. These survival huts and survival caches are located within a 65 nautical mile radius of McMurdo Station and are inspected annually. Information provided includes position and description of location and accommodation, food, fuel, and supplies of other kinds. "Full provisions" indicates sleeping, eating, and cooking utensils.

Lower Erebus Hut and Cache

Position: 77°30'S; 167°10'E
Hut: Partial provisions for 3 (no sleeping bags), oxygen, radio during summer.
Cache: Full provisions for 6. Located 50 meters from hut.

Cape Crozier Hut and Cache

Position: 77°30'S, 169°40'E
Hut: Wood structure with some provisions. No radio.
Cache: Full provisions for 6 located North of the hut.

Cape Royds Hut

Position: 77°33'S, 166°08'E
Hut: RAC Tent – 12 x 16 ft / Summer Season Only
Cache: No cache.

Lake Vida Cache

Position: 77°23'S, 161°55'E
Hut: Full provisions for 6, 30 man/days food. No radio.
Cache: Located approximately 183m from lake on southwestern shore.

Lake Bonney Hut and Cache

Position: 77°42'S, 162°27'E
Hut: Jamesway structure with provisions. No radio
Cache: Located 30 meters from Jamesway structure uphill.

Lake Hoare Hut and Cache

Position: 76°38'S, 162°57'E
Hut: Wood structure with provisions, sleeps 6.
Cache: Located 30 meters from hut, food, no radio.

Lake Fryxell Hut and Cache

Position: 77°36'S, 163°07'E
Hut: Jamesway structure with provisions sleeps 6.
Cache: Located 30 meters from hut, food, no radio.

F6 Hut and Cache

Position: 77°21'S, 163°09'E
Hut: Wood structure with provisions.
Cache: Located 30 meters from hut, food to supply 6 people/10days, no radio.

New Harbor Hut and Cache

Position: 77°34'S, 163°31'E
Hut: Jamesway structure with provisions. Sleeps 6.
Cache: Located 30 meters from hut, food, no radio.

Marble Point Camp

Position: 77°25'S, 163°41'E
Hut: 2 wood structures with provisions, 1 GEN Shack, 1 Modular/Pre-fab building. Sleeps 10+ amongst the various structures.
Cache: No cache.

Black Island Camp

Position: 77°7.8'S, 166°09'E
Hut: 1 wood structure with provisions, 1 Modular/Pre-fab. Sleeps 10+
Cache: No cache.

McMurdo Supported Remote Locations

Siple Dome Camp

Position: 81°39'S, 149°04'E

Camp winterized at the end of the 2004-2005 season. Food, fuel, survival cache, and heavy equipment were staged on site for use during the 2004-2005 field season. Camp will be reoccupied from October 2005 to February 2006.

Byrd Surface Camp

Position: 80°01'S, 119°32'E

Camp winterized at the end of the 2004-2005 season. One Jamesway and one Generator Shack were left standing. Food, fuel, survival equipment are on site.

Odell Glacier Camp

Position: 76°40.87'S, 159°54.81'E

Camp winterized at the end of the 2004-2005 season. One hut was left standing. Food, fuel, survival equipment are on site.

WAIS Divide Camp

Position: 79°28.08' S, 112°5.16'W

Plan to establish this camp in the 2005-2006 season.

Deactivated USAP Stations and Camps

Data on unoccupied United States facilities in Antarctica is listed here although such facilities are not considered usable as refuges. Some are so deeply buried in snow as to make them inaccessible, while others are difficult to locate. Information provided: (1) position and description of location; (2) dates established and deactivated or last visited; and (3) estimate of available accommodation, food, fuel, and supplies of other kinds.

Byrd Aurora Substation

Position: 79°26'S, 188°4'W, approximately 64km from present Byrd Station.

Dates of Operation: March 1963 - October 1963

Description: Prefabricated shelter, 16 man/months food and supplies, and 9,464 liters of diesel fuel

Camp Neptune

Position: 83°31'S, 57°15'W, Neptune Range of Pensacola Mountains

Dates of Operation: November 1963 - January 1966

Description: 4.9m x 7.3m Jamesway building, 32 drums fuel, 4-6 man/months food, 113 kg. explosives

Patuxent Camp

Position: 84°54'S, 63°W, Patuxent Range of Pensacola Mountains

Dates of Operation: November 1962 - December 1965

Description: 4.8m x 4.8m Jamesway building, 4 drums fuel, 458 man/days food plus cooking utensils

Prebble Glacier Camp

Position: 84°15'S, 164°10'E, at mouth of Prebble Glacier, Queen Alexandra Range
Dates of Operation: November 1966 - February 1967
Description: 4.8m x 4.8m Jamesway building, 4 drums fuel, 1 man/month food supplies

Camp Gould

Position: 78°57'S, 85°45'W, East Heritage Range
Dates of Operation: November 1962 - February 1967
Description: 4.8m x 4.8m Jamesway building, 48 drums fuel, 8-10 man/months food

Amundsen Glacier Camp

Position: 86°18'S, 160°55'W, adjacent to Amundsen Glacier on the Faulkner Escarpment
Dates of Operation: November 1963 - January 1964
Description: 4.8m x 4.8m Jamesway building, 4 fuel drums, 400 man/days food, cooking utensils

Byrd Coast Camp

Position: 76°55'S, 144°W, in Edsel Ford Range at Mount Farley
Dates of Operation: October 1966 - January 1967
Description: 4.8m x 4.8m Jamesway building, 2 man/months food and fuel

Camp Ohio

Position: 84°52'S, 114°20'W, Ohio Range, Horlick Mountains
Dates of Operation: November 1961 - January 1967
Description: 4.8m x 4.8m Jamesway building, 7 drums fuel, cooking utensils, 2 man/weeks food supplies

Camp Minnesota

Position: 73°30'S, 94°30'W, in northwestern side of Jones Mountain
Dates of Operation: November 1961 - January 1965
Description: 4.8m x 4.8m Jamesway building, unknown quantity of food and fuel

Little Rockford

Position: 79°30'S, 147°19'W, (relocated in 1959 from 79°35'S, 156°46'W)
Dates of Operation: December 1958 - February 1965
Description: 3 Wannigans, 1 improvised shelter, food and fuel unknown

Plateau Station

Position: 79°15'S, 40°30'E
Dates of Operation: December 1965 - January 1969
Description: Main building 21m x 7.6m van; emergency station separated from main building consists of 9m x 2.4m van attached to a 4.8m x 8m Jamesway; 3-4.8m x 8.5m' and 1-4.8m x 4.8m Jamesway huts with limited supply of DFA and mogas available; however, access may be difficult owing to snow cover; 100 man/months of food plus cooking utensils. Only antenna observed during overflight of site in January 2003

Camp Ohio II

Position: 86°S, 127°W, near crashed R4D aircraft
Dates of Operation: November 1962 - January 1965
Description: 4.8m x 7.3m Jamesway, 4 drums fuel, 2 man/months food plus cooking utensils

Roosevelt Island Hut

Position: 80°11'S, 161°39'W
Dates of Operation: 1969
Description: Provisions for 25. No radio

Hallett Station

Position: 72°19'S, 170°13'E
Dates of Operation: January 1957 - February 1973
Description: 4 buildings

Brockton Station

Position: 80°01'S, 178°02'W
Dates of Operation: October 1965 - February 1972
Description: 4 buildings, 14 drums fuel, and 4,164 liters bulk fuel

Marie Byrd Land Camp

Position: 75°45'S, 135°W
Dates of Operation: October - December 1977
Description: 5 Jamesway huts, bulk DFA, food

Ellsworth Mountains Camp

Position: 79°07'S, 85°39'W
Dates of Operation: November 1979 - January 1980
Description: 1 Jamesway hut

McGregor Glacier Hut

Position: 85°08'S, 174°50'E
Dates of Operation: 1982-83 season
Description: Camp buried under snow. No radio

Dome C Camp

Position: 74°39'S, 124°10'E
Dates of Operation: Camp active summer seasons through 1981/82. Last visited Jan. 1996
Description: 8 Jamesway huts, 3,785 liters POL, and 2,722 kg. food

Beardmore South Camp

Position: 85°2'S, 164°15'E
Dates of Operation: October 1984 - February 1986
Description: Wooden module buried under snow, mogas, some JP8 available.

Siple Station

Position: 75°56'S, 84°15'W
Dates of Operation: January 1979 - February 1988
Description: An unsafe enclosed area under-the-snow, and Jamesway huts on the surface.

Upstream Bravo

Position: 83°29'S, 138°06'W
Dates of Operation: February 1994
Description: All structures buried.

XII. Permits, Species Killed, Captured

*Information regarding Antarctic Conservation Act Permits issued or
species killed or captured during the 2005-2006 season will be
reported in Section XII of the Modifications of the United States
Antarctic Activities Planned for 2005-2006.*

XIII. Radioactive Materials

Section XIII of the 2005-2006 season plans lists the radioactive materials to be used and provides information regarding their form, nuclide, site, and specific use.

<u>PROJECT</u>	<u>NUCLIDE</u>	<u>FORM</u>	<u>SITE</u>	<u>USE</u>
B-002-N	³ H ³⁵ S ¹⁴ C	³ H - Leucine ³⁵ S - Methionine ¹⁴ C - DMSO ³⁵ S - DMSP ¹⁴ C - DMSP	R/V <i>Nathaniel B. Palmer</i>	Impact of solar radiation and nutrients on biogeochemical cycling of DMSP and DMS in the Ross Sea
B-006-M	¹⁴ C ³ H ³⁵ S ³² P ³³ P	¹⁴ C - Alanine ¹⁴ C - ATP ¹⁴ C - Sodium bicarbonate ¹⁴ C - Leucine ³ H - Lysine ³ H - Uridine ³ H - Histidine ¹⁴ C - Amino acid Mix ³⁵ S - Methionine ³² P - ATP ³³ P - ATP	McMurdo Station	Energetics of protein metabolism during development of Antarctic echinoderms
B-016-P/L	¹⁴ C	¹⁴ C - Sodium Bicarbonate	Palmer Station, R/V <i>Laurence M. Gould</i>	Palmer, Antarctica Long Term Ecological Research Project: Climate Migration, Ecological Response, and Teleconnections in an Ice-Dominated Environment

<u>PROJECT</u>	<u>NUCLIDE</u>	<u>FORM</u>	<u>SITE</u>	<u>USE</u>
				(Phytoplankton Group)
B-045-P/L	³ H	³ H – Thymidine/Leucine	Palmer Station <i>R/V Laurence M. Gould</i>	Palmer, Antarctica Long Term Ecological Research Project: Climate Migration, Ecological Response, and Teleconnections in an Ice-Dominated Environment
B-047-M	¹⁴ C	¹⁴ C – Sodium Bicarbonate	McMurdo Station, US Coast Guard <i>Polar Star</i>	Interannual Variability in the Antarctic Ross Sea: Nutrient Fields and Seasonal Productivity II
B-047-N	¹⁴ C	¹⁴ C – Sodium Bicarbonate	<i>Nathaniel B. Palmer</i>	Study to determine the influence of UV radiation of phytoplankton growth rates
B-048-P	³ H ¹⁴ C ³⁵ S	³ H – Leucine ¹⁴ C – DMSP ¹⁴ C – Glucose ¹⁴ C – Glutamic Acid ¹⁴ C – DMS ³⁵ S – DMSP	Palmer Station	Complex molecular to global interactions and feedbacks in the marine DMS cycle.
B-050-L	¹⁴ C	¹⁴ C-Sodium Bicarbonate	<i>Laurence M. Gould</i>	Study of the influence of UV radiation on phytoplankton growth rates

<u>PROJECT</u>	<u>NUCLIDE</u>	<u>FORM</u>	<u>SITE</u>	<u>USE</u>
B-228-N	¹⁴ C ³ H ⁵⁵ Fe	¹⁴ C-Sodium Bicarbonate ¹⁴ C-Leucine ³ H-Thymidine ⁵⁵ Fe- Ferrous Chloride ¹⁴ C-Glucose	<i>Nathaniel B. Palmer</i>	Study of growth rates, metabolism, and the influence of iron availability on phytoplankton communities
B-134-M	³⁵ S ¹⁴ C	³⁵ S - Cysteine ¹⁴ C – Methylated proteins	McMurdo Station	Towards an understanding of protein homeostasis in cold-adapted Antarctic fish
B-195-M	¹⁴ C ³⁵ S ³ H	¹⁴ C – Sodium Bicarbonate ¹⁴ C – Acetate ¹⁴ C – Sodium acetate ¹⁴ C – Methylamine ¹⁴ C – Methane ³⁵ S – Sodium sulfate ³ H - Thymidine	McMurdo Station	Collaborative Research: Microbial Diversity and Function in the Permanently Ice-Covered Lakes of the McMurdo Dry Valleys, Antarctica
B-200-N	³ H	³ H - Thymidine/Leucine	<i>R/V Nathaniel B. Palmer</i>	Interactive effect of UV vertical mixing on phytoplankton and bacterial productivity of Ross Sea Phaeocystis bloom
B-203-N	¹⁴ C	¹⁴ C - Bicarbonate	<i>R/V Nathaniel B. Palmer</i>	Interactive effects of UV and vertical mixing and phytoplankton and bacterioplankton in the Ross Sea
B-211-M	³ H	³ H – Leucine	McMurdo Station	NASA-ASTEP:

<u>PROJECT</u>	<u>NUCLIDE</u>	<u>FORM</u>	<u>SITE</u>	<u>USE</u>
	¹⁴ C	¹⁴ C - Bicarbonate		Subsurface Ice and Brine Sampling: Life Detection and Characterization in the McMurdo Dry Valleys using an Ultrasonic Gopher
B-230-M	¹⁴ C	¹⁴ C - Bicarbonate	McMurdo Station	Environmental and Ecological Regulation of Differences and Interactions between Solitary and Colonial Forms of Phaeocystis Antarctica
B-272-N	¹⁴ C	¹⁴ C - Bicarbonate	<i>Nathaniel B. Palmer</i>	Study of the influence of UV radiation on phytoplankton growth rates
B-300-M	³ H ¹⁴ C	³ H - Thymidine ¹⁴ C - Sodium bicarbonate ¹⁴ C - Alanine	McMurdo Station	Biogeochemistry of dissolved organic material in Pony Lake, Ross Island
B-300-M	³ H ¹⁴ C	³ H - Thymidine ¹⁴ C - Sodium bicarbonate	McMurdo Station	Biogeochemistry of dissolved organic material in Pony Lake, Ross Island
B-301-M	¹⁴ C ³⁵ S ³ H ³² P ³³ P	¹⁴ C – Bicarbonate ¹⁴ C – Alanine ¹⁴ C – Palmitic acid ¹⁴ C – Acetic acid ³⁵ S – Methionine	McMurdo Station	A Graduate Training Program in Antarctica: Integrative Biology and Adaptation of Antarctic Marine

<u>PROJECT</u>	<u>NUCLIDE</u>	<u>FORM</u>	<u>SITE</u>	<u>USE</u>
		³⁵ S – dATP ³ H – Thymidine ³ H – Uridine ³² P - dATP ³³ P – dATP		Organisms
B-310-M	³ H ¹⁴ C	³ H – Thymidine ¹⁴ C – Leucine	McMurdo Station	What Limits Denitrification and Bacterial Growth in Lake Bonney, Taylor Valley, Antarctica?
B-310-M	³ H	³ H - Thymidine	McMurdo Station/ Taylor Valley	What limits denitrification and bacterial growth in Lake Bonney, Taylor Valley, Antarctica
B-420-M	²²⁶ Ra ²⁰⁹ Po	²²⁶ Ra – LSC Vials ²⁰⁹ Po – Aqueous in 0.5M HCl	McMurdo Station/ Dry Valleys	McMurdo Dry Valleys LTER
B-422-M	¹⁴ C ³ H	¹⁴ C – Bicarbonate ¹⁴ C – Toluene ³ H – Thymidine ³ H – Toluene	McMurdo Station/Dry Valleys	The Role of Natural Legacy on Ecosystem Function and Structure in a Polar Desert
B-422-M	¹⁴ C ³ H	¹⁴ C – Bicarbonate ³ H – Thymidine	McMurdo Station/Dry Valleys	The Role of Natural Legacy on Ecosystem Function and Structure in a Polar Desert
B-423-M	¹⁴ C	¹⁴ C - Bicarbonate ¹⁴ C - Sucrose	McMurdo Station/ Dry Valleys	McMurdo Dry Valleys LTER
B-423-M	¹⁴ C	¹⁴ C - Sodium	McMurdo Station/ Dry	McMurdo Dry Valleys

<u>PROJECT</u>	<u>NUCLIDE</u>	<u>FORM</u>	<u>SITE</u>	<u>USE</u>
		Bicarbonate ¹⁴ C – Sucrose	Valleys	LTER
O-176-M	²⁴¹ Am	²⁴¹ Am - Sealed source	McMurdo Station	Collaborative research: Antarctic Troposphere Chemistry Investigation (ANTCI)
O-215-N	⁶³ Ni	⁶³ Ni – Foil	<i>R/V Nathaniel B. Palmer</i>	ANSLOPE - Cross slope exchanges at the Antarctic Slope Front (source is inside an electron capture detector of a gas chromatograph)
O-257-S	⁶³ Ni	⁶³ Ni – Foil	South Pole Station	South Pole Monitoring for Climatic Change -- U.S. Department of Commerce NOAA Climate Monitoring and Diagnostic Laboratory (source is inside an electron capture detector of a gas chromatograph)
O-398-N	⁵⁷ Co	⁵⁷ Co – cobalamin (Vitamin B-12)	<i>R/V Nathaniel B. Palmer</i>	Study of the influence of UV radiation and carbon dioxide concentrations in seawater on various enzymes of phytoplankton origin

XIV. Research Rockets

Section XIV reports the planned use of research rockets. The United States Antarctic Program will launch no research rockets during the 2005-2006 season.

XV. Oceanography - Government

Section XV outlines plans for United States Antarctic Program sponsored oceanographic expeditions during the 2005-2006 season.

R/V Nathaniel B. Palmer

The R/V *Nathaniel B. Palmer* first arrived in the Antarctic Peninsula area in April 1992 and is now in the fourth year of its second long-term charter to the United States Antarctic Program. The vessel is owned by Edison Chouest Offshore and is of United States Registry. The R/V *Nathaniel B. Palmer* is ice-class ABS A2 (capable of breaking 3 feet of ice at 3 Knots), is 93.9 meters long, has a beam of 18.3 meters, a design draught of 6.9 meters, and displaces 6800 long tons. The vessel has 13,000 shaft horsepower driving two controllable pitch propellers and is also equipped with both bow and stern thrusters. The vessel is a multidisciplinary research platform, has a crew of 26 and accommodation for 41 scientists and RPSC support staff. It is designed for year-round operations in Polar Regions.

Research Capabilities

The vessel is equipped with a Seapath GPS and inertial navigation system, a P-Code GPS satellite navigation system, an Ashtec GPS, an Acoustic Doppler Current Profiler (ADCP), fish-finding sonar, sub-bottom profiling sonars, a Simrad multi-beam swath bathymetry system, INMARSAT and Iridium voice and data communications, TeraScan satellite imaging system, and HF and VHF transceivers. The vessel is also equipped with a DP0(zero)-rated dynamic positioning system. Two deep-sea trawl and coring winches and two hydrographic winches are operated through stern and starboard A-frames, respectively. An additional hydrographic winch, equipped with electromechanical cable, leads through a baltic-room arrangement that protects it from the weather. The vessel is also equipped with multi-channel seismic capability and laboratory space totaling approximately 520 square meters, all located contiguously on the main deck. The vessel

also has a suite of portable lab vans. Zodiac inflatable boats and an aluminum landing craft are available for ship-to-shore transport and sample collection.

Ship's Master: Captain Mike Watson

Scientific Programs in the Antarctic Treaty Area

The R/V *Nathaniel B. Palmer* will conduct cruises in the Southern Ocean surrounding Antarctica; and will conduct a second annual cruise to acquire sediment cores via a shipboard drill rig mounted over the vessel's moon pool. Scientific research conducted onboard will include the following disciplines: Marine Biology, Marine Geology and Geophysics, and Physical and Chemical Oceanography.

Intended Tracks and Schedule

The vessel is scheduled for work in the Antarctic polar regions as well as in the mid-latitudes of the Pacific Ocean during the 2005-2006 season, including the Pacific and Southern Oceans and Ross Sea. Ports of call will include: Lyttelton, New Zealand; McMurdo Station, Antarctica; Punta Arenas, Chile, and Palmer Station, Antarctica. The NBP will sail in support of approximately nine science cruises during the 2005-2006 season.

R/V *Laurence M. Gould*

The R/V *Laurence M. Gould* first arrived in the Antarctic Peninsula in January 1998. The vessel is owned by Edison Chouest Offshore and is of United States Registry. The vessel is on long-term charter to support the United States Antarctic Program. The R/V *Laurence M. Gould* is ice-class ABS A1 (capable of breaking 1 foot of ice at continuous forward motion), is 70.1 meters long, has a beam of 14.02 meters, a design draught of 5.48 meters and displaces 3780 long tons. The vessel has 4,575 shaft horsepower driving two controllable pitch propellers and is also equipped with a bow thruster. The vessel is a multidisciplinary research platform with a crew of 16 and accommodation for 28 scientists and RPSC staff. It is designed for year-round operations in polar regions.

Research Capabilities

The vessel is equipped with a P-Code GPS satellite precision navigation system, an Ashtec GPS, an Acoustic Doppler Current Profiler (ADCP), fish-finding sonar, sub-bottom profiling sonar, INMARSAT and Iridium voice and data communications and HF and VHF transceivers. A deep-sea trawl winch and two hydrographic winches are to be operated through either a stern or starboard side A-frame. One hydrographic winch, equipped with electromechanical cable, leads through a baltic-room arrangement that protects it from the weather. Various over-the-side sampling equipment will be handled through use of an articulated Hiab crane on the ship's fantail. In addition, the vessel is equipped with laboratories totaling 99 square meters and a suite of portable laboratory vans. A 22-foot aluminum landing craft and Zodiacs inflatable boats are available for ship-to-shore transport and sample collection.

Ship's Master: Captain Mike Terminel

Scientific Programs in the Antarctic Treaty Area

The *R/V Laurence M. Gould* will conduct cruises in the Antarctic Peninsula area of the Southern Ocean and Drake Passage. Research projects supported during the 2005-2006 season will include Marine Biology, Chemical and Physical Oceanography, and Marine Geology and Geophysics. The *R/V Laurence M. Gould* will also provide logistics support to transport scientists, cargo, and personnel to and from Palmer Station from its primary port of Punta Arenas, Chile.

Intended Tracks and Schedule

The *R/V Laurence M. Gould* will provide transport as described above and provide oceanographic and field camp research support in and around the Bransfield Strait area of the Antarctic Peninsula. Ports of call will include: Punta Arenas, Chile and Palmer Station, Antarctica. During the 2005-2006 season, the vessel will sail in support of six science cruises, three peninsula research field camp openings and numerous Palmer Station staff and resupply shuttles in the Antarctic Peninsula area.

R/V Yuzhmorgeologiya

The R/V Yuzhmorgeologiya was constructed in 1985 and is an ice class ship, capable of stable operations in extreme conditions. The vessel is 104.5 Meters overall length, a beam of 16 Meters, and a displacement of 5626 tons. It is driven by two 3500 hp engines and carries a fuel stock of 1220 tons, giving her a cruising range of 21,000 miles. The vessel accommodates a total of 91 crew and passengers. The ship and shipowner are fully trained, certified and operating in accordance with ISM (International Safety Management) standards. All personnel, equipment and operations are in full compliance with SOLAS, MARPOL, GMDSS, COLREG-72, ILLC 1966/88, and STCW-78.

Research Capabilities

Geology and microbiology wet laboratories are available onboard with additional analytical chemistry capabilities. Service workshops are dedicated to mechanical and electromechanical maintenance (facilities exist onboard for arc and gas welding and grinding), computing center equipment repair, and photo and TV equipment maintenance. Navigation and communications systems include an integrated navigation system, scientific survey echo sounders, GPS (Furuno), subsea acoustic navigation (optional), radar (Furuno), 2 gyros, GMDSS, Furuno, and NMARSAT B. Underwater equipment for biological and lithological/mineralogical are available as well as the following deployment/handling systems:

- A-Frame 16.0 t
- J-Frames (2) 1.2 t each
- Cranes (4) 3.6 t each
- Traction winch 160 kN
- Trawl winches (2) 16 t max ea.
- Geophysical winches (2) 8 kN each
- Geophysical winch 6 kN
- Geophysical winch 5 kN
- Air gun winch 18 kN
- Other winches (2) 11.2 t each

Scientific Programs in the Antarctic Treaty Area

The R/V Yuzhmorgeologiya is contracted by the Korean Polar Research Institute as a supply ship to service the Korean Antarctic base at King George Island and to conduct research cruises in the Drake Passage and Bransfield strait off of the Antarctic Peninsula.

Intended Tracks and Schedule

The vessel is scheduled for work in the Drake Passage and Bransfield Strait regions in Antarctica. The one project involving US researchers will be to deploy 6 underwater hydrophones in the Bransfield Strait to passively record the sound of submarine earthquakes in the region.

XVI. Visiting Expeditions

Section XVI provides information on expeditions visiting U.S. stations during the 2005-2006 austral summer. Data will be accumulated during the course of the season and reported in next year's report of modifications to these plans.

