

# United States Antarctic Activities 2003-2004

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*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 2003 through June 2004. Modifications to these plans will be published elsewhere on this site upon conclusion of the 2003-2004 season.*



**National Science Foundation  
Arlington, Virginia 22230  
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## **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.

## Contents

<b>Introduction</b> .....	<b>ii</b>	Cape Shirreff Field Station, Livingston Island.....	9
<b>Contents</b> .....	<b>iii</b>	Petermann Island Camp .....	10
<b>I. SHIPS AND AIRCRAFT</b> .....	<b>1</b>	Vega Island Camp .....	10
<b>Ships</b> .....	<b>1</b>	Seymour Island Camp .....	10
<b>Aircraft</b> .....	<b>2</b>	<b>IV. PERSONNEL</b> .....	<b>11</b>
Air Mobility Command.....	2	<b>Oversight</b> .....	<b>11</b>
Other Aircraft.....	2	<b>Officers in Charge of Bases</b> .....	<b>11</b>
<b>II. EXPEDITION DATES</b> .....	<b>3</b>	McMurdo Station .....	12
<b>Winfly Activities</b> .....	<b>3</b>	Amundsen-Scott South Pole Station .....	12
<b>Mainbody Activities</b> .....	<b>3</b>	Palmer Station .....	12
<b>Significant Dates</b> .....	<b>4</b>	<b>Officers in Charge of Ships</b> .....	<b>12</b>
<b>Ship Movements</b> .....	<b>5</b>	<b>Numbers, Occupations and</b>	
Resupply Vessel.....	5	<b>Specialization of Personnel</b> .....	<b>13</b>
<i>R/V Nathaniel B. Palmer</i> .....	5	McMurdo .....	13
<i>R/V Laurence M. Gould</i> .....	6	South Pole .....	13
<b>III. STATIONS</b> .....	<b>7</b>	Palmer Station .....	14
<b>Year Round Stations</b> .....	<b>7</b>	Beardmore Glacier /	
McMurdo Station .....	7	Moody Nunatak Camp .....	14
Amundsen-Scott South Pole Station .....	7	Byrd Camp .....	14
Palmer Station .....	7	Light Ground Traverse	
<b>Austral Summer Camps</b> .....	<b>8</b>	(South Pole to Taylor Dome) .....	15
Siple Dome Camp .....	8	Megadunes Camp.....	15
Byrd Camp .....	8	Odell Glacier .....	15
Megadunes Camp.....	8	SHIPS.....	15
South Beardmore Glacier Camp .....	8	<b>Names and Professional Affiliation</b>	
Moody Nunatak .....	9	<b>of Personnel Engaged in</b>	
Odell Glacier .....	9	<b>Scientific Activities</b> .....	<b>17</b>
Copacabana, King George Island.....	9	<u>MCMURDO STATION</u>	
		<u>(M)/SOUTH POLE</u>	
		<u>(S)/PALMER STATION (P)</u>	
		683 Scientists) .....	17
		<u>MCMURDO AND SOUTH POLE</u>	
		<u>STATIONS (14 Personnel)</u> .....	21

<u>OTHER ANTARCTIC LOCATIONS</u>	
(25 Scientists).....	22
<u>PALMER STATION</u> -( 39 Scientists) .....	22
<u>R/V Laurence M. Gould/</u>	
<u>Palmer Station</u> (49 Scientists).....	23
<u>R/V Nathaniel B. Palmer</u> - (73 Scientists) ..	24
<b>V. ARMAMENTS.....</b>	<b>26</b>
McMurdo Station .....	26
Palmer Station .....	26
South Pole Station .....	26
<i>R/V Nathaniel B. Palmer</i> .....	26
<i>R/V Laurence M. Gould</i> .....	27
<b>VI. PROJECT DESCRIPTIONS... 28</b>	
<b>VII. SCIENTIFIC EQUIPMENT .... 29</b>	
<b>VIII. TRANSPORTATION &amp; COMMS .....</b>	<b>45</b>
Surface, Marine, and Air Transportation	
<b>Vehicles.....</b>	<b>45</b>
McMurdo Station .....	45
Amundsen-Scott South Pole Station .....	46
Palmer Station .....	46
<b>Description of Communications Facilities..</b>	<b>46</b>
McMurdo South Pole and Palmer stations.	47
<b>Description of Airfields .....</b>	<b>47</b>
McMurdo Station .....	47
Amundsen-Scott South Pole Station .....	48
Palmer Station .....	49
Marble Point Camp .....	49
<b>IX. ASSISTANCE FACILITIES.....</b>	<b>50</b>
<b>McMurdo Station .....</b>	<b>50</b>
Medical Facilities.....	50
Transport Services.....	50
Available Shelter .....	51
<b>Amundsen-Scott South Pole Station .....</b>	<b>51</b>
Medical Facilities .....	51
Transport Services.....	51
Available Shelter .....	51
<b>Palmer Station .....</b>	<b>52</b>
Medical Facilities .....	52
Transport Services.....	52
Available Shelter .....	52
<b>Marble Point Camp.....</b>	<b>52</b>
Medical Facilities .....	52
Transport Services.....	52
Available Shelter .....	53
<b>X. TOURISM .....</b>	<b>54</b>
<b>Abercrombie &amp; Kent International, Inc....</b>	<b>54</b>
<i>M/S Explorer II</i> .....	54
<b>Quark Expeditions.....</b>	<b>55</b>
<i>M/V Professor Molchanov</i> .....	56
<i>M/V Kapitan Khlebnikov</i> .....	56
<i>M/V Professor Multanovskiy</i> .....	57
<i>M/V Lubov Orlova</i> .....	58
<b>Orient Lines, Inc. ....</b>	<b>59</b>
<i>M/V Marco Polo</i> .....	59
<b>Clipper Cruise Lines .....</b>	<b>60</b>
<i>M/V Clipper Adventurer</i> .....	60
<b>Lindblad Expeditions .....</b>	<b>61</b>
<i>M/V Endeavor</i> .....	61
<b>Society Expeditions.....</b>	<b>62</b>
<i>M/V World Discoverer</i> .....	62
<b>Discovery World Cruises .....</b>	<b>63</b>
<i>M/V Discovery</i> .....	63

<b>Elegant Cruises and Tours .....64</b>	Byrd Coast Camp ..... 76
<i>M/S Andrea</i> ..... 64	Camp Ohio ..... 76
<b>Princess Cruises.....65</b>	Camp Minnesota ..... 76
<i>M/S Royal Princess</i> ..... 65	Little Rockford ..... 77
<b>ResidenSea Resorts.....65</b>	Plateau Station..... 77
<i>M/V The World</i> ..... 66	Camp Ohio II ..... 77
<b>Cheesemans' Ecology Safaris.....66</b>	Roosevelt Island Hut..... 77
<i>M/V Polar Star</i> ..... 66	Hallett Station..... 77
<b>Travel Dynamics International .....67</b>	Brockton Station ..... 78
<i>M/V Orion</i> ..... 67	Marie Byrd Land Camp..... 78
<b>Holland America Line.....68</b>	Ellsworth Mountains Camp..... 78
<i>M/S Amsterdam</i> ..... 68	McGregor Glacier Hut ..... 78
<b>Other.....69</b>	Dome C Camp..... 78
LAND BASED ..... 69	Beardmore South Camp ..... 78
<b>XI. REFUGES ..... 72</b>	Siple Station ..... 79
<b>McMurdo Area Antarctic Refuges and</b>	Upstream Bravo ..... 79
<b>Survival Caches .....72</b>	
Mt. Erebus Hut and Cache .....72	
Cape Crozier Hut and Cache.....72	
Lake Bonney Hut and Cache .....73	
Lake Vida Cache.....73	
Lake Hoare Hut.....73	
Lake Fryxell Hut.....73	
New Harbor Hut.....73	
<b>McMurdo Supported Remote Locations....74</b>	
Tamseis Camp.....74	
Onset D Camp.....74	
Siple Dome Camp .....74	
Byrd Surface Camp.....74	
<b>Deactivated USAP Stations and Camps .....75</b>	
Byrd Aurora Substation .....75	
Camp Neptune .....75	
Patuxent Camp .....75	
Prebble Glacier Camp .....75	
Camp Gould .....76	
Amundsen Glacier Camp .....76	
	<b>XII. PERMITS, SPECIES</b>
	<b>KILLED, CAPTURED .....80</b>
	<b>XIII. RADIOACTIVE</b>
	<b>MATERIALS.....81</b>
	<b>XIV. RESEARCH ROCKETS .....84</b>
	<b>XV. OCEANOGRAPHY -</b>
	<b>GOVERNMENT.....85</b>
	<i>R/V Nathaniel B. Palmer</i> ..... 85
	Research Capabilities ..... 85
	Scientific Programs in the
	Antarctic Treaty Area..... 86
	Intended Tracks and Schedule ..... 86
	<i>R/V Laurence M. Gould</i> ..... 86
	Research Capabilities ..... 87
	Scientific Programs in the
	Antarctic Treaty Area..... 87
	Intended Tracks and Schedule ..... 87
	<b>XVI. VISITING EXPEDITIONS .....88</b>



# I. Ships and Aircraft

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*Section I of the 2003-2004 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:	USCGC Polar Sea (WAGB-11)
Aircraft:	2 each HH-65A helicopters
Armament:	Small arms only
Ship:	USCGC Polar Star

- **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 <i>Laurence M. Gould</i>
Armament:	None

Ship:	R/V <i>Nathaniel B. Palmer</i>
Armament:	None

## **Aircraft**

Six LC-130 transport aircraft operated by the 109<sup>th</sup> 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 2003, C-141B, C-17 and C-5 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. Additionally, during January and February 2004, C-141 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.

**Note:** 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 2003 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 2003, and depart early February 2004.

**Note:** No armament

## II. Expedition Dates

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*Section II of the 2003-2004 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 2003. 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 3 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 580 (285 personnel expected to deploy at WINFLY).

### **Mainbody Activities**

Austral summer activities will be initiated on 30 September 2003 with wheeled aircraft operations between Christchurch, New Zealand and the sea-ice runways at McMurdo Station, Antarctica. This will involve approximately 21 C-141 flights, 11 C-17 flights and 4 C-5 flights of transport aircraft of the U.S. Air Force Air Mobility Command (AMC), and 15 flights by C-130 transport aircraft of the Royal New Zealand Air Force. The sea-ice runway operations will cease about mid December 2003. 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 18 USAF C-141 flights will finish out the airlift movement. The 109<sup>th</sup> ANG Airlift Wing will fly north from McMurdo to Christchurch on Saturdays and south from Christchurch to McMurdo on Sundays from 1 November through 7 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 2003 through mid-February 2004 when McMurdo Station closes.

## **Significant Dates**

Other significant dates for the summer season include:

1. 28 September 2003 - Palmer Station – Summer Operations Commence
2. 30 September 2003 - McMurdo Station – Summer Operations Commence
3. 06 October 2003 - Marble Point opens
4. 15 October 2003 - Copacabana Field Station opens
5. 24 October 2003 - South Pole Station – Summer Operations Commence
6. 10 October 2003 - Odell Glacier Camp opens
7. 11 November 2003 - Byrd Surface Camp opens
8. 11 November 2003 - Cape Shirreff Field Station opens
9. 23 November 2003 - Megadunes Camp opens
10. 26 November 2003 - Light Ground Traverse leaves South Pole for Taylor Dome
11. 20 October 2003 - Beardmore Glacier-Moody Nunatak opens
12. 13 November 2003 - Peterman Island Camp opens
13. 29 November 2003 - Vega Island Camp opens
14. 01 December 2003 - Seymour 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, early January 2004 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 02 – 10 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 20 February for Port Hueneme, CA to off-load waste and recyclable materials from McMurdo Station, approximately 09 March 2004 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; both a north and southbound research transect between Lyttelton, New Zealand and Dutch Harbor, Alaska; and a science cruise above the Arctic Circle. Scientific research conducted onboard includes the following disciplines: Marine Biology, Marine Geology and Geophysics, and Physical and Chemical Oceanography.

The vessel is scheduled for work in both polar regions during the 2003-2004 season, including the Pacific, Southern and Arctic Oceans, Chukchi and Ross Seas. During the southbound transit following the Arctic Ocean cruise, a seismic sea trial will be conducted to evaluate and test a new multi-channel streamer system. Ports of call include: Barrow and Dutch Harbor, Alaska; Honolulu, Hawaii; Lyttelton, New Zealand; McMurdo Station; and Pago Pago, American Samoa. The NBP will sail in support of approximately nine science cruises during the 2003-2004 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 2003-2004 season will include Marine Biology, Chemical and Physical Oceanography, and Marine Geology and Geophysics. The R/V *Laurence M. Gould* will also provide logistic 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 transport support personnel to and from Palmer Station, provide research support in and around the Bransfield Strait areas, and enter a routine maintenance period from 30 June to 10 August 2003 in Punta Arenas, Chile. Ports of call include: Punta Arenas, Chile and Palmer Station, Antarctica. The vessel will sail in support of nine science cruises, two peninsula research field camp openings and Palmer Station staff and resupply shuttles in the Antarctic Peninsula area during the 2003-2004 season.

## III. Stations

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*Section III of the 2003-2004 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: 01 October 2003

#### **Amundsen-Scott South Pole Station**

Location: 90° 00'S Latitude  
Annual Relief: 23 October 2003

#### **Palmer Station**

Location: Anvers Island near Bonaparte Point  
64° 46'S Latitude  
64° 05'W Longitude  
Annual Relief: 29 September 2003

## **Austral Summer Camps**

### **Siple Dome Camp**

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

Open: 23 October 2003

Close: 31 January 2004

### **Byrd Camp**

Location: 80° 05'S Latitude  
119° 32'W Longitude

Open: 03 November 2003

Close: 20 January 2004 (approximate)

### **Megadunes Camp**

Location: 80° 30' S Latitude  
125° 0' E Longitude

Open: 03 January 2004

Close: 24 January 2004

### **South Beardmore Glacier Camp**

Location: 84° 00' S Latitude  
164° 50' E Longitude

Open: 05 November 2003

Close: 20 December 2003

### **Moody Nunatak**

Location: 81°01' S Latitude  
119° 58' W Longitude

Open: 11 November 2003

Close: 09 December 2003

### **Odell Glacier**

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

Open: 01 November 2003

Close: 10 February 2004

### **Copacabana, King George Island**

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

Open: 15 October 2003

Close: 28 February 2004

### **Cape Shirreff Field Station, Livingston Island**

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

Open: 11 November 2003

Close: 01 March 2004

### **Petermann Island Camp**

Location:                   65° 10'S Latitude  
                                  64° 10'W Longitude

Open:                        03 November 2003

Close:                      19 November 2003

### **Vega Island Camp**

Location:                   63° 54'S Latitude  
                                  57° 37'W Longitude

Open:                        29 November 2003

Close:                      early January 2004

### **Seymour Island Camp**

Location:                   64° 14'S Latitude  
                                  56° 40'W Longitude

Open:                        01 December 2003

Close:                      19 December 2003

## IV. Personnel

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*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 2003-2004 season will be:

### **McMurdo Station**

TBA

### **Amundsen-Scott South Pole Station**

Bettie Katherine Grant	(Oct 2003 - Feb 2004)
Terry Colling	(Feb 2004 - Nov 2004)

### **Palmer Station**

Robert Farrell	(Sep 2003 - Dec 2003)
Joseph Pettit	(Dec 2003 - Apr 2004)
Gerry Ness	(Apr 2004 – Sep 2004)

## **Officers in Charge of Ships**

USCG POLAR SEA (WAGB-11)	CDR Mark Miller
Champion Class T-5 Tanker (fuel tanker)	TBA
Cargo Re-supply Vessel	TBA
<i>R/V Nathaniel B. Palmer</i>	Captain Joe Borkowski
<i>R/V Laurence M. Gould</i>	Captain Robert Verret

## Numbers, Occupations and Specialization of Personnel

### McMurdo

	Summer		Winter	
	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>
Headquarters	32	28	0	8
Science Support	0	104	0	8
Operations	51	381	0	79
Logistics	117	139	0	30
SPSE	0	11	0	2
Engineering /Construction	0	238	0	79
Information Systems	3	107	0	15
Aviation	505	67	0	0
Scientists	0	555	0	2
Working Visitors	4	73	0	0

### South Pole

	Summer		Winter	
	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>
Headquarters	0	6	0	1
Science Support	0	9	0	5
Operations, EH&S	0	29	0	9
Logistics	0	11	0	3
SPSE/SM	0	85	0	27
Engineering/Construction	0	14	0	4
Information Systems	0	11	0	4
Aviation	0	0	0	0
Scientists	0	50	0	9
Working Visitors	0	5	0	0

### Palmer Station

	Summer		Winter	
	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>
Headquarters	0	1	0	0
Science Support	0	5	0	4
Operations	0	7	0	5
Logistics	0	3	0	2
Engineering/Construction	0	6	0	16
Information Systems	0	3	0	2
Scientist	0	13	0	7
Working Visitors	0	6	0	4

### Beardmore Glacier / Moody Nunatak Camp

	Summer Only	
	<u>Military</u>	<u>Civilian</u>
Camp Manager	0	1
Camp Medic	0	1
Carpenters	0	3
Cook	0	1
Helicopter Coordinator	0	1
Helicopter Technician	0	1
Mechanic	0	1
Meteorologist	0	1
Scientists	0	47

### Byrd Camp

	Summer Only	
	<u>Military</u>	<u>Civilian</u>
Camp Manager	0	1
Carpenters	0	1
Scientists	0	6

### Light Ground Traverse (South Pole to Taylor Dome)

	Summer Only	
	<u>Military</u>	<u>Civilian</u>
Camp Manager	0	1
Construction	0	1
Cook	0	1
Equipment Operator	0	1
Mechanic	0	1
Scientists	0	3
Surveyor	0	1

### Megadunes Camp

	Summer Only	
	<u>Military</u>	<u>Civilian</u>
Camp Manager	0	1
Equipment Operator	0	1
Scientists	0	8

### Odell Glacier

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

### SHIPS

#### USCGC Polar Sea

	<i>Number of Personnel</i>
Crew	160

**Champion Class T-5 Tanker**

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

**RESUPPLY VESSEL (TBA)**

	<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 (M)/SOUTH POLE (S)/PALMER STATION (P)** (683 Scientists)

#### ***Aeronomy & Astrophysics*** ( 215 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Adriani (3)	A-107-M	Instituto De Fisica Dell'Atmosfera
Avery (5)	A-284-S	CIRES
Bieber (3)	A-120-M/S	University of Delaware
Binns (18)	A-149-M	Washington University
Caldwell (4)	A-103-S	SETI Institute
Deshler (3)	A-131-M	University of Wyoming
Ejiri (2)	A-117-S	National Institute of Polar Research
Engebretson (3)	A-102-M/S	Augsburg College
Gaisser (2)	A-109-S	University of Delaware
Halzen (21)	A-333-S	University of Wisconsin, Madison
Hernandez (6)	A-110-M/S	University of Washington
Holzapfel (8)	A-378-S	University of California, Berkeley
Inan (1)	A-106-S	Stanford University
Inan (3)	A-108-S	Stanford University
LaBelle (2)	A-128-S	Dartmouth College

	<u>I.D. No.</u>	<u>Institution</u>
Lange (6)	A-033-S	California Institute of Technology
Lanzerotti (3)	A-101-M/S	Lucent Technologies
Lessard (3)	A-136-S	Dartmouth College
Mende (2)	A-103-S	Space Sciences Laboratory
Morse (37)	A-130-S	University of Wisconsin
Müller (11)	A-125-M	University of Chicago
Murcay (5)	A-255-M/S	University of Denver
Novak (6)	A-376-S	University of Chicago
Rosenberg (3)	A-111-M/S	University of Maryland
Rosenberg (4)	A-112-M	University of Maryland
Sivjee (3)	A-128-S	Embry Riddle Aeronautical University
Smith David (7)	A-144-M	University of California, Berkeley
Stacey (5)	A-377-S	Cornell University
Stark (15)	A-371-S	Smithsonian Institution
Stepp (21)	A-145-M	National Scientific Balloon Facility

***Biology & Medical Research*** (147 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Ainley (12)	B-031-M	H.T. Harvey & Associates
Blanchette (4)	B-038-M	University of Minnesota
Bowser (5)	B-015-M	New York State Dept. of Health
Connell (5)	B-019-M	University of Maine
DeVries (7)	B-005-M	University of Illinois, Urbana
DiTullio (5)	B-272-M	University of Charleston
Emslie (4)	B-034-M	University of North Carolina
Fountain (6)	B-425-M	Portland State University
Garrott (8)	B-009-M	Montana State University, Bozeman
Kim (7)	B-010-M	San Jose State University
Lyons (5)	B-420-M	Ohio State University
Lyons (8)	B-259-M	Ohio State University

Marsh (7)	B-029-M	University of California
McKnight (6)	B-421-M	University of Colorado, Boulder
Palinkas (3)	B-321-M/S	University of California, San Diego
Petzel (6)	B-012-M	Creighton University
Ponganis (10)	B-197-M	Scripps Institution of Oceanography
Priscu (5)	B-195-M	Montana State University, Bozeman
Priscu (5)	B-422-M	Montana State University
Smith,Walker (12)	B-047-M	Virginia Institute of Marine Sciences
Uhle (4)	B-011-M	University of Tennessee
Virginia (6)	B-423-M	Dartmouth College
Wall (7)	B-424-M	Colorado State University

***Environmental Research*** (5 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Doran (2)	B-426-M	Department of Earth and Environmental Sciences
Dye (3)	B-027-M	University of Rochester

***Geology & Geophysics*** ( 127 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Ashworth (5)	G-294-M	Earth & Environmental Sciences
Babcock (4)	G-297-M	Ohio State University
Butler (5)	G-090-S	Incorporated Res. Inst. For Seismology
Dalziel (6)	G-087-M	University of Texas Austin
Goodge (10)	G-291-M	University of Minnesota
Hammer (6)	G-298-M	Augustana College
Harvey (5)	G-057-M	Case Western Reserve University
Harvey (9)	G-058-M	Case Western Reserve University
Johns (3)	G-295-M	UNAVCO/UCAR
Kemerait (10)	G-078-M	United State Air force
Kyle (7)	G-081-M	New Mexico Institute of Mining & Technology
Miller (7)	G-094-M	Vanderbilt University

	<u>I.D. No.</u>	<u>Institution</u>
Mullins (5)	G-052-M	United States Geological Survey
Renne (3)	G-064-M	University of California, Berkeley
Retallack (8)	G-299-M	University of Oregon
Tauxe (4)	G-182-M	Scripps Institute of Oceanography
Taylor (6)	G-095-M	University of Kansas, Lawrence
Taylor E. (6)	G-293-M	University of Kansas, Lawrence
Wiens (8)	G-089-M	Washington University
Wilson (10)	G-079-M	Ohio State University

**Glaciology** (73 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Anandakrishnan (7)	I-205-M	Pennsylvania State University
Conway (4)	I-210-M	University of Washington
Conway (6)	I-209-M	University of Washington
Cuffey (6)	I-161-M	University of California, Berkeley
Hall (6)	I-196-M	University of Maine
Hamilton (5)	I-178-M	University of Maine
Kreutz (5)	I-191-M	University of Maine
MacAyeal (11)	I-190-M	University of Chicago
Mayewski (4)	I-153-M	University of Maine
Scambos (8)	I-186-M	University of Colorado, Boulder
Severinghaus (4)	I-184-M	University of Rhode Island
Sowers (5)	I-177-M	Pennsylvania State University
Stone (6)	I-175-M	University of Washington
Thiemens (3)	I-165-M/S	University of California, San Diego

**Ocean & Climate Systems** (64 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Eicken (4)	O-253-M	University of Alaska, Fairbanks
Eisele (29)	O-176-M/S	Georgia Institute of Technology

Hansen (2)	O-314-M	Magee Scientific Company
Hofmann (12)	O-257-S	National Oceanic and Atmospheric Admin.
Stearns (3)	O-202-M/S	University of Wisconsin, Madison
Stearns (5)	O-283-M/S	University of Wisconsin, Madison
Von Walden (4)	O-213-M	University of Idaho
Warren (5)	O-201-M	University of Washington

**Technical Projects** (52 Personnel)

	<u>I.D. No.</u>	<u>Institution</u>
Bentley (7)	T-250-S	University of Wisconsin, Madison
Booth (2)	T-513-M/S	Biospherical Instruments
Comberiate (6)	T-008-M	NOAA
Gaston (4)	T-926-M	Office of Aircraft Services
Griffin (8)	T-927-M	Honeywell Technical Solutions Inc
Hawkins (12)	T-902-M	PHI
Kolden (4)	T-911-M/S	USAP Calibration Laboratory
Lubin (3)	T-312-M/N/P	Scripps Institution of Oceanography
Osborne (6)	T-396-M/P	University of Alaska, Fairbanks

**MCMURDO AND SOUTH POLE STATIONS** (14 Personnel)

**Writers & Artists Program** (8 Personnel)

	<u>I.D. No.</u>	<u>Institution</u>
Armstrong (1)	W-219-M	N/A
Baskin (1)	W-220-M	N/A
Bledsoe (1)	W-218-P	N/A
Cokinos (1)	W-223-M	N/A
Conrad (2)	W-224-M	N/A
Larson (1)	W-221-M	N/A
Anthus-Bertrand (1)	W-217-M	N/A

**Teachers Experiencing Antarctica** ( 6 Personnel)

	<u>I.D. No.</u>	<u>Institution</u>
Brogenski (1)	G-081-M	St. John's School
Ellison (1)	B-009-M	Yampah Mountain High School
Ellwood (1)	B-426-M	Rye Junior High School
Lampert (1)	A-131-M	West Salem High School
Sajor (1)	G-298-M	Peru Central School
Stoyles (1)	B-019-M	Harlee Middle School

**OTHER ANTARCTIC LOCATIONS** (25 Scientists)

**Biology and Medicine** ( 8 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Kvitek (4)	B-320-E	California State University, Monterey Bay
Naveen (4)	B-086-E	Oceanites

**Geology and Geophysics** (17 Scientist)

	<u>I.D. No.</u>	<u>Institution</u>
Blake (4)	G-065-E	University of Illinois, Urbana
Case (9)	G-061-E	St. Mary's College of California
Grew (2)	G-067-E	University of Maine
Mullins (2)	G-052-P	United States Geological Survey

**PALMER STATION** -( 39 Scientists)

**Aeronomy & Astrophysics** (2 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Inan (2)	A-306-P	Stanford University

**Geology & Geophysics** (2 Scientists)

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

**Biology & Medical Research (25 Scientists)**

	<u>I.D. No.</u>	<u>Institution</u>
Amsler (8)	B-022-P	University of Alabama, Birmingham
Day (5)	B-003-P	Arizona State University, Tempe
Fraser (3)	B-198-P	Polar Oceans Research Group
Fraser (5)	B-013-P	Polar Oceans Research Group
Vernet (4)	B-016-P	Scripps Institution of Oceanography

**Ocean & Climate Sciences** (7 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Hofmann (3)	O-264-P	NOAA/CMDL
Keeling (1)	O-204-P	University of California, San Diego
Stearns (3)	O-202-O	University of Wisconsin, Madison

**Technical Projects** (3 Personnel)

	<u>I.D. No.</u>	<u>Institution</u>
Lubin (3)	T-312-P	Scripps Institution of Oceanography

**R/V Laurence M. Gould/ Palmer Station** (49 Scientists)

**Biology & Medicine Program** (45 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Ducklow (8)	B-045-L/P	Virginia Institute of Marine Sciences
Measures (3)	B-225-L	University of Hawaii, Manoa
Mitchell (8)	B-228-L	University of California, San Diego
Quetin (9)	B-028L/P	University of California, Santa Barbara
Smith Raymond (3)	B-032-L/P	University of California, Santa Barbara

Veit (8)	B-023-L	City University of New York/College of Staten Isl.
Yen (2)	B-285-L	Georgia Institute of Technology
Zhou (4)	B-248-L	University of Massachusetts

**Oceans & Climate Systems** (4 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Steffen (4)	O-309-O	University of Colorado Boulder

**R/V Nathaniel B. Palmer** - (73 Scientists)

**Biology and Medicine Program** (35 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Kiene (4)	B-002-N	University South Alabama
Jeffrey (7)	B-200-N	University of West Florida
Neale (5)	B-203-N	Smithsonian Institution
Goes (4)	B-206-N	Bigelow Marine Laboratory
Gast (8)	B-207-N	Woods Hole Oceanographic Institution
Gargett (3)	B-208-N	Old Dominion University
Kieber (4)	B-266-N	State University of New York, Syracuse

**Geology and Geophysics** (22 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Stock (16)	G-071-N	California Institute of Technology
Wilson Terry (6)	G-099-N	Ohio State University

**Ocean and Climate Systems** (13 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Gordon (13)	O-215-N	Columbia University

**Technical Projects** (3 Personnel)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Lubin (3)	T-312-N	Scripps Institution of Oceanography

## V. Armaments

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*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

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*Section VI details the planned field research projects for the  
2003-2004 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>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
<b>Astrophysics Aeronomy</b>						
Analyzer, Logic		X				
Antenna, VLF Loop		X	X			X
Camera, All-Sky		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		
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>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
Ionosonde, Digital		X				
Laboratory, Portable (Radiation)				X	X	
Leak Detection and Vacuum Pump Equipment		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
Pipette Puller	X					
Power Conditioner		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>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></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	
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>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
<b>Biology</b>						
Aquaria	X		X	X	X	
Analyzer, Carbon/Nitrogen/Sulfur	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>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
Bath, Hybridization	X					
Bath, Water	X	X	X	X	X	
Bath, Water, Circulating	X		X	X	X	
Bath, Water, Shaking	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			
Centrifuge, Refrigerated Speed Vac	X		X	X	X	
Chart Recorder, Single Channel	X		X			
Chart Recorder, Dual Channel	X		X			
Chart Recorder, Three Channel	X		X			
Chiller, Aquarium	X		X			
Chromatography Equipment	X		X			
Chromatography, High Performance Liquid System (HPLC)	X		X			
Chromatography, Gas, System	X		X			
Chromatography, Ion, System	X					
Collector, Fraction	X		X			
Colorimeter	X		X			
Compressor, Air, Scuba Tank	X		X	X	X	
Cooler, Immersion	X		X	X	X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
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					
Data Acquisition System	X		X	X	X	
Datalogger	X		X	X	X	
Deck Unit/Transducer	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			
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					
Furnace, Muffle	X		X	X	X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
Gas Partitioner	X					
Hematology Equipment	X	X	X			
Hi-Vacuum System	X					
Homogenizer	X		X	X		
Hood, Fume	X		X	X	X	
Hood, Portable Fume Absorber			X		X	
Ice Maker			X	X	X	
Ice Maker (dry ice)		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			
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	
Microscope, Dissecting (for light/dark field microscopy)	X	X	X	X	X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
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	
Oxygen-Analyzing System	X				X	
Photometer, Integrating (for ATP)	X					
Photometer, Flame	X					
Photosynthesis System	X					
Phototransilluminator	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	
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					
Sensor, Irradiance (for dry use)	X		X	X	X	
Sensor, Irradiance (for submersible use)	X		X	X	X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
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			
Thermometer, Digital	X		X	X	X	
Transponder Reader	X					
Ultracentrifuge	X		X		X	
Ultrafiltration Unit	X		X	X		
UV Sensor, Portable	X					
VCR, High Resolution	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>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
<b>Computers</b>						
<i>MacIntosh:</i>						
Laptop	X	X	X	X	X	
Desktop	X	X	X	X	X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> <sup>1</sup>	<u>NBP</u> <sup>2</sup>	<u>AGO</u> <sup>3</sup>
<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>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
<b>Environmental Monitoring</b>						
Acoustic Release	X			X	X	
Analyzer, CO	X				X	
Analyzer, NOx	X					
Analyzer, Pesticide/PUF	X					
Analyzer, SO <sub>2</sub>	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					
Toxicity Analyzer	X					
Water Quality Logging System	X					
Water Quality System	X		X			

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
<b>Geology/Geophysics</b>						
Ball Mill	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	
Heliocoder	X	X				

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
Jack Hammer	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>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
<b>Geomagnetism</b>						
Antennas, Dipole		X		X	X	
Gradiometer, Magnetic--towed					X	
Magnetometer, Portable	X	X				

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
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<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
<b>Glaciology</b>						
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>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
<b>Meteorology</b>						
Barometers	X	X	X	X	X	X
Data Loggers	X	X	X	X	X	
Detectors, Aerosol and CN (balloon-borne)		X				
Laser Ceilometer		X				
Precipitation Gauges	X		X			
Pressure Indicators		X	X			
Pygeometers	X			X	X	
Pyranometer	X		X	X	X	
Receiver, High Resolution Picture (Terascan)	X		X		X	
Recorder, Four-Channel		X				
Satellite Receiving Data Manipulation System	X		X		X	
Set of Pyranometers, Tyrhelometers and Net Radiometers		X		X	X	
Temperature Probe Aspirators, Qualimetrics/Weather Measure		X				
Temperature Probes, RTD-Platinum	X	X	X	X	X	
Temperature Thermometers	X	X	X	X	X	X
Transmitters, PTT	X					
Weather Station	X	X	X			X
Weather Stations, Automatic	X	X	X			
Weather System				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>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
<b>Oceanography/Limnology</b>						
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			
Fluorometer, Fast Repetition-Rate			X	X		
Fluorometer, Flow-through				X	X	
Go-Flo Bottles	X		X	X		
Hood Laminar Flow, Portable			X		X	
Hydraulic Boom				X	X	
Hydrodavit				X	X	
Inflatable Boat, Zodiac			X	X	X	
Isotope Van			X	X	X	
Laboratory Van				X	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	
Pc O2 Instrument				X	X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
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<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
<b>Seismology</b>						
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>LMG<sup>1</sup></u>	<u>NBP<sup>2</sup></u>	<u>AGO<sup>3</sup></u>
<b>Other</b>						
Cryogen Vaporizer	X					
Data Link, Satellite	X	X	X	X	X	X
Drill Press	X	X	X	X	X	
Frequency Counter	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	
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

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*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	42
Forklift, warehouse	22
Motor toboggans	120
Crane	3
Road grader	4
Roller	4
Tractor, crawler	38
Tractor, wheeled	2
Sweeper, magnet	1
Snow plane	5
Truck, fire, pumper	8
Trencher	1
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	10
Personnel Carrier	4
Snow Plane	2
Tele-handler	1
Tractor Crawler	5
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 South Pole and Palmer stations**

No new communications related projects are planned at McMurdo, 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 - 2 x 10,000 ft runways (on annual sea ice)
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. Seven 150 lb. PKP sled-mounted extinguisher on the flight line
5. Two 3,000 lb. PKP sled-mounted extinguishers at the heli-pad
6. One Tanker, 3,400 gallons of water
7. Two Pumpers, 750 gallons (H<sub>2</sub>O), 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)

### **Amundsen-Scott South Pole Station**

#### **Air Facilities**

1 x 14,000 ft. skiway

#### **Crash Equipment**

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

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*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 and 1 Physician Assistant. 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. Telemedicine capabilities are available with specialist consultation services through the University of Texas Medical Branch at Galveston, Texas.

#### **Transport Services**

From October to mid-December, airlift from McMurdo to Christchurch via C-141 and C-130 aircraft is available. From mid-December to mid-February, airlift by LC-130 and C-141 aircraft is available. 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 three buildings under a geodesic dome adjoined and connected to a series of four arches also containing buildings. From November through mid-February additional buildings and tent structures are available. One wing of a new elevated facility currently under construction has been occupied.

## **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

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*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 nine cruises to the Antarctic Peninsula during the 2003-2004 season using the *M/S Explorer II*.

#### ***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 148.

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 Bay, Deception Island, Pendulum Cove, Livingston Island, Petermann Island, Paulet Island, Weddell Sea, Almirante Brown Station, Lemaire Channel, Neumayer Channel, Anvers Island, and Elephant Island.

Schedules for each of the cruises follows:

1. Depart Port Stanley November 9, 2003, arrive Ushuaia November 24 (in Treaty area November 17 - 22)
2. Depart Ushuaia November 24, arrive Ushuaia December 9 (in Treaty area November 26 - December 1)

3. Depart Ushuaia December 9, arrive Port Stanley December 23 (in Treaty area December 11 - 16)
4. Depart Port Stanley December 23, arrive Ushuaia January 4, 2004 (in Treaty area December 26, 2003 - January 2, 2004)
5. Depart Ushuaia January 4, arrive Ushuaia January 14 (in Treaty area January 6 - 12)
6. Depart Ushuaia January 14, arrive Ushuaia January 25 (in Treaty area January 18 - 23)
7. Depart Ushuaia January 25, arrive Ushuaia February 5 (in Treaty area January 29 - February 3)
8. Depart Ushuaia February 5, arrive Ushuaia February 15 (in Treaty area February 7 - 13)
9. - Depart Ushuaia February 15, arrive Port Stanley March 2 (in Treaty area February 17 - 22).

## **Quark Expeditions**

Quark Expeditions of Darien, Connecticut, is planning approximately 33 cruises to the Antarctic during 2003-2004 season using four chartered vessels. The *Professor Molchanov* and the *Lyubov Orlova* will conduct 10 cruises each, the *Professor Multanovskiy* will conduct 9 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 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:

1. Depart Puerto Madryn November 10, 2003, arrive Ushuaia November 28 (in Treaty area November 20 - 26)
2. Depart Ushuaia November 28, arrive Ushuaia December 7 (in Treaty area November 30 - December 5)
3. Depart Ushuaia December 7, arrive Ushuaia December 16 (in Treaty area December 9 - 14)
4. Depart Ushuaia December 16, arrive Ushuaia December 26 (in Treaty area December 18 - 24)
5. Depart Ushuaia December 26, arrive Ushuaia January 5, 2004 (in Treaty area December 28, 2003 - January 3, 2004)
6. Depart Ushuaia January 5, arrive Ushuaia January 23 (in Treaty area January 15 - 21)
7. Depart Ushuaia February 2, arrive Ushuaia February 12 (in Treaty area February 4 - 10)
8. Depart Ushuaia February 12, arrive Ushuaia February 21 (in Treaty area February 14 - 19)
9. Depart Ushuaia February 21, arrive Ushuaia March 1 (in Treaty area February 23 - 28)
10. Depart Ushuaia March 1, arrive Ushuaia March 19 (in Treaty area March 3 - March 10).

### **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:

1. Depart Port Elizabeth November 5, 2003, arrive Hobart December 3 (in Treaty area November 16 - December 1)
2. Depart Hobart December 3, arrive Lyttelton December 27 (in Treaty area December 8 - 22)
3. Depart Lyttelton December 28, arrive Hobart January 20, 2004 (in Treaty area January 1 - 15)
4. Depart Hobart January 20, arrive Hobart February 12 (in Treaty area January 25 - February 7).

### ***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:

1. Depart Port Stanley November 29, arrive Ushuaia December 14 (in Treaty area December 6 - 12)
2. Depart Ushuaia December 14, arrive Ushuaia December 23 (in Treaty area December 16 - 21)
3. Depart Ushuaia December 23, arrive Ushuaia January 2, 2004 (in Treaty area December 25 - 31, 2003)
4. Depart Ushuaia January 2, 2004, arrive Ushuaia January 12 (in Treaty area January 4 - 10)
5. Depart Ushuaia January 12, arrive Ushuaia January 22 (in Treaty area January 14 - 20)
6. Depart Ushuaia January 22, arrive Ushuaia February 9 (in Treaty area February 2 - 7)

7. Depart Ushuaia February 9, arrive Ushuaia February 19 (in Treaty area February 11 - 17)
8. Depart Ushuaia February 19, arrive Ushuaia February 29 (in Treaty area February 21 - 27)
9. Depart Ushuaia February 29, arrive Ushuaia March 18 (in Treaty area March 2 - 8).

### ***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:

1. Depart Ushuaia November 11, 2003, arrive Ushuaia November 29 (in Treaty area November 22 - 27)
2. Depart Ushuaia November 29, arrive Ushuaia December 8 (in Treaty area December 1 - 6)
3. Depart Ushuaia December 8, arrive Ushuaia December 17 (in Treaty area December 10 - 15)
4. Depart Ushuaia December 17, arrive Ushuaia December 26 (in Treaty area December 19 - 24)
5. Depart Ushuaia December 26, arrive Ushuaia January 4, 2004 (in Treaty area December 28, 2003 - January 2, 2004)
6. Depart Ushuaia January 4, arrive Ushuaia January 14 (in Treaty area January 6 - 12)
7. Depart Ushuaia January 14, arrive Ushuaia February 1 (in Treaty area January 24 - 30)
8. Depart Ushuaia February 1, arrive Ushuaia February 11 (in Treaty area February 3 - 9)
9. Depart Ushuaia February 11, arrive Ushuaia February 21 (in Treaty area February 13 - 19)
10. Depart Ushuaia February 21, arrive Ushuaia March 10 (in Treaty area February 23 - 29).

## **Orient Lines, Inc.**

Orient Lines, Inc. of Fort Lauderdale, Florida, plans to conduct 5 cruises to the Antarctic during the 2003-2004 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 350, 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, Elephant Island, Cape Lookout, and Hope Bay.

Schedules for each of the cruises follows:

1. Depart Punta Arenas January 4, 2004, arrive Ushuaia January 11, 2004 (in Treaty area January 6 - 10)
2. Depart Ushuaia January 12, arrive Ushuaia January 19 (in Treaty area January 13 - 18)

3. Depart Ushuaia January 20, arrive Ushuaia January 31 (in Treaty area January 26 - 30)
4. Depart Ushuaia February 1, arrive Ushuaia February 8 (in Treaty area February 2 - 7)
5. Depart Ushuaia February 9, arrive Port Stanley February 16 (in Treaty area February 10 - 15).

## **Clipper Cruise Lines**

Clipper Cruise Lines, of St. Louis, Missouri, plans to conduct 8 cruises to the Antarctic during the 2003-2004 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, Laurie Island, Shingle Cove, Coronation Island, Antarctic Peninsula, Paulet Island, Brown Bluff, Antarctic Sound, Deception Island, Elephant Island, Neptune's Bellows, Pendulum Cove, Paradise Bay, Neko Harbor, Lemaire Channel, Petermann Island, Palmer Station, Dorian Bay, Melchior Islands, Aitcho Islands, Penguin Island, Half Moon Island, Cuverville Island, Jougla Point, Goudier Island, Hovgaard Island, Pléneau Island, Whalers Bay, Hannah Point, Torgersen Island, Anvers Island, Port Lockroy, Neumayer Channel, Point Wild, Gourdin Island, Yankee Bay, and South Shetland Islands.

Schedules for each of the cruises follows:

1. Depart Port Stanley November 12, 2003, arrive Ushuaia November 29 (in Treaty area November 21 - 27)

2. Depart Ushuaia November 29, arrive Port Stanley December 10 (in Treaty area December 1 - 7)
3. Depart Port Stanley December 10, arrive Ushuaia December 21 (in Treaty area December 12 - 19)
4. Depart Ushuaia December 21, arrive Port Stanley January 7, 2004 (in Treaty area December 22 - 29, 2003)
5. Depart Port Stanley January 7, 2004, arrive Ushuaia January 24 (in Treaty area January 14 - 22) – This cruise will be sub-chartered by Zegrahm Expeditions of Seattle, Washington
6. Depart Ushuaia January 24, arrive Port Stanley February 4 (in Treaty area January 25 - February 1)
7. Depart Port Stanley February 4, arrive Ushuaia February 15 (in Treaty area February 6 - 13)
8. Depart Ushuaia February 15, arrive Port Stanley February 26 (in Treaty area February 16 - 23).

## **Lindblad Expeditions**

Lindblad Expeditions of New York City, New York, plans to conduct 7 cruises to the Antarctic during the 2003-2004 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.

ITINERARY: Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Aitcho Islands, Brown Bluff, Cape Lookout, Elephant Island, Charlotte Harbor, Coronation Island, Crystal Hill, Cuverville Island, Damoy Point, Devil Island, Enterprise Islands, Fort Point, Gourdin Island, Hannah Point, Livingston Island, Hydrurga Rocks, James Ross Island, Lindblad Cove, Neko Harbor, Palmer Station, Paradise Harbor, Paulet Island, Pendulum Cove, Deception Island, Penguin Island, South Shetland Islands, Petermann Island, Pléneau Island, Port Lockroy, Point Wild, Elephant Island, Snow Hill Island, Telefon Bay, Whalers Bay, and Yankee Harbor.

Schedules for each of the cruises follows:

1. Depart Port Stanley November 21, 2003, arrive Port Stanley December 7 (in Treaty area November 29 - December 5)
2. Depart Port Stanley December 7, arrive Ushuaia December 28 (in Treaty area December 17 - 26)
3. Depart Ushuaia December 28, arrive Ushuaia January 8, 2004 (in Treaty area December 31, 2003 - January 6, 2004)
4. Depart Ushuaia January 8, arrive Ushuaia January 19 (in Treaty area January 10 - 17)
5. Depart Ushuaia January 19, arrive Ushuaia January 30 (in Treaty area January 21 - 28)
6. Depart Ushuaia January 30, arrive Ushuaia February 11 (in Treaty area February 1 - 9)
7. Depart Ushuaia February 11, arrive Port Stanley March 3 (in Treaty area February 13 - 22).

Oceanities of Chevy Chase, Maryland plans to have ten to 12 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.

## **Society Expeditions**

Society Expeditions of Seattle, Washington plans to conduct 7 cruises to the Antarctic Peninsula during the 2003-2004 season, onboard the new *World Discoverer*.

### ***M/V World Discoverer***

The vessel was built in 1989 and refurbished in 2002. The call letters are C6TA8, and the vessel is registered in the United Kingdom. The *World Discoverer* is 108 meters in length, 15.64 meters in breadth, has a 4.38 meter draft and displacement of 6,072 tons. The vessel has an average cruising speed of 15 knots. The vessel is also classified by the Lloyd's Register as a 1A1. The *World Discoverer* has two Wartsila 2250 kw (6030 hp) engines, a 790 hp Ulstein bow thruster, and two 870 kw (2330 hp) Wartsila auxiliary

engine. Approximately 175 passengers and 105 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 Shetland Islands, South Orkney Islands, Laurie Island, Coronation Island, Antarctic Peninsula, Elephant Island, Livingston Island, Petermann Island, Paulet Island, King George Island, Lemaire Channel, Paradise Bay, Deception Island, Whalers Bay, Cape Lookout, Torgersen Island, Anvers Island, and Port Lockroy.

Schedules for each of the cruises follows:

1. Depart Punta Arenas November 20, 2003, arrive Ushuaia December 8 (in Treaty area November 29 - December 6)
2. Depart Ushuaia December 8, arrive Ushuaia December 18 (in Treaty area December 10 - 16)
3. Depart Ushuaia December 18, arrive Ushuaia January 5, 2004 (in Treaty area December 27, 2003 - January 3, 2004)
4. Depart Ushuaia January 5, arrive Ushuaia January 15 (in Treaty area January 7 - 13)
5. Depart Ushuaia January 15, arrive Ushuaia February 2 (in Treaty area January 24 - 31)
6. Depart Ushuaia February 2, arrive Ushuaia February 20 (in Treaty area February 11 - 18)
7. Depart Ushuaia February 20, arrive Punta Arenas March 9 (in Treaty area March 1 - 6).

## **Discovery World Cruises**

Discovery World Cruises of Fort Lauderdale, Florida is planning to conduct three cruises to Antarctica during the 2003-2004 season.

### ***M/V Discovery***

The *M/V Discovery* is registered in Bermuda and can accommodate 751 passengers, and 332 staff and crew.

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, Port Lockroy, Paradise Harbor, and Half Moon Island.

Schedules for each of the cruises follows:

1. Depart Port Stanley January 1, 2004, arrive Ushuaia January 9 (in Treaty area January 3 - 7)
2. Depart Ushuaia January 10, arrive Ushuaia January 17 (in Treaty area January 11 - 16)
3. Depart Ushuaia January 17, arrive Punta Arenas January 25 (in Treaty area January 18 - 23).

## **Elegant Cruises and Tours**

Elegant Cruises and Tours of Port Washington, New York plan to operate the MS Andrea on 5 cruises to the Antarctic during the 2003-2004 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 South Orkney Islands, Coronation Island, Antarctic Peninsula, South Shetland Islands, Deception Island, Elephant Island, Lemaire Channel, Hope Bay, King George Island, Livingston Island, Penguin Island, Paulet Island, Devil Island, Whalers Bay, Pendulum Cove, Hannah Point, Cuverville Island, Neko Harbor, Paradise Bay, Dorian Bay, Petermann Island, Port Lockroy, Melchior Island, and Aitcho Islands.

Schedules for each of the cruises follows:

1. Depart Ushuaia December 21, 2003, arrive Ushuaia December 30 (in Treaty area December 23 - 29)
2. Depart Ushuaia December 30, arrive Ushuaia January 11, 2004 (in Treaty area December 31, 2003 - January 5, 2004)
3. Depart Ushuaia January 11, arrive Ushuaia January 19 (in Treaty area January 13 - 18)
4. Depart Ushuaia January 19, arrive Ushuaia January 27 (in Treaty area January 20 - 26)
5. Depart Ushuaia January 27, arrive Ushuaia February 13 (in Treaty area January 28 - February 3).

## **Princess Cruises**

Princess Cruises of Santa Clarita, California plans to operate the *M/S Royal Princess* during one cruise to the Antarctic during the 2003-2004 season.

### ***M/S Royal Princess***

The *Royal Princess* is registered in the United Kingdom and can accommodate 1,200 passengers and 540 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, Antarctic Sound, Hope Bay, Gerlache Strait, Neumayer Channel, Melchior Islands, and Deception Island.

Schedules for each of the cruises follows:

1. Depart Cape Town December 19, 2003, arrive Valparaiso January 12, 2004 (in Treaty area December 29, 2003 - January 1, 2004).

## **ResidenSea Resorts**

ResidenSea Resorts of Miami, Florida plan to operate *The World* during one cruise to Antarctica during the 2003-2004 season.

### ***M/V The World***

*The World* is registered in the Bahamas and is 644 feet in length and has a gross tonnage of 43,524. She can accommodate approximately 651 passengers and 310 staff and crew.

ITINERARY: Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Antarctic Sound, Devil Island, Deception Island, Port Foster, Livingston Island, Hannah Point, Gerlache Strait, Neumayer Channel, Lemaire Channel, Petermann Island, Port Lockroy, Paradise Bay, Portal Point, Cuverville Island, and Croker Passage.

Schedules for each of the cruises follows:

Depart Ushuaia December 30, 2003, arrive Ushuaia January 10, 2004 (in Treaty area December 31, 2003 - January 8, 2004)

## **Cheesemans' Ecology Safaris**

Cheesemans' Ecology Safaris of Saratoga, California plans to charter the *M/V Polar Star* for one cruise to the Antarctic Peninsula during the 2003-2004 season.

### ***M/V Polar Star***

The *M/V Polar Star* was built in Finland in 1969 and served in the Swedish Maritime Administration's fleet of icebreakers under the name of *Njord*. In 2000 she was purchased by Polar Star Expeditions, a company of Karlsen Shipping and underwent complete retrofit and upgrades. She was renamed *Polar Star* and is registered in Barbados. The vessel is 86.5 meters in length, 21.2 meters in breadth, and has a draft of 6.2 meters. She has a diesel electric motor producing 12,00 Hp and achieves a cruising speed of 11 knots. The vessel has an Icebreaker ice 1A\* classification. *Polar Star* can accommodate 100 passengers, and 32 staff and crew.

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, Snow Hill Island, Seymour Island, Brown Bluff, Weddell Sea, Deception Island, Rancho Point, Whalers Bay, Cierva Cove, Cuverville Island, Neumayer Channel, Port

Lockroy, Petermann Island, Palmer Station, Neko Harbor, Paradise Bay, Hannah Point, and Livingston Island.

Schedule for the cruise follows:

1. Depart Ushuaia December 29, 2003, arrive Ushuaia January 23, 2004 (in Treaty area January 12 - 21)

## **Travel Dynamics International**

Travel Dynamics International of New York, New York plans to operate the *M/V Orion* for 7 cruises to the Antarctic Peninsula during the 2003-2004 season

### ***M/V Orion***

*M/V Orion* was built at the Cassens Shipyard in Emden, Germany and conducted her maiden voyage in 2003. She has technologically advanced stabilizers, bow and stern thrusters for easy maneuverability and carries 10 heavy duty zodiacs to land in shallow areas and navigate small waterways. She can accommodate 106 passengers, and 74 staff and crew.

ITINERARY: Sites visited may vary depending on weather and ice conditions as well as length of cruise, and may include Antarctic Peninsula, Cape Lookout, Paulet Island, Hope Bay, Astrolabe Island, Neko Harbor, Half Moon Island, Aitcho Islands, Almirante Brown Station, Palmer Station, Lemaire Channel, Port Lockroy, Deception Island, Petermann Island, Vernadsky Station, Melchior Island, Paradise Island, King George Island, Cuverville Island, Crystal Bay, Orcadas Base, Hannah Point, King George Island, Elephant Island, Cape Lookout, Coronation Island, and South Orkney Islands.

Schedules for each of the cruises follows:

1. Depart Ushuaia December 22, 2003, arrive Ushuaia January 1, 2004 (in Treaty area December 24 - 30, 2003)
2. Depart Ushuaia January 1, 2004, arrive Ushuaia January 11 (in Treaty area January 3 - 9)

3. Depart Ushuaia January 11, arrive Ushuaia January 21 (in Treaty area January 13 - 19)
4. Depart Ushuaia January 21, arrive Ushuaia January 31 (in Treaty area January 23 - 29)
5. Depart Ushuaia January 31, arrive Ushuaia February 10 (in Treaty area February 2 - 8)
6. Depart Ushuaia February 10, arrive Ushuaia February 20 (in Treaty area February 12 - 18)
7. Depart Ushuaia February 20, arrive Port Stanley March 9 (in Treaty area February 22 - 28)

## **Holland America Line**

Holland America Line of Seattle, Washington, plans to operate the *M/S Amsterdam*, of Dutch registry, on three cruises that will enter the Treaty Area for approximately 72 hours for scenic cruising. The vessel can carry a maximum of 1,792 passengers, staff and crew. No landings are planned.

### ***M/S Amsterdam***

The *M/S Amsterdam* was built at Fincantieri shipyard in Marghera, Italy. She is registered in the Netherlands. The *Amsterdam* is 780 feet in length, has a beam of 105.8 feet, a gross tonnage of 61,000, and a maximum speed of 22.5 knots. She can accommodate 1,792 passengers, and 600 staff and crew.

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

Schedules for each of the cruises follows:

1. Depart Ushuaia December 25, 2003, arrive Port Stanley December 31 (in Treaty area December 27 - 29)
2. Depart Buenos Aires January 13, 2004, arrive Ushuaia January 22 (in Treaty area January 17 - 20)

3. Depart Ushuaia February 5, arrive Port Stanley February 11 (in Treaty area February 7 - 9).

## 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 2003 - mid-January 2004 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.

- A. *South Pole Expedition* (ski trip between Hercules Inlet and South Pole): November 30, 2003 - February 2, 2004; December 21, 2003 - January 18, 2004; January 5 - 18
- B. *South Pole Ski - The Last Degrees*: December 11 - 21, 2003; December 21 - January 5, 2004; January 5 - 18
- C. *South Pole Visit* (flight from Patriot Hills to South Pole): December 21, 2003 - January 18, 2004
- D. *South Pole Ski and Vinson Massif*: November 30, 2003 - December 21; December 21 - January 18, 2004
- E. *Vinson Mountaineering*: November 30, 2003 - December 11; December 21 - January 5, 2004; January 5 - 18
- F. *Embree Glacier*: December 2003 - January 2004.

◆ Solo World Challenge "Polar First" of New York, New York plans a party of three staff and crew to fly a Bell 407 Helicopter N 44 EA, U.S. registry, across Antarctica to the South Pole during the 2003-2004 season.

ITINERARY: The aircraft will fly from Ushuaia to the South Pole and back to Ushuaia. Landings are planned in both directions at Marsh Base, Carvajal Station, Fossil Bluff Base, Fowler Ice Rise, Patriot Hills, Thiel Mountains, and South Pole.

A. Depart Ushuaia December 11, 2003, arrive Ushuaia December 24 (in Treaty area December 11 - 24).

◆ Ice Ax Productions of Boca Raton, Florida plans to have a party of five fly to and within Antarctica to conduct repair and maintenance of automatic weather stations and to engage in climbing, skiing, and kite/skiing activities according to the following itinerary.

Draft itinerary follows:

- Fly from Cape Town to Novolazarevskaya Station: December 3, 2003
- Fly from Novolazarevskaya Station to “Blue 1” base: December 5
- Repair automatic weather station at “Blue 1” base: December 6
- Kite/ski from “Blue 1” base to Holtanna Peak: December 7
- Repair automatic weather station at Holtanna Peak: December 8
- Climb and ski in Orvin Mountains: December 9 - January 9, 2004
- Kite/ski from Orvin Mountains to Wohlthat Mountains: January 10
- Climb and ski in Wohlthat Mountains: January 11 – 21
- Kite/ski from Wohlthat Mountains to Novolazarevskaya Station: January 22 – 27
- Fly from Novolazarevskaya Station to Cape Town: January 30.

◆ Sky Publishing of Cambridge, Massachusetts, and Travel Quest International of Prescott, Arizona plan to charter a Chilean Airbus 340-313 LA8001 aircraft to fly a predetermined route over Antarctica to place it in the path of a total eclipse of the Sun. After the eclipse, the aircraft will fly to the South Pole, reduce altitude to approximately 5,000 feet, and fly over the Amundsen-Scott Station before returning to Punta Arenas, Chile. The aircraft can accommodate a maximum of 266 passengers and 16 staff and crew. No landing in Antarctica is planned.

A. Depart Punta Arenas November 23, 2003, arrive Punta Arenas November 24 (in Treaty area November 23 - 24)

## XI. Refuges

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*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.

#### **Mt. 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.

### **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 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 Hoare Hut**

**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**

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

### **New Harbor Hut**

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

## **McMurdo Supported Remote Locations**

### **Tamseis Camp**

**Position:** 81° 39.14' S, 122° 35.27' E

Camp was winterized at the end of the 2002-2003 season. Food, fuel, and survival cache were staged on site for use during the 2003-2004 field season. Camp will be reoccupied in December 2003.

### **Onset D Camp**

**Position:** 80° 45.65' S, 125° 47.60' W

Camp was closed at the end of the 2002-2003 the season. No structures were left standing. Skiway remains marked. Small amount of equipment on site which will be removed during 2003-2004 field season

### **Siple Dome Camp**

**Position:** 81°39'S, 149°04'E

Camp winterized at the end of the 2003-2004 season. Food, fuel, survival cache, and heavy equipment were staged on site for use during the 2003-2004 field season. Camp will be reoccupied from October 2003 to February 2004

### **Byrd Surface Camp**

**Position:** 80°01'S, 119°32'E

Camp winterized at the end of the 2002-2003 season. One Jamesway was left standing. Food, fuel, survival equipment are on site. Camp will be reoccupied in November 2003.

## **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

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*Information regarding Antarctic Conservation Act Permits issued or  
species killed or captured during the 2003-2004 season will be  
reported in Section XII of the Modifications of the United States  
Antarctic Activities Planned for 2003-2004.*

## XIII. Radioactive Materials

*Section XIII of the 2003-2004 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	<sup>3</sup> H <sup>35</sup> S <sup>14</sup> C	<sup>3</sup> H Leucine <sup>35</sup> S Methionine <sup>14</sup> C DMSO	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-005-M	<sup>14</sup> C <sup>3</sup> H	<sup>14</sup> C – Sodium Bicarbonate <sup>3</sup> H- Leucine	McMurdo Station	Antifreeze Proteins in Antarctic Fishes
B-012-M	<sup>14</sup> C	<sup>14</sup> C- Polyethylene	McMurdo	Drinking and Na/k- Atpase alpha-subunit isoform expression in Antarctic fish
B-016-P/L	<sup>14</sup> C	<sup>14</sup> 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 (Phytoplankton Group)
B-029-M	<sup>35</sup> S <sup>14</sup> C	<sup>35</sup> S Amino acid <sup>14</sup> C Phenylalanine	McMurdo	Geonomic networks for cold-adaptation in embryos of marine polar invertebrates

<u>PROJECT</u>	<u>NUCLIDE</u>	<u>FORM</u>	<u>SITE</u>	<u>USE</u>
B-045-P/L	<sup>3</sup> H	<sup>3</sup> 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	<sup>14</sup> C	<sup>14</sup> C – Sodium Bicarbonate <sup>14</sup> C-Toluene	McMurdo Station, US Coast Guard <i>Polar Star</i>	Interannual Variability in the Antarctic Ross Sea: Nutrient Fields and Seasonal Productivity II
B-200-N	<sup>3</sup> H	<sup>3</sup> 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	<sup>14</sup> C	<sup>14</sup> C Sodium	<i>R/V Nathaniel B. Palmer</i>	Interactive effects of UV and vertical mixing and phytoplankton and bacterioplankton in the Ross Sea
B-228-L	<sup>14</sup> C <sup>3</sup> H <sup>55</sup> Fe	<sup>14</sup> C Bicarbonate <sup>3</sup> H Leucine/thymidine <sup>55</sup> Fe sealed source	<i>R/V Laurence M. Gould</i>	Plankton community structure and iron distribution in the Southern Drake passage
B-422-M	<sup>14</sup> C <sup>3</sup> H	<sup>14</sup> C – Bicarbonate/ leucine <sup>3</sup> H – Thymidine/toluene	McMurdo Station/Dry Valleys	The Role of Natural Legacy on Ecosystem Function and Structure in a Polar Desert
B-423-M	<sup>14</sup> C	<sup>14</sup> C - Sodium Bicarbonate	McMurdo Station	McMurdo Dry Valleys LTER

<u>PROJECT</u>	<u>NUCLIDE</u>	<u>FORM</u>	<u>SITE</u>	<u>USE</u>
O-176-S	<sup>63</sup> Ni <sup>241</sup> AM	<sup>63</sup> Ni foil <sup>241</sup> AM sealed source	South Pole	Antarctic Troposphere chemistry investigation
O-257-S	<sup>63</sup> Ni	<sup>63</sup> Ni - Foil	South Pole Station	South Pole Monitoring for Climatic Change: U.S. Department of Commerce; National Oceanic and Atmospheric Administration, Climate Monitoring and Diagnostics Laboratory (Source is inside an electron capture detector of a gas chromatograph)

## XIV. Research Rockets

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*Section XIV reports the planned use of research rockets. The United States Antarctic Program will launch no research rockets during the 2003-2004 season.*

## XV. Oceanography - Government

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*Section XV outlines plans for United States Antarctic Program sponsored oceanographic expeditions during the 2003-2004 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 third 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, 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, 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. A deep-sea trawl and coring winch and two hydrographic winches are operated through stern and starboard A-frames. One 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. Zodiacs are available for ship-to-shore transport and sample collection.

**Ship's Master:** Captain Joe Borkowski.

## **Scientific Programs in the Antarctic Treaty Area**

The R/V *Nathaniel B. Palmer* will conduct cruises in the Southern Ocean surrounding Antarctica; both a north- and southbound research transect between Lyttelton, New Zealand and Dutch Harbor, Alaska; and a science cruise above the Arctic Circle. Scientific research conducted onboard includes 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 both polar regions during the 2003-2004 season, including the Pacific, Southern and Arctic Oceans, Chukchi and Ross Seas. During the southbound transit following the Arctic Ocean cruise, a seismic sea trial will be conducted to evaluate and test a new multi-channel streamer system. Ports of call include: Barrow and Dutch Harbor, Alaska; Honolulu, Hawaii; Lyttelton, New Zealand; McMurdo Station; and Pago Pago, American Samoa. The NBP will sail in support of approximately nine science cruises during the 2003-2004 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, is 70.1 meters long, has a beam of 14.02 meters, a design draught of 5.48 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, 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 a stern A-frame and starboard side hydrographic davits. 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 an additional 27 square meters in portable laboratory vans. Zodiacs are available for ship-to-shore transport and sample collection.

**Ship's Master:** Captain Robert Verret

## **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 2003-2004 season will include Marine Biology, Chemical and Physical Oceanography, and Marine Geology and Geophysics. The *R/V Laurence M. Gould* will also provide logistic 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 transport support personnel to and from Palmer Station, provide research support in and around the Bransfield Strait areas, and enter a routine maintenance period from 30 June to 10 August 2003 in Punta Arenas, Chile. Ports of call include: Punta Arenas, Chile and Palmer Station, Antarctica. The vessel will sail in support of nine science cruises, two peninsula research field camp openings and Palmer Station staff and resupply shuttles in the Antarctic Peninsula area during the 2003-2004 season.

## XVI. Visiting Expeditions

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*Section XVI provides information on expeditions visiting U.S. stations during the 2003-2004 austral summer. Data will be accumulated during the course of the season and reported in next year's report of modifications to these plans.*