

United States Antarctic Activities 1999-2000

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 1999 through June 2000. Modifications to these plans will be published elsewhere on this site upon conclusion of the 1999-2000 season.



**National Science Foundation
Arlington, Virginia 22230
November 30, 1999**

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

UNITED STATES ANTARCTIC ACTIVITIES 1999-2000	I		
Introduction	ii		
Contents	iii		
I. Ships and Aircraft	1		
Ships	1		
Aircraft	2		
II. Expedition Dates	3		
Winfly Activities	3		
Mainbody Activities	3		
Significant Dates	4		
Ship Movements	4		
III. Stations	6		
Year Round Stations	6		
Austral Summer Camps	7		
IV. Personnel	9		
Oversight	9		
Officers in Charge of Bases	9		
Officers in Charge of Ships	10		
Numbers, Occupations and Specialization of Personnel	10		
Names and Professional Affiliation of Personnel Engaged in Scientific Activities	13		
V. Armaments	24		
McMurdo Station	24		
Palmer Station	24		
South Pole Station	24		
R/V NATHANIEL B. PALMER	24		
R/V LAURENCE M. GOULD	25		
VI. Project Descriptions		26	
VII. Scientific Equipment		29	
VIII. Transportation & Comms		43	
Surface, Marine, and Air Transportation Vehicles		43	
Description of Communications Facilities		44	
Description of Airfields		45	
IX. Assistance Facilities		49	
McMurdo Station		49	
Amundsen-Scott South Pole Station		50	
Palmer Station		50	
Marble Point Camp		51	
X. Tourism		52	
Abercrombie & Kent International, Inc.		52	
Society Expeditions		56	
Quark Expeditions		59	
Orient Lines, Inc.		67	
Clipper Cruise Lines		69	
Holland America Line		72	
Mountain Travel*Sobek		73	
Expedition Cruises		76	
Special Expeditions, Inc.		78	
Other		80	
XI. Refuges		82	
McMurdo Area Antarctic Refuges and Survival Caches		82	
McMurdo Supported Remote Locations		84	
Deactivated USAP Stations and Camps		84	

XII. Species Killed, Captured	89
XIII. Radioactive Materials	90
XIV. Research Rockets	93
XV. Oceanography - Government	94
R/V NATHANIEL B. PALMER	94
R/V LAURENCE M. GOULD	95
XVI. Visiting Expeditions	97
Attachment A	
Appendix I	

I. Ships and Aircraft

Section I of the 1999-2000 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:	<u>USCGC POLAR STAR (WAGB-11)</u>
Aircraft:	2 each HH-65A helicopters
Armament:	Small arms only

- **Supply/Tankers**

Ship:	<u>M/V GREEN WAVE</u> - dry cargo
Armament:	None

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

- **Research Vessels**

Ship:	<u>R/V LAURANCE M. GOULD</u>
Armament:	None

Ship:	<u>R/V NATHANIEL B. PALMER</u>
Armament:	None

Aircraft

Five to six LC-130 transport aircraft operated by the 109th Airlift Wing.

One Bell 212 helicopter based at McMurdo Station.

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

Note: No armament

Air Mobility Command

Between October and November 1999, C-141B 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 2000, 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 1999 and January 2000 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 1999, and depart early February 2000.

Note: No armament

II. Expedition Dates

Section II of the 1999-2000 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 1999. The aircraft will carry scientists and support personnel to start early pre-summer projects, to augment maintenance personnel, and to prepare skiways and ice runways at McMurdo Station. This will involve 4 U.S. Air Force C-141B flights and will increase station population from the winter-over level of about 154 to a transition level of about 373.

Mainbody Activities

Austral summer activities will be initiated in late September 1999 with wheeled aircraft operations between Christchurch, New Zealand and the sea-ice runways at McMurdo Station, Antarctica. This will involve approximately 23 C-141B flights and 2 C-5 flights of transport aircraft of the U.S. Air Force Air Mobility Command (AMC), and 12 flights by C-130 transport aircraft of the Royal New Zealand Air Force. The sea-ice runway and wheeled aircraft operations will cease about early December 1999, and then resume about mid January to the end of the season with 10 C-141B and 3 C-130 flights. Between these two periods of wheeled aircraft operations, flights will be conducted by LC-130 ski-equipped aircraft flown by the New York Air National Guard 109th Airlift Wing. The aircraft will operate from Williams' Field, a prepared skiway.

The 109th Airlift Wing of the Air National Guard in Schenectady, New York will provide four LC-130 aircraft and five crews for intra-continental flights from late October 1999 through early January, and add a fifth aircraft and sixth crew from early January through February when McMurdo Station closes.

Significant Dates

Other significant dates for the summer season include:

1. 28 September 1999 - McMurdo Station "Mainbody" begins
2. 20 September 1999 - Palmer Station opens
3. 03 October 1998 - Marble Point opens
4. 25 October 1999 - South Pole Station opens
5. 26 October 1999 - Siple Dome Camp opens
6. 02 October 1999 - Byrd Camp opens
7. 08 November 1999 - Mid-C Camp opens
8. 13 October 1999 - Pieter J. Lenie Field Station ("Copacabana") opens
9. 29 October 1999 - Cape Shirreff Field Station opens

Ship Movements

M/V GREEN WAVE

The cargo ship, M/V GREEN WAVE, is scheduled to complete one trip to McMurdo this season. The ship will depart Port Hueneme, California, in early January 2000 after unloading cargo and transit directly to Port Lyttelton, New Zealand. The Green Wave will again onload additional cargo and depart New Zealand for McMurdo Station, Antarctica. Cargo will be off-loaded between 03-10 February, after which the ship will

depart McMurdo and proceed to Lyttelton, New Zealand to offload cargo destined for the States. It will depart on approximately 17 February for Washington State to off-load waste and recyclable materials from McMurdo Station. From there it will transit to Port Hueneme, California, arriving there on 12 March 2000.

R/V NATHANIEL B. PALMER

The R/V NATHANIEL B. PALMER will conduct 13 scientific research cruises, totaling an estimated 243 days at sea, during the 1999-2000 season. The vessel will provide support throughout the season for biological, chemical, physical oceanographic, and marine geophysics investigations in the Weddell, Bellingshausen, and the Ross Seas. Ports of call include Punta Arenas and Talcahano, CHILE, Lyttelton, New Zealand, and McMurdo Station, Antarctica.

R/V LAURENCE M. GOULD

The R/V LAURENCE M. GOULD will conduct 12 scientific research cruises, totaling an estimated 310 days at sea, during the 1999-2000 season. The research supported will include at sea research, station work at Elephant, King George, Livingston, Deception, Low, Smith, and Greenwich Islands, and station support at Palmer Station.

III. Station Openings

Section III of the 1999-2000 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: 28 September 1999

Amundsen-Scott South Pole Station

Location: 90° 00'S Latitude
Annual Relief: 25 October 1999

Palmer Station

Location: Anvers Island near Bonaparte Point
64° 46'S Latitude
64° 05'W Longitude
Annual Relief: 20 September 1999

Austral Summer Camps

Siple Dome Camp

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

Open: 26 October 1999

Close: 01 February 2000

Byrd Camp

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

Open: 02 October 1999

Close: 01 February 2000

Mid-C Camp

Location: 75° 32'S Latitude
145° 49'W Longitude

Open: 08 November 1999

Close: 30 December 1999

**Pieter J. Lenie Field Station
("Copacabana"), King George Island**

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

Open: 13 October 1999

Close: 4 March 2000

Cape Shirreff Field Station, Livingston Island

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

Open: 29 October 1999

Close: 1 March 2000

IV. Personnel

Section IV gives the names of the officers in charge of each of these bases, subsidiary stations, ships and aircraft; the number occupation and specialization of personnel (including any designated by other Governments), who are or will be stationed at each of these bases and subsidiary stations and on board 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, Antarctic Support Associates (ASA), 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 1999-2000 season will be:

McMurdo Station

Terry Melton	(Oct 98 - Oct 99)
Richard Boehne	(Oct 99 – Oct 2000)

Amundsen-Scott South Pole Station

Ed Blain	(Nov 99 - Feb 2000)
Scott Hulse	(Feb 99 - Nov 2000)

Palmer Station

Ronald E. Nugent, Jr.	(Sep 99 - Mar 2000)
Chris Cunning	(Mar 99 - Sep 2000)

Officers in Charge of Ships

USCGC POLAR STAR (WAGB-10)	Captain Terrance Julich, USCG
Champion Class T-5 Tanker (fuel tanker)	TBA
M/V GREEN WAVE (cargo ship)	Captain Peter Stalkus
R/V NATHANIEL B. PALMER	Captain Joe Bokowski
R/V LAURENCE M. GOULD	Captain Warren Sanamo

Numbers, Occupations and Specialization of Personnel

McMurdo

	Summer		Winter	
	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>
Headquarters	0	34	0	6

	Summer		Winter	
	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>
Science Support	0	63	0	7
Operations	0	271	0	62
Logistics	0	112	0	27
SPSE	0	20	0	2
Engineering /Construction	0	95	0	72
Information Systems	0	91	0	15
Aviation	0	0	0	0
Scientists	0	420	0	0
Working Visitors	0	144	0	0

South Pole

	Summer		Winter	
	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>
Headquarters	0	1	0	1
Science Support	0	8	0	5
Operations	0	26	0	5
Logistics	0	12	0	3
SPSE	0	71	0	17
Engineering/Construction	0	41	0	6
Information Systems	0	9	0	3
Aviation	0	0	0	0
Scientists	0	200	0	10
Working Visitors	0	49	0	0

Palmer Station

	Summer		Winter	
	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>
Headquarters	0	1	0	1
Science Support	0	3	0	2
Operations	0	7	0	4
Logistics	0	2	0	2
Engineering/Construction	0	6	0	14

Information Systems	0	3	0	2
Scientist	0	29	0	6
Working Visitors	0	19	0	7

Siple Dome Field Camp

	Summer Only	
	<u>Military</u>	<u>Civilian</u>
Camp Manager	0	1
Heavy Vehicle Mechanic	0	1
Cook	0	1
Heavy Equipment Operator	0	1
Scientists	0	20
Aviation	0	5

Byrd Camp

	Summer Only	
	<u>Military</u>	<u>Civilian</u>
Camp Manager	0	1
Heavy Equipment Operator		1
Heavy Vehicle Mechanic	0	1
Scientists	0	20
Aviation		5

Mid-C Camp

	Summer Only	
	<u>Military</u>	<u>Civilian</u>
Camp Manager	0	1
Heavy Equipment Operators	0	2
Scientists	0	20
Aviation	0	5

SHIPS

USCGC POLAR STAR

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

Champion Class T-5 Tanker

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

M/V GREEN WAVE

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

R/V NATHANIAL B. PALMER

	<i>Number of Personnel</i>
Crew	21
Scientists	37

R/V LAURENCE M. GOULD

	<i>Number of Personnel</i>
Crew	21
Scientists	37

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 (AO-XXX-X, BM-XXX-X, etc.). The numbers in parentheses besides the principal investigator's name represent the anticipated number of additional field party members. Projects are listed by scientific discipline under each major field location or platform.

MCMURDO STATION - ONLY (387 Scientists)

Aeronomy & Astrophysics (34 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Adriani (+1)	AO-107-O	Instituto De Fisica Dell'Atmosfera
Deshler (+4)	AO-131-O	University of Wyoming
Piccirillo (+2)	AO-140-O	University of Wisconsin
Rust (+5)	AB-146-O	Johns Hopkins University, Applied Physics Lab
Peterzen (+13)	AB-145-O	National Scientific Balloon Facility (NSBF)
Lin (+3)	AB-144-O	University of California, Berkeley

Biology & Medical Research (133 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Ward (+4)	BO-310-O	Princeton University
Ponganis (+5)	BO-197-O	Scripps Institution of Oceanography
Green (+6)	BO-041-O	Miami University
Madigan (+2)	BO-195-O	Southern Illinois University
Priscu (+3)	BM-042-P	Montana State University, Bozeman
Fountain (+-2)	BM-042-F	Portland State University
Lyons (+4)	BM-042-L	University of Alabama
Manahan (+40)	BO-301-O	University of Southern California
Priscu (+5)	BO-025-O	Montana State University, Bozeman
Siniff (+7)	BO-009-O	University of Minnesota
Fritsen (+5)	BO-044-O	Desert Research Institute
Doran (+2)	BM-042-D	University of Chicago
DeVries (+7)	BO-005-M	University of Illinois
Davis (+8)	BO-017-O	Texas A & M University
Wall (+-5)	BM-042-W	Colorado State University
McKnight (+3)	BM-042-M	University of Colorado
Bowser (+6)	BO-043-O	New York State Department of Health
Virginia (+1)	BM-042-V	Dartmouth College

Environmental Research (6 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Kennicutt, II (+5)	EO-318-O	Texas A & M University

Geology & Geophysics (138 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Hammer (+3)	GO-074-O	Augustana College
Verosub (+6)	GL-075-O	University of California -- Davis
Marsh (+3)	GO-056-O	Johns Hopkins University
Krissek (+4)	GL-070-O	Ohio State University
Askin (+3)	GL-080-O	The Ohio State University
Luyendyk (+2)	GF-121-O	University of California
Whillans (+5)	GO-084-O	The Ohio State University
Watkins (+2)	GL-057-O	University of Nebraska, Lincoln
Mullins (+9)	GO-052-M	US Geological Survey
Raymond (+3)	GO-082-O	California Institute of Technology
Wilson (+3)	GL-079-O	The Ohio State University
Mulcahy (+3)	GO-078-O	GPS Co.
Anandakrishnan (+1)	GO-180-O	University of Alabama
Harvey (+7)	GO-058-O	Case Western Reserve University
Siddoway (+5)	GF-088-O	Colorado College
Apostolopoulos (+6)	GO-059-O	Carnegie Mellon University
Prentice (+3)	GO-063-O	University of New Hampshire
Goodge (+5)	GO-014-O	Southern Methodist University
Jarrard (+1)	GL-055-O	University of Utah
Marchant (+3)	GO-054-O	Boston University
Kyle (+7)	GO-081-O	New Mexico Institute of Mining and Technology
Webb (+5)	GL-049-O	The Ohio State University
Harwood (+2)	GL-051-O	University of Nebraska-Lincoln
Blankenship (+23)	GS-098-O	University of Texas at Austin

Glaciology (46 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Hall (+1)	IO-196-O	University of Maine
Harrison (+2)	IO-164-O	University of Alaska Fairbanks
Mayewski (+-3)	IU-153-B	University of New Hampshire
Bindschadler (+2)	IO-173-O	National Aeronautics and Space Administration
Whillans (+2)	IS-166-O	The Ohio State University
Waddington (+1)	II-171-O	University of Washington
Whillans (+4)	IO-169-O	The Ohio State University
Arcone (+0)	IU-311-O	US Army CRREL
Steig (+0)	IU-193-O	University of Pennsylvania
Dunbar (+5)	IO-151-O	New Mexico Institute of Mining & Technology
Hamilton (+1)	IU-178-O	The Ohio State University
Mayewski (+4)	IU-153-A	University of New Hampshire
Taylor (+2)	II-152-O	Desert Research Institute
Alley (+1)	IO-168-O	The Pennsylvania State University
Albert (+0)	IU-155-O	Cold Regions Research and Engineering Laboratory
Bales (+0)	IU-158-O	The University of Arizona
Jacobel (+1)	IU-133-O	St. Olaf College

Polar Information (10 Personnel)

	<u>I.D. No.</u>	<u>Institution</u>
Parker (+0)	WO-008-O	No affiliation
Bledsoe (+0)	WO-007-O	No affiliation
Wu (+6)	WO-317-O	No affiliation
Klipper (+0)	WO-009-O	No affiliation

Ocean & Climate Systems (10 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Stearns (+3)	OO-283-M	University of Wisconsin
Stearns (+1)	OO-202-O	University of Wisconsin
Dempsey (+3)	OO-316-O	Clarkson University

Polar Research Support (10 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Kuivinen (+9)	TI-150-B	University of Nebraska - Lincoln

MCMURDO STATION and R/V NATHANIEL B. PALMER

Biology & Medicine Program (34 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Bengtson (+6)	BE-198-A	National Marine Mammal Laboratory
Yochem (+1)	BE-230-O	Hubbs-Sea World Research Institute
Quetin (+4)	BE-198-D	University of California, Santa Barbara
Stewart (+1)	BE-229-O	Hubbs-Sea World Research Institute
Siniff (+4)	BE-309-O	University of Minnesota
Torres (+4)	BE-198-B	University of South Florida
Castellini (+2)	BE-199-O	University of Alaska Fairbanks
Jacobs (+4)	BE-198-C	Columbia University

MCMURDO AND SOUTH POLE STATIONS (17 Scientists)

Aeronomy and Astrophysics (11 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Rosenberg (+1)	AO-111-O	University of Maryland
Lanzerotti (+0)	AO-101-O	Bell Laboratories, Lucent Technologies
Abshire (+5)	AO-126-O	NASA Goddard Flight Center
LaBelle (+0)	AO-128-O	Dartmouth College
Arnoldy (+0)	AO-102-O	University of New Hampshire

Biology and Medicine Program (4 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Carpenter (+3)	BO-004-O	State University of New York at Stony Brook

Geology and Geophysics (2 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Johns (+1)	GO-295-O	UNAVCO/UCAR

MCMURDO, SOUTH POLE, USCG POLAR STAR

Aeronomy & Astrophysics (2 Scientists)

Bieber (+1)	AO-120-O	University of Delaware
-------------	----------	------------------------

MCMURDO STATION AND USCGC POLAR STAR

(9 Scientists)

Biology & Medicine Program (6 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Ainley (+9)	BO-031-O	H.T. Harvey & Associates
Bengtson (+4)	BE-198-A	National Marine Mammal Laboratory

Polar Ocean and Climate Systems (3 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Wendler (+2)	OO-263-O	University of Alaska Fairbanks

MCMURDO STATION AND VOSTOCK STATIONS

Aeronomy & Astrophysics (3 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Papitashvili (+2)	AO-105-O	University of Michigan

OTHER NATIONAL ANTARCTIC PROGRAM STATIONS

(14 Scientists)

Aeronomy and Astrophysics (2 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Fritts (+1)	AO-113-O	Colorado Research Associates

Biology and Medicine Program (9 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Costa (+3)	BO-267-O	University of California Santa Cruz
Trivelpiece (+4)	BO-040-O	NOAA

Polar Ocean and Climate Systems (3 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Pilskaln (+3)	OO-278-O	University of Maine

PALMER STATION - ONLY (28 Scientists)

Aeronomy and Astrophysics (4 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Pilskaln (+3)	OO-278-O	University of Maine

Biology and Medicine Program (15 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Ricchiuzzi (+2)	BO-279-O	University of California Santa Barbara
Jeffrey (+7)	BO-200-O	University of West Florida
McClintock (+5)	BO-022-O	University of Alabama at Birmingham

Geology and Geophysics (2 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Mullins (+0)	GO-052-P	US Geological Survey
Butler (+0)	GO-091-O	Incorporated Research Institutions for Seismology

Polar Information (2 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Quin (+1)	WO-004-O	No affiliation

Polar Climate and Ocean Systems (5 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Rasmussen (+0)	OO-254-O	Oregon Graduate Institute of Science and
Sanderson (+0)	OO-275-O	U.S. Department of Energy
Peterson (+0)	OO-264-O	National Oceanic and Atmospheric Administration
Stearns (+0)	OO-283-P	University of Wisconsin
Keeling (+0)	OO-204-O	University of California, San Diego

PALMER STATION and R/V LAURENCE M. GOULD

Biology and Medicine Program (25 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Vernet (+7)	BP-016-O	Scripps Institution of Oceanography
Fraser (+4)	BP-013-O	Montana State University
Quetin (+7)	BP-028-O	University of California, Santa Barbara
Smith (+3)	BP-032-O	University of California, Santa Barbara

R/V LAURENCE M. GOULD - ONLY (27 Scientists)

Biology and Medicine Program (23 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Scheltema (+3)	BO-281-O	Woods Hole Oceanographic Institution
Martinson (+-1)	BP-021-O	Columbia University
Smith (+16)	BO-050-O	University of California at San Diego

Polar Ocean and Climate Systems (4 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Visbeck (+0)	OO-124-O	Columbia University

Peterson (+0)	OO-260-O	University of California San Diego
Sturz (+1)	OO-319-O	University of San Diego

R/V NATHANIEL B. PALMER - ONLY (67 Scientists)

Biology and Medicine Program (14 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Gowing (+1)	BX-039-O	University of California, Santa Cruz
Gowing (+3)	BX-325-O	University of California, Santa Cruz
Grebmeier (+1)	OR-216-E	The University of Tennessee
Caron (+4)	BO-207-O	Woods Hole Oceanographic Institution
DiTullio (+1)	BR-272-O	University of Charleston

Geology and Geophysics (48 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Cande (+4)	GO-071-O	University of California, San Diego
Kellogg (+8)	GO-307-O	University of Maine
Austin (11)	GO-306-O	The University of Texas at Austin
Domack (+16)	GO-096-O	Hamilton College
Wiens (+4)	GO-097-O	Washington University

Polar Ocean and Climate Systems (5 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Jacobs (+4)	OO-274-O	Columbia University

R/V NATHANIEL B. PALMER and R/V LAURENCE M. GOULD (35 Scientists)

Biology and Medicine Program (32 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Demaster (+5)	BO-313-O	North Carolina State University
Karl (+6)	BP-046-O	University of Hawaii
Smith (+18)	BO-303-O	University of Hawaii at Manoa

Polar Ocean & Climate Systems (3 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Chereskin (+2)	OO-315-O	University of California, San Diego

SOUTH POLE STATION - ONLY (190 Scientists)

Aeronomy & Astrophysics (157 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Mende (+0)	AO-104-O	University of California
Stark (+12)	AC-371-O	Smithsonian Institution
Meyer (+9)	AC-370-O	University of Chicago
Loewenstein (+1)	AC-374-O	University of Chicago
Dezafra (+1)	AO-138-O	State University of New York at Stony Brook
Papen (+3)	AO-127-O	University of Illinois
Gaisser (+2)	AO-109-O	University of Delaware
Loewenstein (+13)	AC-372-O	University of Chicago
Peterson (+16)	AC-375-O	Carnegie-Mellon University
Carlstrom (+13)	AC-373-O	University of Chicago
Morse (+68)	AA-130-O	University of Wisconsin
Inan (+1)	AO-108-O	Stanford University
Ejiri (+2)	AO-117-O	National Institute of Polar Research
Hernandez (+2)	AO-110-O	University of Washington

Geology & Geophysics (4 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Butler (+1)	GO-090-O	Incorporated Research Institutions for Seismology
Mullins (+1)	GO-052-S	US Geological Survey

Ocean & Climate Systems (16 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Warren (+4)	OO-201-O	University of Washington
Bales (+1)	OO-324-O	The University of Arizona

Hofmann (+8) OO-257-O National Oceanic and Atmospheric
Administration

Polar Research Support (13 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Kuivinen (+12)	TA-150-A	University of Nebraska - Lincoln

V. Armaments

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

McMurdo Station

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

Palmer Station

- 2 pistols, 38-caliber, Smith and Wesson [SN: 2D09672; SN: 2D06268]
- 1 shotgun, 12-gauge, Magnum, pump action, Remington [SN: S346543M]
- 1 shotgun, 12-gauge, double barrel, Centrure Liege [SN: 6633]
- 1 shotgun, 12-gauge, over and under, Fabrica Haliana [SN: 77978]
- 1 mini ranch rifle, 223-calibre, Ruger [SN: 188-32652]

Note: SN = Serial Number

South Pole Station

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

R/V NATHANIEL B. PALMER

No armaments are currently onboard the R/V NATHANIEL B. PALMER.

R/V LAURENCE M. GOULD

No armaments are currently onboard the R/V LAURENCE M. GOULD.

VI. Project Descriptions

*Section VI details the planned field research projects for the
1999-2000 season and is available in Appendix II
of this document.*

VII. Scientific Equipment

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

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Astrophysics Aeronomy						
Analyzer, Logic		X				
Antenna, VLF Loop		X	X			
Camera, All-Sky		X				
Centrifuge, Refrigerated 12K RPM Micro				X	X	
Chart Recorder, Eight Channel		X				
Cryogen, Transfer Equipment	X	X	X	X	X	
Cryogen Transfer Lines	X	X				
Data Acquisition Unit (DAU)						X
Data Control Unit (DCU)						X
Dewar, Liquid Helium	X	X				
Dewar, Liquid Helium Storage	X	X				
Dewar, Liquid Nitrogen Storage	X	X				
Heating Unit, Air		X				
Interferometer		X				
Ionosonde, Digital		X				
Leak Detection and Vacuum Pump Equipment		X				
Lidar	X	X				
Line Connector, 1.2 KVA		X				
Liquid Nitrogen Plant	X	X				

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Magnetometer, Three Component Air Core Induction		X				
Magnetometer, Three Axis Fluxgate	X					
Neutron Monitor, Super Multisection	X	X				
Nitrogen Liquifier	X	X				
Oscilloscope	X	X	X	X	X	
Photometer, Auroral		X				
Power Conditioner		X		X	X	
Pump, Turbomolecular	X	X				
Radiotelescope, Microwave		X				
Receiving System, VLF			X			
Riometers, 30 & 50 MHz	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			
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				

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Telescope, Optical		X				
Telescope, Submillimeter		X				
Telescopes, Astronomical		X				
Thermal Electric Generator (TEG)					X	
Time Domain Reflectometer (TDR)		X				
Transport, Liquid Helium (leased)		X				
Transport, Liquid Nitrogen	X	X				
Uninterrupted Power Supply (UPS)	X	X	X			
Water Chiller		X				
Biology						
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					
Autoanalyzer			X	X	X	
Autoclave	X	X	X	X	X	
Balance, Electronic	X	X	X	X	X	
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

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Camera, Video, for Microscopy	X				X	
Camera, Video, Underwater, w/time lapse capability and remote viewing	X		X			
Cell Disrupter	X		X			
Cell Injector, Micro	X					
Centrifuge, Clinical	X		X	X	X	
Centrifuge, 20K RPM	X		X			
Centrifuge, Refrigerated Speed Vac	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					
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	
Counter, Gamma	X					
Counter, Geiger Muller	X		X	X	X	
Counter, Particle	X		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	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Deck Unit/Transducer	X			X	X	
Detector, Column Absorbance	X					
Dewar, Liquid Nitrogen Storage	X		X	X	X	
Dive Propulsion Systems	X					
Dry Ice Maker	X		X	X		
Dry Shippers, Liquid Nitrogen	X		X	X	X	
Electrocardiograph	X	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	
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	X	
Ice Maker			X	X		
Incubator,Hybridization	X					

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Incubator, Low Temperature	X		X	X	X	
Incubator, Percival				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					
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	
Microscope, Dissecting (for light/dark field microscopy)	X	X	X	X	X	
Microscope, Compound (for phase contrast microscopy)	X		X			
Microscope, Image Analysis System	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	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Osmometer, Vapor Pressure	X		X			
Oven	X	X	X	X	X	
Oxygen-Analyzing System	X		X		X	
Photometer, Integrating (for ATP)	X					
Photometer, Flame	X					
Photosynthesis System	X					
Phototransilluminator	X		X			
Processor, Tissue	X		X			
Projector, Digital	X		X			
Pump, Suction		X	X	X	X	
Pump, Vacuum	X		X	X	X	
Pyranometer	X			X	X	
Pyrgeometer	X			X	X	
Receiver, ATS	X		X			
Receiver, VHF Radio	X		X	X	X	
Recorders, EPC Analog				X	X	
Refrigerator, Explosion Proof	X		X	X	X	
Respirometer, Gilson	X		X			
Scale, Platform, Sled Mountable	X					
Sensor, Irradiance (for dry use)	X		X	X	X	
Sensor, Irradiance (for submersible use)	X		X	X	X	
Sequencing System	X					
Spectrophotometer, Atomic Absorption	X					
Spectrophotofluorometer	X		X	X	X	
Spectrophotometer	X		X	X	X	
Spectrophotometer, Diode Array	X					
Spectroradiometer	X		X	X	X	
Stage, Cooling, Microscope	X		X			
Thermocycler	X		X			

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
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					
Computers						
<u>MacIntosh:</u>						
Computer, G3	X					
Computer, iMac	X					
Computer, Desktop, LC		X				
Computer, Desktop, IICI	X		X		X	
Computer, Desktop, Pentium		X				
Computer, Portable, Powerbook 170	X		X			
Computer, Power 604 Clone	X			X	X	
Computer, Powerbook 5300c	X		X	X		
Computer, Quadra, 700	X					
Computer, Quadra 950	X	X				
Computer, Classic		X				
Macintosh Power PC 63					X	
Macintosh, Duo Power PC, Portable				X		
Macintosh Power PC 7100	X	X			X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Macintosh Power PC 7200	X		X			
Macintosh Power PC 7300				X		
Macintosh Power PC 8150						
Macintosh Power PC 8600				X		
Macintosh Power PC 9500					X	
<u>Mini:</u>						
DEC Microvax	X	X	X			
DEC PDP-II	X	X				
DEC PDP II-73		X				
<u>PC:</u>						
Computer, Desktop, XT	X	X	X			
Computer, Desktop, 286	X	X	X	X		
Computer, Desktop, 386	X	X	X	X	X	
Computer, Desktop, 486	X	X	X	X	X	
Computer, Desktop, Pentium	X		X	X	X	
Computer, Portable, 286	X					
Computer, Portable, 386	X		X		X	
Computer, Portable, 486	X		X	X	X	
Computer, Portable, 586	X					
Computer, Server, 486	X	X	X			
Computer, Server, 586	X			X	X	
<u>Workstation:</u>						
HP 9000			X			
SGI 02					X	
SGI Challenge L (Multibeam computers)					X	
SGI Indigo R3000						
SGI Iris	X				X	
SPARC IPX	X	X				
Sun SPARC 10	X					

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
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	
Laser	X	X	X	X	X	
Miscellaneous						
CDRom - R	X		X	X	X	
CD Writer	X		X			
Computer Interface						
Magneto-optical Drive	X				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	
Environmental Monitoring						
Acoustic Release	X			X	X	
Aethelometer		X				
Analyzer, CO	X				X	
Analyzer, NOx	X					
Analyzer, Pesticide/PUF	X					
Analyzer, SO ₂	X					
Calibration System, Multigas	X				X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Concentrator, Turbo-Vap II	X					
Current Meter	X			X	X	
Deck unit/Transducer	X			X	X	
Sampler, Air, Hi-Vol.	X					
Water Quality Logging System	X					
Water Quality System	X		X			
Geology/Geophysics						
Ball Mill	X					
Chronology Clock				X	X	
Data Translation D/A Converters				X	X	
Diamond Drill and Associated Equipment	X					
Echo Sounder, Knudsen, Sub-bottom Profiler				X		
Echo Sounder, Bathy 2000 "chirp" sub-bottom profiler					X	
Echo Sounder, Simrad EK500					X	
Gravimeter, Portable					X	
Gravimeter, Sea Fixed					X	
Heliocoder	X					
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	
Recorders, EPC Analog				X	X	
Rock Saws	X			X		
Rock Polisher, Automatic	X			X		

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Seismic, Benthos, Single Channel					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			
Swath bathymetric mapping system					X	
Thin-Section Machine	X			X		
Time Standard		X	X		X	
X-ray Instrument, Diffraction	X					
Geomagnetism						
Antennas, Dipole		X				
Gradiometer, Magnetic--towed					X	
Magnetometer, Portable	X	X				
Magnetometer, Quartz, Horizontal		X				
Magnetometer, Standard Induction		X				
Magnetometer, Towed					X	
Magnetograph, Three-component, Standard, Low Sensitivity		X				
Magnetograph, Three-component, Rapid Run, Low Sensitivity		X				
Magnetometer, Visible Recording		X	X			
Time Standard		X		X	X	
Glaciology						
Drill, Jiffy w/ Power Head	X		X		X	
Drill, Shallow (100 meters)	X					
Drill, Ice Coring, Intermediate (500-1000m)	X					

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Generator, Shear Wave	X					
Geoceivers	X	X				
Ice Auger, SIPRE	X	X	X			
Rigsby Stage	X					

Meteorology						
Barometers	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			
Pyrgeometers	X					
Pyranometer	X		X		X	
Radiotheodolite System, Automatic		X				
Receiver, High Resolution Picture	X		X			
Transmission (HRPT)						
Recorder, Four-Channel		X				
Satellite Receiving Data Manipulation System	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			
Temperature Thermometers	X	X	X	X	X	
Transmitters, PTT	X					
Weather Station	X		X			
Weather Stations, Automatic	X	X	X			
Weather System				X	X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Wind System and Recorder with Transmitter	X		X	X	X	
Wind Anemometers	X	X	X	X	X	
Wind Indicators	X	X	X	X	X	
Wind Translators		X		X	X	

Oceanography/Limnology						
A-Frame				X	X	
Acoustic Doppler Current Profiler				X	X	
Acoustic Release with Surface Command Unit	X		X	X	X	
Nutrient Analyzer	X		X	X	X	
Bottom Imaging System, Multibeam					X	
Conductivity Temperature Depth Instrument (CTD)	X		X	X	X	
Current Meter, Electromagnetic	X					
Data Acquisition System	X			X	X	
Deep Sea Coring System				X	X	
Depth Finder	X		X	X	X	
Echo Sounder, Biosonics Acoustic Profiler			X			
Go-Flo Bottles	X		X	X	X	
Gradiometer, Magnetic					X	
Hood Laminar Flow, Portable			X		X	
Hydraulic Boom				X	X	
Hydrodavit				X	X	
Inflatable Boat, Zodiac			X	X	X	
Isotope Van				X	X	
Jumbo Depth Finder						
Laboratory Van				X	X	
Launcher, XBT				X	X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>
Lhe Vapor Recovery System		X				
Magnetometers	X				X	
Messenger	X		X	X	X	
Metering Sheave	X		X	X	X	
Niskin Bottle	X		X	X	X	
PDR System, 3.5 and 12 KHz				X	X	
Plankton Net	X		X	X	X	
Pressure Transducer	X			X	X	
Radar				X	X	
Rosette				X	X	
Salinometer	X		X	X	X	
SAT P-Code GPS				X	X	
SAT VAV/GPS				X	X	
Satellite Navigation				X	X	
Seismic Systems, Single and Multi-channel					X	
Sonar, Side Scan				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			
Seismology						
Gravimeters, Earth Tide						
Gravimeter		X				
Gravimeter, Lacoste & Romberg (Marine)					X	
IRIS System		X	X			
Receiver, GPS	X	X	X	X	X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> ³
Seismograph	X	X	X			
Other						
Cryogen Vaporizer	X					
Data Link, Satellite	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	
Handheld Global Positioning System	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					
Projector, Video	X			X	X	
Resistors and Capacitors, Decade	X			X	X	
Scanner	X	X			X	
Tracking System, Satellite	X	X	X			
Transceivers, Satellite, ATS-3	X	X	X	X		
Un-interruptable power supply (UPS)	X	X	X	X	X	
Video Camcorder	X	X	X		X	X

1 = R/V LAURENCE M. GOULD

2 = R/V NATHANIEL B. PALMER

3 = AUTOMATED GEOPHYSICAL OBSERVATORY

VIII. Transportation & Comms

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

Surface, Marine, and Air Transportation Vehicles

McMurdo Station

Truck, (light and heavy)	177
Carrier, Personnel and Cargo (tracked and wheeled)	43
Trailer, (tracked and wheeled)	39
Front-end loader, bucket and forklift	45
Forklift, warehouse	20
Motor toboggans	90
Crane	2
Road grader	4
Roller	4
Tractor, crawler	25
Tractor, wheeled	2
Sweeper, magnet	1
Snow plane	6
Truck, fire, pumper	8
Trencher	2
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
Front Loader, tracked	7
Motor Toboggans	2
Personnel Carrier	5
Snow Plane	2
Tractor Crawler	3
Truck, light and heavy	2
Trencher	1

Palmer Station

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

Description of Communications Facilities

Note: For information on frequencies, see attached Comms forms (Attachment A). The following projects are contemplated for the FY99-2000 season in Antarctica.

McMurdo Station

1. Support DMSP/MGS T-1 satellite communications channel implementation.
2. Receive and install 2 additional refurbished AN/FRT-83 transmitters.
3. Install GOES-3 terminal, ATS-3 terminal, and VoIP telephone at Byrd Surface Camp.

4. Support construction of long-wire HF antenna.
5. Install stub tower and antennas on Crater Hill, antennas at T-Site in support of SPAWAR ATC and weather projects.
6. Install fiber optics cable to Arrival Heights B-197 and Telecom NZ earth station.
7. Monitor performance of all IT systems and facilities at Y2K date transition.

South Pole Station

1. Connect the DASI telescope and supporting buildings to station communications and networking services.
2. Provide telephone and LAN connectivity to the AMANDA project portable buildings.
3. Install a high speed subnet to support large data file transfers for the AMANDA project and provide connectivity to current station systems.
4. Monitor performance of all IT systems and facilities at Y2K date transition.

Palmer Station

1. Monitor performance of all IT systems and facilities at Y2K date transition.

Description of Airfields

McMurdo Station

Air Facilities

1. Williams Field - 10,000 ft. and 8,000 ft. skiways on ice shelf.
2. 10,000 ft. and 8,000 ft. ice runways (on annual sea ice)

3. Helicopter landing pad.

Crash Equipment

1. Two Canadian Foremost Chieftains, 1200 gallons AFFF (ea)
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 Pumper/Tanker, 3,400 gallons of water.
7. Two Pumpers, 750 gallons (H2O), 1000 GPM

Navigation Aids

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

Amundsen-Scott South Pole Station

Air Facilities

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. One 350 lb. dry chemical unit.
2. One 150 lb. dry chemical unit (PKP).

Navigation Aids

None.

IX. Assistance Facilities

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

McMurdo Station

Medical Facilities

During the winter-over period there is a six-bed medical and dental facility with 1 doctor and 2 medical assistants. 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 physicians, 2 physicians' assistants or nurse practitioners, 1 dentist and dental assistant, 1 radiographic technician, 1 laboratory technician, 1 physical therapist, and 4 emergency medical responders. These personnel are augmented with up to 40 emergency medical technicians assigned to the Fire Department.

Transport Services

From October to mid-December, airlift from McMurdo to Christchurch via C-5, C-141, and C-130 aircraft is available. From mid-December to mid-February, airlift by LC-130 aircraft is available. Possibility of transport via surface when 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

1 civilian doctor is on-station at South Pole year round.

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.

Palmer Station

Medical Facilities

1 civilian doctor is on-station at Palmer Station year round.

Transport Services

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

Available Shelter

Two buildings comprise the available shelter at Palmer Station.

Marble Point Camp

Medical Facilities

None

Transport Services

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

Available Shelter

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

X. Tourism

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

Abercrombie & Kent International, Inc.

Explorer Shipping Corporation and Abercrombie & Kent International, Inc. of Oak Brook, Illinois, are planning ten cruises to the Antarctic Peninsula during the 1999-2000 season using the M/S Explorer.

M/S EXPLORER

Call letters of the vessel are ELJD8; registry is Liberian. The Explorer was built in 1969 and is 72.86 meters in length, 14.02 meters in breadth, has a draft of 4.48 meters, and has a Det Norske Veritas +1A1 ICE-A rating. Power is provided by two MAK diesel engines of 1800 hp each, driving a single variable-pitch propeller, type LIANEN - 450 rpm. Navigation equipment includes a Decca radar 10cm, a Raytheon radar 3cm, a JCR radar 3cm, a Satellite Navigation System (SATNAV) and a Trimble global positioning system (GPS). The vessel has two primary transmitters (Main - ST1680A Marine Mobil Bands, 1500 W Pp; Emergency - EB50, 500 W) and 2 VHF Transceivers STR 67 25 W and a VHF Transceiver Shipmate RS 8000 25 W. INMARSAT number is 1241223 SOEX-X (with voice, telex and telefax capability). Explorer carries 9 Mark V heavy duty zodiacs, 4 motor life boats for 196 persons, and 4 automatically inflated life rafts for 66 persons. The vessel can accommodate 85-96 passengers, 10 cruise staff, and 60 crew.

Schedules for each of the cruises follows:

Cruise EX-#1

November 1999

Ports	Dates
Port Stanley, FALKLAND ISLANDS	07 NOV 1999
Southeast Falklands	08 NOV 1999
At sea	09 NOV 1999
At sea	10 NOV 1999
South Georgia	11-13 NOV 1999
at sea	14 NOV 1999
South Orkneys	15 NOV 1999
Antarctic Peninsula	16-19 NOV 1999
at sea	20-21 NOV 1999
Ushuaia, ARGENTINA	22 NOV 1999

Cruise EX-#2

November/December 1999

Ports	Dates
Ushuaia, ARGENTINA	22 NOV 1999
at sea	23-24 NOV 1999
Antarctic Peninsula	25-29 NOV 1999
at sea	30 NOV - 01 DEC 1999
Ushuaia, ARGENTINA	02 DEC 1999

Cruise EX-#3

December 1999

Ports	Dates
Ushuaia, ARGENTINA	02 DEC 1999
at sea	03-04 DEC 1999
Antarctic Peninsula	05-09 DEC 1999
Drake Passage (at sea)	10-11 DEC 1999
Ushuaia, ARGENTINA	12 DEC 1999

Cruise EX-#4

December 1999

Ports	Dates
Ushuaia, ARGENTINA	12 DEC 1999
at sea	13-14 DEC 1999
Antarctic Peninsula	15-19 DEC 1999
at sea	20-21 DEC 1999
New & Carcass Islands, Falklands	22 DEC 1999
Port Stanley, FALKLAND ISLANDS	23 DEC 1999

Cruise EX-#5

December 1999/January 2000

Ports	Dates
Port Stanley, FALKLAND ISLANDS	23 DEC 1999
Carcass/New Island	24 DEC 1999
at sea	25-26 DEC 1999
Antarctic Peninsula	27 DEC - 01 JAN 2000
Drake Passage (at sea)	02-03 JAN 2000
Ushuaia, ARGENTINA	04 JAN 2000

Cruise EX-#6

January 2000

Ports	Dates
Ushuaia, ARGENTINA	04 JAN 2000
Drake Passage (at sea)	05-06 JAN 2000
Antarctic Peninsula	07-11 JAN 2000
at sea	12-13 JAN 2000
Ushuaia, ARGENTINA	14 JAN 2000

Cruise EX-#7

January/February 2000

Ports	Dates
Ushuaia, ARGENTINA	14 JAN 2000
at sea	15-16 JAN 2000

Antarctic Peninsula	17-21 JAN 2000
At sea	22-23 JAN 2000
Ushuaia, ARGENTINA	24 JAN 2000

Cruise EX-#8
January/February 2000

Ports	Dates
Ushuaia, ARGENTINA	24 JAN 2000
At sea	25-26 JAN 2000
Antarctic Peninsula	27-30 JAN 2000
South Orkneys	31 JAN 2000
at sea	01 FEB 2000
South Georgia	02-04 FEB 2000
At sea	05-06 FEB 2000
Southeast Falklands	07 FEB 2000
Port Stanley, FALKLAND ISLANDS	08 FEB 2000

Cruise EX-#9
February 2000

Ports	Dates
Port Stanley, FALKLAND ISLANDS	08 FEB 2000
Carcass/New Island	09 FEB 2000
At sea	10-11 FEB 2000
Antarctic Peninsula	12-18 FEB 2000
at sea	19-20 FEB 2000
Ushuaia, ARGENTINA	21 FEB 2000

Cruise EX #10
February /March 2000

Ports	Dates
Ushuaia, ARGENTINA	21 FEB 2000
at sea	22-23 FEB 2000
Antarctic Peninsula	24-27 FEB 2000
South Orkneys	28 FEB 2000

at sea	29 FEB 2000
South Georgia	01-03 MAR 2000
At sea	04-05 MAR 2000
Southeast Falklands	06 MAR 2000
Port Stanley, FALKLAND ISLANDS	07 MAR 2000

Society Expeditions

Society Expeditions of Seattle, Washington, is planning seven cruises to the Antarctic Peninsula during the 1999-2000 season using the M/V World Discoverer.

M/V WORLD DISCOVERER

The vessel is registered in Liberia; call sign is ELDU3. The vessel is 87 meters in length, 15.20 meters in breadth and has a draft of 4.45 meters. Power is provided by two non-reversible "MAK" 8m452 diesel engines driving one "KAMEWA" propeller through clutches and reduction gear with total output of 2 x 2,400 bhp at 500 rpm. The vessel is equipped with a main transmitter for single side band voice and telegraphy, continuous between 10 kHz and 30 MHz. There are emergency transmitters and receivers and one VHF transceiver with 63 channels. INMARSAT number is 1242744 DISC X. The World Discoverer carries four 25-person SOLAS inflatable life rafts, two launches with capacity for 70 passengers and 3 crew apiece, two life boats with 30-person capacity and ten rubber boats with a capacity for 15 persons each. World Discoverer can accommodate approximately 120-130 passengers and 75 crew.

Schedules for each of the cruises follows:

Cruise WD-#1

November/December 1999

Ports	Dates
Punta Arenas, CHILE	21 NOV 1999
at sea	22-24 NOV 1999
Antarctic Peninsula	25-20 NOV 1999
At sea	31 NOV – 01 DEC 1999
Ushuaia, ARGENTINA	02 DEC 1999

Cruise WD-#2
December 1999

Ports	Dates
Ushuaia, ARGENTINA	02 DEC 1999
At sea	03-04 DEC 1999
Antarctic Peninsula	05-09 DEC 1999
Elephant Island	10 DEC 1999
South Orkneys	11 DEC 1999
At sea	12 DEC 1999
South Georgia	13-15 DEC 1999
At sea	16-17 DEC 1999
Sea Lion and Bleak Islands	18 DEC 1999
Port Stanley, FALKLAND ISLANDS	19 DEC 1999

Cruise WD-#3
December 1999/January 2000

Ports	Dates
Port Stanley, FALKLAND ISLANDS	19 DEC 1999
Bleak and Sea Lion Islands	20 DEC 1999
At sea	21-22 DEC 1999
South Georgia	23-25 DEC 1999
At sea	26 DEC 1999
Antarctic Peninsula	27 DEC 1999-02 JAN 2000
At sea	03-04 JAN 2000
Ushuaia, ARGENTINA	05 JAN 2000

Cruise WD-#4
January 2000

Ports	Dates
Ushuaia, ARGENTINA	05 JAN 2000
at sea	06-07 JAN 2000
Antarctic Peninsula	08-12 JAN 2000
At sea	13-14 JAN 2000
Ushuaia, ARGENTINA	15 JAN 2000

Cruise WD-#5
January/February 2000

Ports	Dates
Ushuaia, ARGENTINA	15 JAN 2000
at sea	16 JAN 2000
West Point/Carcass Islands	17 JAN 2000
Port Stanley, Falkland Islands	18 JAN 2000
At sea	19-20 JAN 2000
South Georgia	21-23 JAN 2000
At sea	24 JAN 2000
Antarctic Peninsula	25-30 JAN 2000
At sea	31 JAN – 01 FEB 2000
Ushuaia, ARGENTINA	02 FEB 2000

Cruise WD-#6
February 2000

Ports	Dates
Ushuaia, ARGENTINA	02 FEB 2000
At sea	03 FEB 2000
West Point and Carcass Islands	04 FEB 2000
Port Stanley	05 FEB 2000
At sea	06-07 FEB 2000
South Georgia	08-10 FEB 2000
At sea	11 FEB 2000
South Orkneys	12 FEB 2000
Elephant Island	13 FEB 2000
Antarctic Peninsula	14-17 FEB 2000
At sea	18-19 FEB 2000
Ushuaia, ARGENTINA	20 FEB 2000

Cruise WD-#7
February/March 2000

Ports	Dates
Ushuaia, ARGENTINA	20 FEB 2000
At sea	21 FEB 2000
West Point and Carcass Islands	22 FEB 2000

Port Stanley	23 FEB 2000
At sea	24-25 FEB 2000
South Georgia	26-27 FEB 2000
At sea	28 FEB 2000
South Orkneys	29 FEB 2000
Elephant Island	01 MAR 2000
Antarctic Peninsula	02-05 MAR 2000
At sea	06-08 MAR 2000
Punta Arenas, CHILE	09 MAR 2000

Quark Expeditions

Quark Expeditions of Darien, Connecticut, is planning approximately 19 cruises to the Antarctic during 1999-2000 season using three chartered vessels. The Professor Multanovskiy will conduct 9 cruises, the Vavilov will conduct 8, and the Kapitan Khlebnikov will conduct two cruises.

PROFESSOR MULTANOVSKIY

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 Multanovskiy 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 follows:

Cruise MUL #1

November 1999

Port	Dates
Ushuaia, ARGENTINA	18 NOV 1999
At sea	19 NOV 1999
Falkland Islands	20-21 NOV 1999
At sea	22-23 NOV 1999
South Georgia	24-27 NOV 1999

At sea	28-29 NOV 1999
Antarctic Peninsula	30 NOV – 03 DEC 1999
At sea	04-05 DEC 1999
Ushuaia, ARGENTINA	06 DEC 1999

Cruise MUL #2
December 1999

Port	Dates
Ushuaia, ARGENTINA	06 DEC 1999
at sea	07-08 DEC 1999
Antarctic Peninsula	09-13 DEC 1999
At sea	14-15 DEC 1999
Ushuaia, ARGENTINA	16 DEC 1999

Cruise MUL #3
December 1999

Port	Dates
Ushuaia, ARGENTINA	16 DEC 1999
At sea	17-18 DEC 1999
Antarctic Peninsula	19-23 DEC 1999
Drake Passage (at sea)	24-25 DEC 1999
Ushuaia, ARGENTINA	26 DEC 1999

Cruise MUL #4
December 1999/January 2000

Port	Dates
Ushuaia, ARGENTINA	26 DEC 1999
Drake Passage (at sea)	27-28 DEC 1999
Antarctic Peninsula	29 DEC – 04 JAN 2000
Drake Passage (at sea)	05-06 JAN 2000
Ushuaia, ARGENTINA	07 JAN 2000

Cruise MUL #5
January 2000

Port	Dates
Ushuaia, ARGENTINA	07 JAN 2000

At sea	08 JAN 2000
Saunders & New Islands	09 JAN 2000
At sea	10-11 JAN 2000
Antarctic Peninsula	12-15 JAN 2000
At sea	16-17 JAN 2000
Ushuaia, ARGENTINA	18 JAN 2000

Cruise MUL #6
January/February 2000

Port	Dates
Ushuaia, ARGENTINA	18 JAN 2000
at sea	19 JAN 2000
New Island/Carcass Island	20 JAN 2000
Port Stanley, Falkland Islands	21 JAN 2000
South Georgia	24-27 JAN 2000
at sea	28-29 JAN 2000
Antarctic Peninsula	30 JAN – 02 FEB 2000
At sea	03-04 FEB 2000
Ushuaia, ARGENTINA	05 FEB 2000

Cruise MUL #7
February 2000

Port	Dates
Ushuaia, ARGENTINA	05 FEB 2000
Drake Passage (at sea)	06-07 FEB 2000
Antarctic Peninsula	08-12 FEB 2000
Drake Passage (at sea)	13-14 FEB 2000
Ushuaia, ARGENTINA	15 FEB 2000

Cruise MUL #8
February 2000

Port	Dates
Ushuaia, ARGENTINA	15 FEB 2000
Drake Passage (at sea)	16-17 FEB 2000

Antarctic Peninsula	18-22 FEB 2000
Drake Passage (at sea)	23-24 FEB 2000
Ushuaia, ARGENTINA	25 FEB 2000

Cruise MUL #9
February 2000

Port	Dates
Ushuaia, ARGENTINA	25 FEB 2000
at sea	26-27 FEB 2000
Antarctic Peninsula	28 FEB – 03 MAR 2000
at sea	04-05 MAR 2000
South Georgia	06-09 MAR 2000
At sea	10-11 MAR 2000
Port Stanley, FALKLAND ISLANDS	12 MAR 2000

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 a 8.5 meter draft and displacement of 18,000 tons. The vessel is powered by diesel-electric motors producing 22,000 h.p. 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 follows:

Cruise KLB #1
December 1999/January 2000

Port	Dates
Lyttleton, NEW ZEALAND	15 DEC 1999
at sea	16 DEC 1999
Enderby Island	17 DEC 1999
Campbell Island	18 DEC 1999

At sea	19-20 DEC 1999
Pack ice edge	21-22 DEC 1999
Cape Adare	23 DEC 1999
Cape Washington/Terra Nova Bay	24 DEC 1999
Franklin Island/Ross Ice Shelf	25 DEC 1999
Cape Royds/Cape Evans	26 DEC 1999
Dry Valleys	27 DEC 1999
At sea/Coulman Island/Cape Hallett	28 DEC 1999
Cape Hallett/Cape Roget	29 DEC 1999
Pack ice	30 DEC 1999
Millennium Site	31 DEC 1999
Balleny Islands	01 JAN 2000
At sea	02-03 JAN 2000
Macquarie Island	04-06 JAN 2000
At sea	07-08 JAN 2000
Hobart, AUSTRALIA	09 JAN 2000

Cruise KLB #2

January/February 2000

Port	Dates
Hobart, AUSTRALIA	09 JAN 2000
at sea	10-11 JAN 2000
Macquarie Islands	12-13 JAN 2000
At sea	14-15 JAN 2000
Balleny Island	16 JAN 2000
Cape Adare	17 JAN 2000
Campbell Glacier/Terra Nova Bay/Drygalskiy	18 JAN 2000
Dry Valleys/Cape Evans	19 JAN 2000
Cape Evans/McMurdo/Scott/Cape Royds	20 JAN 2000
Ross IceShelf/Franklin Island	21 JAN 2000
Coulman Island/Cape Hallett	22 JAN 2000
Cape Hallett/Cape Roget	23 JAN 2000
Possession Island	24 JAN 2000
At sea	25-27 JAN 2000

Campbell Island	28 JAN 2000
Enderby Island	29 JAN 2000
At sea	30-31 JAN 2000
Hobart, AUSTRALIA	01 FEB 2000

PROFESSOR SERGEY VAVILOV

The vessel is registered in Russia. It has an overall length of 117 meters, a breadth of 18.2 meters and a draft of 5.9 meters. The vessels has two 5,000 diesel engines and twin propellers. Her ice classification is KM*L1[1]A1, Canadian type B. The Vavilov can carry up to 80 passengers and has a crew of 52.

Schedules for each of the cruises follows:

Cruise VAV #1 December 1999

Port	Dates
Ushuaia, ARGENTINA	09 DEC 2000
At sea	10-11 DEC 2000
Antarctic Peninsula	12-15 DEC 2000
At sea	16-17 DEC 2000
Ushuaia, ARGENTINA	18 DEC 2000

Cruise VAV #2 December 1999

Port	Dates
Ushuaia, ARGENTINA	18 DEC 2000
At sea	19-20 DEC 2000
Antarctic Peninsula	21-25 DEC 2000
At sea	26-27 DEC 2000
Ushuaia, ARGENTINA	28 DEC 2000

Cruise VAV #3

December 1999/January 2000

Port	Dates
Ushuaia, ARGENTINA	28 DEC 2000
At sea	29-30 DEC 2000
Antarctic Peninsula	31 DEC – 06 JAN 2000
At sea	07-08 JAN 2000
Ushuaia, ARGENTINA	09 JAN 2000

Cruise VAV #4

January 2000

Port	Dates
Ushuaia, ARGENTINA	09 JAN 2000
At sea	10-11 JAN 2000
Antarctic Peninsula	12-16 JAN 2000
At sea	17 JAN 2000
South Georgia	18-21 JAN 2000
At sea	22-23 JAN 2000
Port Stanley, Falkland Islands	24 JAN 2000
Carcass & Westpoint Islands	25 JAN 2000
At sea	26 JAN 2000
Ushuaia, ARGENTINA	27 JAN 2000

Cruise VAV #5

January/February 2000

Port	Dates
Ushuaia, ARGENTINA	27 JAN 2000
At sea	28-29 JAN 2000
Antarctic Peninsula	30 JAN – 01 FEB 2000
At sea	02-03 FEB 2000
Port Stanley, Falkland Islands	04 FEB 2000
Steeple Jason	05 FEB 2000
At sea	06 FEB 2000
Ushuaia, ARGENTINA	07 FEB 2000

Cruise VAV #6

February 2000

Port	Dates
Ushuaia, ARGENTINA	07 FEB 2000
At sea	08-09 FEB 2000
Antarctic Peninsula	10-14 FEB 2000
At sea	15-16 FEB 2000
Ushuaia, ARGENTINA	17 FEB 2000

Cruise VAV #7

February 2000

Port	Dates
Ushuaia, ARGENTINA	17 FEB 2000
At sea	18-19 FEB 2000
Antarctic Peninsula	20-24 FEB 2000
At sea	25-26 FEB 2000
Ushuaia, ARGENTINA	27 FEB 2000

Cruise VAV #8

February/March 2000

Port	Dates
Ushuaia, ARGENTINA	27 FEB 2000
At sea	28-29 FEB 2000
Antarctic Peninsula	01-04 MAR 2000
Elephant Island	05 MAR 2000
South Orkney	06 MAR 2000
At sea	07 MAR 2000
South Georgia	08-10 MAR 2000
At sea	11-12 MAR 2000
Falkland Islands	13-14 MAR 2000
At sea	15 MAR 2000
Ushuaia, ARGENTINA	16 MAR 2000

Orient Lines, Inc.

Orient Lines, Inc. of Fort Lauderdale, Florida, plans to conduct 5 cruises to the Antarctic during the 1999-2000 season using the Marco Polo.

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 400-450 passengers.

Schedules for each of the cruises follows:

Cruise MP #1

December 1999/January 2000

Port	Dates
Buenos Aires, ARGENTINA	24 DEC 1999
at sea	25-26 DEC 1999
Falkland Islands	27-28 DEC 1999
At sea	29 DEC 1999

Antarctic Peninsula	30 DEC – 02 JAN 2000
At sea	03 JAN 2000
Ushuaia, ARGENTINA	04 JAN 2000

Cruise MP #2
January 2000

Port	Dates
Ushuaia, ARGENTINA	05 JAN 2000
at sea	06 JAN 2000
Antarctic Peninsula	07-10 JAN 2000
at sea	11 JAN 2000
Ushuaia, ARGENTINA	12 JAN 2000

Cruise MP #3
January 2000

Port	Dates
Ushuaia, ARGENTINA	13 JAN 2000
at sea	14 JAN 2000
Antarctic Peninsula	15-18 JAN 2000
at sea	19 JAN 2000
Ushuaia, ARGENTINA	20 JAN 2000

Cruise MP#4
January 2000

Port	Dates
Ushuaia, ARGENTINA	21 JAN 2000
at sea	22 JAN 2000
Antarctic Peninsula	23-26 JAN 2000
At sea	27 JAN 2000
Ushuaia, ARGENTINA	28 JAN 2000

Cruise MP#5
January/February 2000

Port	Dates
Ushuaia, ARGENTINA	29 JAN 2000
at sea	30 JAN 2000
Antarctic Peninsula	31 JAN – 02 FEB 2000
At sea	03-10 FEB 2000
Cross International Dateline	11 FEB 2000
Cape Evans	12 FEB 2000
Cape Royds	13 FEB 2000
McMurdo Station	14 FEB 2000
Terra Nova Bay	15 FEB 2000
Cruise Cape Hallett/Cape Adare	16 FEB 2000
At sea	17-19 FEB 2000
Lyttleton, NEW ZEALAND	20 FEB 2000

Clipper Cruise Lines

Clipper Cruise Lines, of St. Louis, Missouri, plans to conduct nine cruises to the Antarctic during the 1999-2000 season using the Clipper Adventurer.

CLIPPER ADVENTURER

The vessel was built in 1975 and rebuilt in 1999. 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 79 crew members will be onboard for each cruise.

Schedules for each of the cruises follows:

Cruise CA #1
November 1999

Port	Dates
Port Stanley, FALKLAND ISLANDS	12 NOV 1999
Carcass/Westpoint/New Islands, Falkland Islands	13-14 NOV 1999
at sea	15-16 NOV 1999
South Georgia	17-19 NOV 1999
At sea	20 NOV 1999
Antarctic Peninsula	21-26 NOV 1999
at sea	27-28 NOV 1999
Ushuaia, ARGENTINA	29 NOV 1999

Cruise CA #2
November/December 1999

Port	Dates
Ushuaia, ARGENTINA	29 NOV 1999
at sea	30 NOV – 01 DEC 1999
Antarctic Peninsula	02-06 DEC 1999
at sea	07-08 DEC 1999
Ushuaia, ARGENTINA	09 DEC 1999

Cruise CA #3
December 1999

Port	Dates
Ushuaia, ARGENTINA	09 DEC 1999
at sea	10-11 DEC 1999
Antarctic Peninsula	12-16 DEC 1999
at sea	17-18 DEC 1999
Westpoint/Carcass Islands, Falklands	19 DEC 1999
Port Stanley, FALKLAND ISLANDS	20 DEC 1999

Cruise CA #4
December 1999/January 2000

Port	Dates
Port Stanley, FALKLAND ISLANDS	20 DEC 1999
Falklands	21 DEC 1999
at sea	22-23 DEC 1999
South Georgia	24-26 DEC 1999
at sea	27 DEC 1999
Antarctic Peninsula	28 DEC – 03 JAN 2000
at sea	04-05 JAN 2000
Ushuaia, ARGENTINA	06 JAN 2000

Cruise CA #5
January 2000

Port	Dates
Ushuaia, ARGENTINA	06 JAN 2000
at sea	07-08 JAN 2000
Antarctic Peninsula	09-13 JAN 2000
At sea	14-15 JAN 2000
Falkland Islands	16 JAN 2000
Port Stanley, FALKLAND ISLANDS	17 JAN 2000

Cruise CA #6
February 2000

Port	Dates
Port Stanley, FALKLAND ISLANDS	17 JAN 2000
Carcass/Westpoint Islands, Falklands	18 JAN 2000
at sea	19-20 JAN 2000
Antarctic Peninsula	21-25 JAN 2000
at sea	26-27 JAN 2000
Ushuaia, ARGENTINA	28 JAN 2000

Cruise CA #7
January/February 2000

Port	Dates
Ushuaia, ARGENTINA	28 JAN 2000
at sea	29-30 JAN 2000
Antarctic Peninsula	31 JAN – 05 FEB 2000
at sea	06-07 FEB 2000
Ushuaia, ARGENTINA	08 FEB 2000

Cruise CA #8
February 2000

Port	Dates
Ushuaia, ARGENTINA	08 FEB 2000
at sea	09-10 FEB 2000
Antarctic Peninsula	11-16 FEB 2000
at sea	17-18 FEB 2000
Ushuaia, ARGENTINA	19 FEB 2000

Cruise CA #9
January/February 2000

Port	Dates
Ushuaia, ARGENTINA	19 FEB 2000
at sea	20-21 FEB 2000
Antarctic Peninsula	22-26 FEB 2000
at sea	27-28 FEB 2000
Ushuaia, ARGENTINA	29 FEB 2000

Holland America Line

Holland American Line of Seattle, Washington plans to conduct an around the world voyage of the *M/S Rotterdam VI* that includes plans to enter the Antarctic Treaty area and cruise the islands in the Antarctic Peninsula during the 1999-2000 season.

M/V ROTTERDAM VI

This *M/V Rotterdam VI* was built by the Fincantieri shipyard and entered into service in September 1997. The ship is registered in the Netherlands. The vessel has a length of 780 feet, a beam of 105.8 feet, and has a maximum speed of 25 knots. Passenger capacity is 1,316.

Rough schedule for the cruise follows:

Cruise – World Cruise-#1 January/April 2000

Port	Dates
Ft. Lauderdale, FLORIDA	06 JAN 2000
Cruising Hope Bay, Deception Island, Neumeyer	28 JAN 2000
Gerlache Strait, Lemaire Channel, Paradise Bay	29 JAN 2000
Bransfield Strait, Elephant Island	30 JAN 2000
Los Angeles, CALIFORNIA	11 APR 2000

Mountain Travel*Sobek

Mountain Travel*Sobek of El Cerrito, California, plans to conduct seven cruises to the Antarctic during the 1999-2000 season using the Akademik Shuleykin.

AKADEMIK SHULEYKIN

The Akademik Shuleykin is registered in Russia. The vessel is 71.6 meters in length, has a breadth of 12.8 meters and a draft of 4.5 meters. It possesses two 2,300 Kw diesel engines and has both a bow and stern thruster. The Shuleykin can accommodate 46 passengers and has a crew of 32.

Scheduled for each of the cruises follows:

Cruise SHU-#1

November/December 1999

Port	Dates
Ushuaia, ARGENTINA	26 NOV 1999
At sea	27-28 NOV 1999
Antarctic Peninsula	29 NOV – 01 DEC 1999
At sea	02-04 DEC 1999
Falkland Islands	05-07 DEC 1999
At sea	08-11 DEC 1999
Ushuaia, ARGENTINA	12 DEC 1999

Cruise SHU-#2

December 1999

Port	Dates
Ushuaia, ARGENTINA	12 DEC 1999
At sea	13-14 DEC 1999
Antarctic Peninsula	15-19 DEC 1999
At sea	20-21 DEC 1999
Ushuaia, ARGENTINA	22 DEC 1999

Cruise SHU-#3

December 1999/January 2000

Port	Dates
Ushuaia, ARGENTINA	22 DEC 1999
At sea	23-24 DEC 1999
Antarctic Peninsula	25 DEC – 05 JAN 2000
At sea	06-07 JAN 2000
Ushuaia, ARGENTINA	08 JAN 2000

Cruise SHU-#4

January 2000

Port	Dates
Ushuaia, ARGENTINA	08 JAN 2000
At sea	09-10 JAN 2000

Antarctic Peninsula	11-15 JAN 2000
At sea	16-17 JAN 2000
Ushuaia, ARGENTINA	18 JAN 2000

Cruise SHU-#5
January 2000

Port	Dates
Ushuaia, ARGENTINA	18 JAN 2000
At sea	19-20 JAN 2000
Antarctic Peninsula	21-25 JAN 2000
At sea	26-27 JAN 2000
Ushuaia, ARGENTINA	28 JAN 2000

Cruise SHU-#6
January/February 2000

Port	Dates
Ushuaia, ARGENTINA	28 JAN 2000
At sea	29-30 JAN 2000
Antarctic Peninsula	31 JAN – 08 FEB 2000
At sea	09-10 FEB 2000
Ushuaia, ARGENTINA	11 FEB 2000

Cruise SHU-#7
February 2000

Port	Dates
Ushuaia, ARGENTINA	11 FEB 2000
At sea	12-13 FEB 2000
Antarctic Peninsula	28 FEB – 01 MAR 2000
At sea	02 MAR 2000
Coronation Island	03 MAR 2000
At sea	04 MAR 2000
South Georgia	05-07 MAR 2000

At sea	08-10 MAR 2000
Falkland Islands	11-12 MAR 2000
At sea	13 MAR 2000
Ushuaia, ARGENTINA	14 MAR 2000

Expedition Cruises

Expedition Cruises of Bend, Oregon plans to conduct seven cruises to the Antarctic during the 1999-2000 season using the M/V Grigoriy Mikheev.

M/V BARON VON WRANGEL

The Grigoriy Mikheev was built in 1990 at the Hooming Oy Marine Ltd, Finland, and is registered in Russia. The vessel is 65 meters in length, has a beam of 12.75 meters, and a draft of 3.5 meters. The ship is powered by two Wartsila Diesel 1300kw (1700hp each) engines, has a special ice-hardened variable pitch propeller and bow thrusters. The Mikheev can accommodate 36 passengers and 18-20 crew members.

Schedules for each of the cruises follows:

Cruise GM-#1

December 1999/January 2000

Port	Dates
Ushuaia, ARGENTINA	21 DEC 1999
At sea	22-23 DEC 1999
Antarctic Peninsula	24-27 DEC 1999
At sea	28 DEC 1999
South Orkneys	29 DEC 1999
At sea	30 DEC 1999
South Georgia	31 DEC –03 JAN 2000
At sea	04 JAN 2000
Falkland Islands	05-06 JAN 2000
At sea	07 JAN 2000
Ushuaia, ARGENTINA	08 JAN 2000

Cruise GM-#2

January 2000

Port	Dates
Ushuaia, ARGENTINA	08 JAN 2000
At sea	09-10 JAN 2000
Antarctic Peninsula	11-15 JAN 2000
At sea	16-17 JAN 2000
Ushuaia, ARGENTINA	18 JAN 2000

Cruise GM-#3

January 2000

Port	Dates
Ushuaia, ARGENTINA	18 JAN 2000
At sea	19-20 JAN 2000
Antarctic Peninsula	21-25 JAN 2000
At sea	26-27 JAN 2000
Ushuaia, ARGENTINA	28 JAN 2000

Cruise GM-#4

January/February 2000

Port	Dates
Ushuaia, ARGENTINA	28 JAN 2000
At sea	29-30 JAN 2000
Antarctic Peninsula	31 JAN – 04 FEB 2000
At sea	05-06 FEB 2000
Ushuaia, ARGENTINA	07 FEB 2000

Cruise GM-#5

February 2000

Port	Dates
Ushuaia, ARGENTINA	07 FEB 2000
At sea	08-09 FEB 2000
Antarctic Peninsula	10-14 FEB 2000
At sea	15-16 FEB 2000
Ushuaia, ARGENTINA	17 FEB 2000

Cruise GM-#6

February 2000

Port	Dates
Ushuaia, ARGENTINA	17 FEB 2000
At sea	18-19 FEB 2000
Antarctic Peninsula	20-26 FEB 2000
At sea	27-28 FEB 2000
Ushuaia, ARGENTINA	29 FEB 2000

Cruise GM-#7

February/March 2000

Port	Dates
Ushuaia, ARGENTINA	29 FEB 2000
At sea	01-02 MAR 2000
Antarctic Peninsula	03-09 MAR 2000
At sea	10-11 MAR 2000
Ushuaia, ARGENTINA	12 MAR 2000

Special Expeditions, Inc.

Special Expeditions, Inc. of New York City, New York, plans to conduct six cruises to the Antarctic during the 1999-2000 season, using the M/V Caledonian Star.

M/V CALEDONIAN STAR

The M/V Caledonian Star 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.

Cruise CS#1

December 1999

Port	Dates
Punta Arenas, CHILE	10 DEC 1999
At sea	11-12 DEC 1999

Antarctic Peninsula	13-17 DEC 1999
At sea	18-20 DEC 1999
Ushuaia, ARGENTINA	21 DEC 1999

Cruise CS#2
December 1999/January 2000

Port	Dates
Ushuaia, ARGENTINA	21 DEC 1999
At sea	22 DEC 1999
Falkland Islands	23-25 DEC 1999
At sea	26 DEC 1999
Antarctic Peninsula	27 DEC –02 JAN 2000
At sea	03-05 JAN 2000
Punta Arenas, CHILE	06 JAN 2000

Cruise CS#3
January 2000

Port	Dates
Punta Arenas, CHILE	06 JAN 2000
At sea	07-08 JAN 2000
Falkland Islands	09-11 JAN 2000
At sea	12 JAN 2000
Antarctic Peninsula	13-18 JAN 2000
At sea	19-20 JAN 2000
Ushuaia, ARGENTINA	21 JAN 2000

Cruise CS#4
January/February 2000

Port	Dates
Punta Arenas, CHILE	21 JAN 2000
At sea	22 JAN 2000
Falkland Islands	23-25 JAN 2000
At sea	26 JAN 2000
Antarctic Peninsula	28 JAN – 01 FEB 2000
At sea	02-04 FEB 2000
Punta Arenas, CHILE	05 FEB 2000

Cruise CS#5

February 2000

Port	Dates
Punta Arenas, CHILE	05 FEB 2000
At sea	06-07 FEB 2000
Antarctic Peninsula	08-13 FEB 2000
At sea	14-15 FEB 2000
Ushuaia, ARGENTINA	16 FEB 2000

Cruise CS#6

February/March 2000

Port	Dates
Ushuaia, ARGENTINA	16 FEB 2000
At sea	17-18 FEB 2000
Antarctic Peninsula	19-24 FEB 2000
At sea	25 FEB 2000
South Orkneys	26 FEB 2000
At sea	27 FEB 2000
South Georgia	28 FEB – 02 MAR 2000
At sea	03-04 MAR 2000
Falkland Islands	05-06 MAR 2000
At sea	07 MAR 2000
Punta Arenas, CHILE	08 MAR 2000

Other

In addition, several other organizations plan to arrange/conduct or support tourism activities in the Antarctic during the 1999-2000 season. Although some of these organizations are not U.S. based, American citizens are most likely involved in their planned activities and for this reason are reported here.

SHIPBORNE

- a) Hapag-Lloyd Cruises of Hamburg, Germany, will operate two vessels in the Antarctic Peninsula. The Hanseatic and the Bremen will conduct 7 cruises each.

- b) Marine Expeditions of Toronto, Canada, intends to conduct approximately 25 cruises to the Antarctic Peninsula using the Akademik Ioffee, the Orlova and the Petrov.

LANDBASED

Adventure Network International (ANI), a Canadian company with an office in Beaconfield, England, 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 1999 - mid-January 2000 using two chartered Twin Otters and their own Cessna C-A185F aircraft.

XI. Refuges

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

McMurdo Area Antarctic Refuges and Survival Caches

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

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 on southeastern shore of Lake Bonney, approximately 30m from lake.

Lake Vida Cache

Position: 77°20'S, 162°00'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. No radio.

Lake Fryxell Hut

Position: 77°36'S, 163°07'E
Hut: Jamesway structure with provisions. No radio.

New Harbor Hut

Position: 77°34'S, 163°31'E
Hut: Jamesway structure with provisions. No radio.

McMurdo Supported Remote Locations

Siple Dome Camp

Position: 81°39'S, 149°04'E

Camp winterized for the season. 4 Jamesway structures remain standing, food, fuel, survival cache and heavy equipment staged on site for use during the 1997-98 field season.

Byrd Surface Camp

Position: 80°01'S, 119°32'E

Survival cache and Jamesway, minimal food and fuel winterized for the season. All wooden structures, heavy equipment and materials removed from the camp.

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.

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. Species Killed, Captured

Information regarding species killed or captured during the 1999-2000 season will be reported in Section XII of the Modifications of the United States Antarctic Activities Planned for 1999-2000.

XIII. Radioactive Materials

Section XIII of the 1999-00 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>
BO-004-O	¹⁴ C ³ H	¹⁴ C - bicarbonate ³ H - Leucine Thymidine	McMurdo Station	Metabolic studies of microscopic algae in permanent ice and snow
BP-016-O	¹⁴ C	¹⁴ C - Sodium bicarbonate	Palmer Station; R/V LAURENCE M. GOULD	Palmer Station/LM GOULD: LTER on the Antarctic Marine Ecosystem: An Ice Dominated Environment - Phytoplankton Ecology Component
BO-025-O	¹⁴ C ³ H	¹⁴ C - Bicarbonate ³ H - Thymidine	McMurdo Station/Dry Valleys	McMurdo Dry Valleys: A Cold Desert Ecosystem
BM-042-O	¹⁴ C	¹⁴ C - Sodium bicarbonate	McMurdo Station	Investigations of Dry Valley Soil Nematodes
BM-042-P	¹⁴ C	¹⁴ C - Bicarbonate	McMurdo Station/Dry Valleys	McMurdo Dry Valleys: A Cold Desert Ecosystem
BO-044-O	¹⁴ C ³ H	¹⁴ C - Sodium Bicarbonate ³ H - Thymidine ³ H - Leucine ³ H - Acetate ³ H - Amino Acid Mix	McMurdo Station/Dry Valleys	Metabolic studies microbial communities in the permanent ice covers on lakes in the McMurdo Dry Valleys

<u>PROJECT</u>	<u>NUCLIDE</u>	<u>FORM</u>	<u>SITE</u>	<u>USE</u>
BP-046-O	³ H ¹⁴ C	³ H - Leucine ¹⁴ C - Sodium Bicarbonate	R/V LAURENCE M. GOULD; R/V NATHANIEL B. PALMER	LTER: Microbiology and carbon flux
BO-200-O	³ H ¹⁴ C	³ H - Leucine ³ H - Thymidine ³ H - Uridine ¹⁴ C - Bicarbonate	Palmer Station	Determination of bacteria plankton response to UV radiation in the Weddell Sea and Palmer Station LTER grid.
OO-257-O	⁶³ Ni	⁶³ Ni - Foil or Plated source	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)
BO-267-O	³ H	³ H - Water	Cape Shirreff; Livingston Island	To determine the energetic costs and benefits of different foraging patterns of South Shetland Antarctic fur seals off of Cape Shirreff and Livingston Island
BO-301-O	³⁵ S ¹⁴ C ³² P ³³ P ³ H	³⁵ S - Methionine ¹⁴ C - Amino Acids ³² P - Nucleic Acids ³³ P - Nucleic Acids ³ H - Amino Acid	McMurdo Station	Metabolic studies of various Antarctic organisms

<u>PROJECT</u>	<u>NUCLIDE</u>	<u>FORM</u>	<u>SITE</u>	<u>USE</u>
BO-310-O	³ H	³ H - Thymidine	McMurdo Station	Determination of Dry Valley Lake Organisms
BO-313-O	³⁵ S	³⁵ S - Sulfur	R/V LAURENCE M. GOULD	Determination of Southern Ocean Sulfate Bacteria
SGS-NZ	¹⁹² Ir	¹⁹² Ir - Iridium Sealed Source	McMurdo Station	Fuel Tank Weld Testing

XIV. Research Rockets

Section XIV reports the planned use of research rockets. The United States Antarctic Program will launch no research rockets during the 1999- 2000 season.

XV. Oceanography - Government

Section XV outlines plans for United States Antarctic Program sponsored oceanographic expeditions during the 1999-2000 season.

R/V NATHANIEL B. PALMER

The R/V NATHANIEL B. PALMER first arrived in the Antarctic Peninsula area in April 1992. The vessel is owned by Edison Chouest Offshore and is of United States Registry. The vessel will be on long-term charter to support the United States Antarctic Program. The R/V NATHANIEL B. PALMER is ice-classed 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. The vessel has a crew of 26 and accommodation for 39 scientists.

Research Capabilities.

The vessel is equipped with a satellite precision navigation system, side-looking and fish-finding sonar, INMARSAT communications, TeraScan, and HF and VHF transceivers. The vessel is equipped with Dynamic Positioning. A deep sea trawl and coring winch and two hydro-winchs are operated through stern and starboard A-frames. One hydro-winch, equipped with electromechanical cable, leads through a baltic-room arrangement, protected from the weather. The vessel is equipped with multi-channel seismic capability, a swath multibeam bathymetric system called SeaBeam, and is equipped with laboratories totaling approximately 520 square meters, all located contiguously on the main deck. The vessel also has a suite of portable lab vans.

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, including Physical and Chemical Oceanography, Marine Geology and Geophysics, and Marine Biology.

Intended Tracks and Schedule

The vessel is currently scheduled for work in the Weddell and the Ross Sea. Ports of call include Punta Arenas and Talchuan, Chile, Lyttelton, New Zealand, and McMurdo Station, Antarctica.

R/V LAURENCE M. GOULD

The R/V LAURENCE M. GOULD first arrived in the Antarctic Peninsula in January, 1998, and is owned by Edison Chouest Offshore and is of United States Registry. The vessel will be on long-term charter to support the United States Antarctic Program. The R/V LAURENCE M. GOULD is ice-classed ABS A1, is 14.02 meters, has a design draught of 5.48 and displaces 3400 long tons. She will be a multidisciplinary research platform, designed for year-round operations in Polar regions.

Research Capabilities

The vessel is equipped with a satellite precision navigation system, side-looking and fish-finding sonar, INMARSAT communications and HF and VHF transceivers. A deep sea trawl winch and two hydro-winchs are to be operated through a stern A-frame and starboard side-hydro davit. Various over-the-side sampling equipment will be handled through use of an articulated Hiab crane on the ship's fantail. The vessel will also have single channel seismic capability. In addition, it is equipped with laboratories totaling 99 square meters and an additional 27 square meters in portable laboratory vans. Zodiacs will be available for ship-to-shore transport and sample collection.

Ship's Master: Captain Warren Sanamo

Scientific Programs in the Antarctic Treaty Area

The R/V LAURENCE M. GOULD will support research during 1999-2000 season that includes biological, chemical, and physical oceanography as well as marine geology and geophysics. The R/V LAURENCE M. GOULD will also provide logistic support to transport scientists, cargo, and personnel to/from Palmer Station.

Intended Tracks and Schedule

The R/V LAURENCE M. GOULD will transport support personnel to and from Palmer Station, provide research support, and enter a routine maintenance period in Punta Arenas, Chile, the month of August 1999. The vessel will perform approximately 13 cruises in the Antarctic Peninsula area during 1999-2000 season.

XVI. Visiting Expeditions

Section XVI provides information on expeditions visiting U.S. stations during the 1999-2000 austral summer. Data will be accumulated during the course of the season and reported in next year's report of modifications to these plans.

Appendix I

*Appendix I of the Activities Planned for 1999-2000 lists the
Initial Environmental Evaluation/ Environmental Assessments from
October 1, 1998 - September 30, 1999.*

1. Amendment No. 1 to Replacement of the Electric Power Plant and Fuel Storage Facilities at the Amundsen-Scott South Pole Station, Antarctica for Development of a New Taxiway [SPST9704] signed 10/2/98
2. Field Study to Determine the Stability of Land Surfaces in the Dry Valleys, Antarctica [MCDV9901.EAF] signed 10/13/98
3. Vehicle Transport of Ground-Penetrating Radar (GPR) Gear on McMurdo Dry Valleys Ice and Snow Surfaces and GPR-Antenna Movement on Sediment-Surfaces During Traverses [MCDV9902.EAF] signed 10/13/98
4. Acquisition and Operation of the AFTAC Southern Network Antarctic Power System - Southern Network Antarctica Power System Upgrade (Mt. Newell and Lake Vanda) signed 13 November 1998 by USAF
5. Amendment No. 2 to Manipulation of Nutrient Availability in Vascular Plant Performance Studies in Antarctica [PLFC9602] for Monitoring the Impact to the Vegetation in the Study Plot by Fur Seals. Signed 3 March 1999.
6. Mitigation of Ship Hazard at Pier, Palmer Station, Antarctica [PLST9901.EAF] signed 21 May 1999.

Appendix II

*[Appendix II of the 1999-2000 season plans](#) provides information
on planned science projects in Antarctica during this time period.
Please follow the above link to a complete listing.*

Attachment A, Comms Forms

*Attachment A of the 1999-2000 season plans lists the, types,
schedules and frequencies of telecommunications equipment used by
the United States Antarctic Program.*

INFORMATION ON TELECOMMUNICATIONS EQUIPMENT AND SCHEDULES FOR THE YEAR 1999-2000**COUNTRY** United States of America**ADDRESS FOR CORRESPONDENCE ON THIS INFORMATION:****STATION** McMurdo**CALL SIGN** NGD**LATITUDE** 77°55'S **LONGITUDE** 166°39'EOFFICE OF POLAR PROGRAMS
NATIONAL SCIENCE FOUNDATION
ARLINGTON, VA 22230

TRANSMITTERS				RECEIVERS				REMARKS
TYPE	FREQUENCY BANDS	TYPES OF TRANSMISSION AND POWER	FREQUENCY SELECTION (CRYSTAL VFO, etc.)	TYPE	FREQUENCY BANDS	TYPES OF RECEPTION AVAILABLE	FREQUENCY SELECTION (CRYSTAL VFO, etc.)	
AN/FRT-83	2-30 MHz	1K08F1B, 3K00J3E 1K24F1B, 100H0A1A 1KW	SYNTHESIZED					
AN/FRT-84	2-30 MHz	1K24F1B, 100H0A1A 3K00J3E, 4K00F3C 6K00A3E, 6K00B9W 10KW	SYNTHESIZED					
AN/GRT-21 AN/GRT-22	116-149.95 MHz 225-399.95 MHz	6K00A3E, 10W 6K00A3E, 10W	SYNTHESIZED SYNTHESIZED	AN/GRR-23 AN/GRR-24	116-149.95 MHz 255-399.95 MHz	6K00A3E 6K00A3E	CRYSTAL CRYSTAL	
AN/URC-110	225-399.995 MHz	30K0F3E/20W	SYNTHESIZED	AN/URC-110	225-399.995 MHz	30K0F3E	SYNTHESIZED	
AN/GRC-211 AN/GRC-171	116-149.95 MHz 225-399.95 MHz	25W 20W	SYNTHESIZED SYNTHESIZED	AN/GRC-211 AN/GRC-171	116-149.95 MHz 225-399.95 MHz	6K00A3E 6K00A3E	SYNTHESIZED SYNTHESIZED	
RT-100	2-30 MHz	100H0A1A, 3K00J3E 100W	SYNTHESIZED	RT-100	2-30 MHz	100H0A1A, 3K00J3E	SYNTHESIZED	
RT-7000	2-30 MHz	100H0A1A, 3K00J3E	SYNTHESIZED	RT-7000	2-30 MHz	100H0A1A, 3K00J3E	SYNTHESIZED	
AN/PRC-1099	2-30 MHz	100H0A1A, 3K00J3E, 20W	SYNTHESIZED	AN/PRC-1099	2-30 MHz	100H0A1A, 3K00J3E	SYNTHESIZED	
AN/LST-5B	225-399.95 MHz	30K0F3E/20W	SYNTHESIZED	AN/LST-5B	225-399.995 MHz	30K0F3E	SYNTHESIZED	
SR-210	1.6-30 MHz	100H0A1A, 3K00J3E 150W	CRYSTAL	SR-210	1.6-30 MHz	100H0A1A, 3K00J3E	CRYSTAL	
DRAKE TR-7	2-30 MHz	100H0A1A, 3K00J3E	VFO	DRAKE TR-7	2-30 MHz	100H0A1A, 3K00J3E	VFO	

INFORMATION ON TELECOMMUNICATIONS EQUIPMENT AND SCHEDULES FOR THE YEAR 1999-2000
COUNTRY United States of America
STATION McMurdo
CALL SIGN NGD
ADDRESS FOR CORRESPONDENCE ON THIS INFORMATION:
LATITUDE 77°55'S **LONGITUDE** 166°39'E

 OFFICE OF POLAR PROGRAMS
 NATIONAL SCIENCE FOUNDATION
 ARLINGTON, VA 22230

ANTENNA			FACSIMILE		TELEPRINTER		REMARKS	
TYPE	AZIMUTH (IN DEGREES OR OMNI)		INDEX OF COOPERATION	DRUM SPEED	TYPE	SPEED (bauds)		LIST OF AVAILABLE FREQUENCIES
RHOMBIC	088T	T	9165L/AE I of C N/A	120/240 (scans per minute vice rpm)	KPDT-3 (MOD-40)	75	"ANTARCTIC BROADCAST"	11.004, 8.090, 6.397, 4.872, 2.650, 5.810
RHOMBIC	088T	T						
RHOMBIC	146T	T						
RHOMBIC	220T	T			KPDT-3 (MOD-40)	50-75	AA-2"INTERNATIONAL ANTARCTIC COMMON"	12.225, 13.590, 16.225, 5.8675, 7.6695, 9.830, 10.865
CONICAL MONOPOLE	OMNI	T	9271D/H/AE I of C N/A	120/240 RPM	KPDT-3 (MOD-40)	75	HF COMMUNICATIONS	2.525, 2.831., 3.210, 4.0125, 4.1474, 4.242, 4.755, 4.7715, 5.030, 5.386, 6.012, 6.767, 7.469, 7.875, 7.9965, 8.2954, 8.2984, 8.420, 8.678,
ROSETTE ARRAY	DIRECTIONAL	R						
END-FIRE ARRAY	088T	T						
CONICAL MONOPOLE	OMNI	T/R			KPDT-3 (MOD-40)	75	HF COMMUNICATIONS	9.0075, 9.073, 9.110, 9.215, 10.235, 10.516, 11.156, 11.1925, 11.508, 11.5545, 12.029, 12.0985, 12.3544, 12.3574, 12.457, 12.630, 13.490, 13.5515, 13.874, 14.777, 14.805, 15.564, 15.889, 16.152, 16.2235, 17.4545, 17.494
RHOMBIC	088T/146T/220T					75		

INFORMATION ON TELECOMMUNICATIONS EQUIPMENT AND SCHEDULES FOR THE YEAR 1999-2000
COUNTRY United States of America
STATION McMurdo
CALL SIGN NGD
ADDRESS FOR CORRESPONDENCE ON THIS INFORMATION:
LATITUDE 77°55'S **LONGITUDE** 166°39'E

 OFFICE OF POLAR PROGRAMS
 NATIONAL SCIENCE FOUNDATION
 ARLINGTON, VA 22230

STATION WORKED	GMT		FREQUENCIES USED		CIRCUIT CONDUCT			REMARKS
	OPEN	CLOSE	TRANSMITTING	RECEIVING	TYPE OF EMISSION (See ccir 432) (X)	TYPE OF TRAFFIC	SX OR DX	
SOUTH POLE	OCT-- ON MAR-- 2000-- DAILY SUN-	--NOV CALL --OCT --2130 LESS DAY	2650 5810 6397 8090 11004 4872 11554.5 8998.5 13252.5	7340 - P&SP 7750 - P&SP 9073 - P&SP 13551.5 - P&SP	1.24F1 3A3J 3A3J	ALL SYNOPS HOURLIES (AS REQUIRED) TERMINAL VOICE VOICE	DX SX SX	
PALMER	SAME AS ABOVE		SAME AS ABOVE	SAME AS ABOVE	SAME AS ABOVE	SAME AS ABOVE	SAME AS ABOVE	
INMARSAT COASTAL EARTH STATION SANTA PAULA, CA	TIME OPEN 18 HR. PER DAY. START AND STOP CHANGES WITH PERCESSION OF SATELLITE.		1.636.-1.654 GHz	1.535-1.543 GHz		VOICE/DATA/ FACSIMILE		

INFORMATION ON TELECOMMUNICATIONS EQUIPMENT AND SCHEDULES FOR THE YEAR 1999-2000

COUNTRY United States of America

ADDRESS FOR CORRESPONDENCE ON THIS INFORMATION:

STATION Palmer

CALL SIGN NHG

LATITUDE 64°46'S **LONGITUDE** 64°05'W

OFFICE OF POLAR PROGRAMS
NATIONAL SCIENCE FOUNDATION
ARLINGTON, VA 22230

TRANSMITTERS				RECEIVERS				REMARKS
TYPE	FREQUENCY BANDS	TYPES OF TRANSMISSION AND POWER	FREQUENCY SELECTION (CRYSTAL VFO, etc.)	TYPE	FREQUENCY BANDS	TYPES OF RECEPTION AVAILABLE	FREQUENCY SELECTION (CRYSTAL VFO, etc.)	
GX23205 STANDARD MARINE	156-162 MHz 55 CHANNEL	16K0F3E/25W	SYNTHESIZED	STANDARD MARINE	156-162 MHz 55 CHANNEL	16K0F3E	SYNTHESIZED	MONITOR Ch16 & 27 NDB (NOT OPERATIONAL)
SUNAIR LINEAR AMP GSL-1900A	1.6-30 MHz	3K00J3E/1 KW		SUNAIR GSB-900DX TRANSCEIVER	1.6-3.0 MHz	3K00J3E 3K00J1D	SYNTHESIZED	AX.25
SUNAIR GSB-900DX TRANSCEIVER	1.6-30 MHz	3K00J3E, 3K00J1D 100W	SYNTHESIZED	ICOM R 70	0.1-30 MHz	3K00J3E	SYNTHESIZED	
MOTOROLA MSR-2000	161.950 MHz	16F3/112W	CRYSTAL	MOTOROLA MSR-2000	157.350 MHz	16F3	CRYSTAL	CARRIER ACCESS REPEATER
MOTOROLA MICOR	149.195 MHz CH 2 149.163 MHz CH 6A 149.283 MHz CH 6B 149.245 MHz CH 4	16F3/375W	CRYSTAL	MOTOROLA MICOR	135.575 MHz CH 2 135.543 MHz CH 6A 135.663 MHz CH 6B 135.625 MHz CH 4	16F3	CRYSTAL	ATS-3
NERA Saturn Bm	1636.5 MHz 1645.0 MHz	F9	SYNTHESIZED	NERA Saturn Bm	1535.0 MHz to 1543.5 MHz	F9	SYNTHESIZED	INMARSAT TERMINAL
Univ. of Miami LES-9 Transceiver	303.4625 MHZ	??/?20W	SYNTHESIZED	Univ. of Miami LES-9 Transceiver	249.5625 MHZ	???	SYNTHESIZED	LES-9
Kenwood TS450S Transceiver	2-30 MHZ	100H0A1A, 3K00J3E 100W	SYNTHESIZED	Kenwood TS450S	2-30 MHZ	100H0A1A, 3K00J3E	SYNTHESIZED	Amateur Radio
Kenwood TS922A Linear Amplifier	2-30 MHZ	100H0A1A, 3K00J3E 1KW	SYNTHESIZED					

INFORMATION ON TELECOMMUNICATIONS EQUIPMENT AND SCHEDULES FOR THE YEAR 1999-2000**COUNTRY** United States of America**ADDRESS FOR CORRESPONDENCE ON THIS INFORMATION:**OFFICE OF POLAR PROGRAMS
NATIONAL SCIENCE FOUNDATION
ARLINGTON, VA 22230**STATION** Palmer**CALL SIG** NHG**LATITUDE** 64°46'S **LONGITUDE** 64°05'W

ANTENNA		FACSIMILE		TELEPRINTER		REMARKS	
TYPE	AZIMUTH (IN DEGREES OR OMNI)	INDEX OF COOPERATION	DRUM SPEED	TYPE	SPEED (bauds)		LIST OF AVAILABLE FREQUENCIES
SLOPING "V"	3400					HF (long distance)	2-30 MHz
CONICAL MONOPOLE	OMNI					HF (local ops.)	2-30 MHz
J-POLE (2)	OMNI					VHF (local ops.)	155-163 Mhz
CROSS POLARIZATION YAGI	ATS-3 SATELLITE 3150					DUAL ARRAY VOICE TRANSMIT	149 MHz
CROSS POLARIZATION YAGI	ATS-3 SATELLITE 3150					DUAL ARRAY VOICE RECEIVE	135MHz
CROSS POLARIZATION YAGI	LES-9 SATELLITE 3140					DUAL ARRAY DATA TRANSMIT	303MHz
CROSS POLARIZATION YAGI	LES-9 SATELLITE 3140					DUAL ARRAY DATA RECEIVE	249MHz
HF YAGI (TRI-BAND)	ROTATABLE					AMATEUR/MARS/HAM	14, 21, 28 MHz
PARABOLIC DISH	IMMARSAT SATELLITE					MARISAT, VOICE, DATA, TELEX	1.5-1.6 GHz
860' RHOMBIC	1950					HF primary, MCMURDO + POLE, VOICE + RATT	2-30 MHz design center = 11,553 kHz
COAXIAL	OMNI					VHF LOCAL AIR-GROUND	116-135 MHz
VHF MARINE WHIP	OMNI					VHF Marine Repeater Primary & Secondary for local boating ops.	155-163 MHz
5 ELEMENT COAXIAL	OMNI					VHF MARINE BASE	155-163 MHz

INFORMATION ON TELECOMMUNICATIONS EQUIPMENT AND SCHEDULES FOR THE YEAR 1999-2000**COUNTRY** United States of America**ADDRESS FOR CORRESPONDENCE ON THIS INFORMATION:**OFFICE OF POLAR PROGRAMS
NATIONAL SCIENCE FOUNDATION
ARLINGTON, VA 22230**STATION** Palmer**CALL SIG** NHG**LATITUDE** 64°46'S **LONGITUDE** 64°05'W

ANTENNA		FACSIMILE		TELEPRINTER		REMARKS	
TYPE	AZIMUTH (IN DEGREES OR OMNI)	INDEX OF COOPERATION	DRUM SPEED	TYPE	SPEED (bauds)		LIST OF AVAILABLE FREQUENCIES
ENCLOSED MONOPOLE	OMNI					NOAA ARGOS relay for J-275	401.650 MHz
ENCLOSED 1.2M STEERABLE DISH	STEERABLE					TERA SCAN WEATHER DATA RX FOR T-312	1707 + 2240 MHz

INFORMATION ON TELECOMMUNICATIONS EQUIPMENT AND SCHEDULES FOR THE YEAR 1999-2000
COUNTRY United States of America
STATION Palmer
CALL SIGN NHG
ADDRESS FOR CORRESPONDENCE ON THIS INFORMATION:

 OFFICE OF POLAR PROGRAMS
 NATIONAL SCIENCE FOUNDATION
 ARLINGTON, VA 22230

LATITUDE 64°46'S **LONGITUDE** 64°05'W

STATION WORKED	GMT		FREQUENCIES USED		CIRCUIT CONDUCT			REMARKS
	OPEN	CLOSE	TRANSMITTING	RECEIVING	TYPE OF EMISSION (See ccir 432) (X)	TYPE OF TRAFFIC	SX OR DX	
MCMURDO SOUTH POLE	DEC-- 1100 Dai- ly MAR-- 1100 Daily Satur-	-MAR 0000 --OCT 0000 less local day	2831.5 4771.5 7996.5 (Primary) 11554.5 (Primary) 26101.5	2831.5 4771.5 7996.5 8975.5 11554.5 26101.5	3A3J	VOICE - INTER-STATION		USB SUPPRES -SED CARRIER
MCMURDO SOUTH POLE	AS REQUIRED		8998.5 (Primary) 13252.5 (Second.) 11256.5 (Tertiary) 4719.5 (Alt. 5727.5 on 6709.5 call)	8998.5 13252.5 11256.5 4719.5 5727.5 6709.5	3A3J	VOICE - AIRCRAFT		USB SUPPRES -SED CARRIER
MCMURDO SOUTH POLE	AS REQUIRED		2182 8364 3023.5	2182 8364 3023.5	3A3J	DISTRESS AND CALLING/SEARCH AND RESCUE		USB
ROTHERA	1130 1730 2330 DAI	1135 1735 2335 LY	3186 (Second.) 4553 (Primary)	3186 4553	16F3 3A3J	WEATHER SYNOPTIC GROUPS		USB USB USB
COPACABANA, SEAL IS., CAPE SHERIFF	OCT- 0000 Z DAI	MAR 0030 Z LY	4125 (Primary) 4131 (Secondary)	4125 4131	3A3J	VOICE		USB

INFORMATION ON TELECOMMUNICATIONS EQUIPMENT AND SCHEDULES FOR THE YEAR 1999-2000**COUNTRY** United States of America**ADDRESS FOR CORRESPONDENCE ON THIS INFORMATION:****STATION** Amundsen-Scott South Pole**CALL SIGN** NPX**LATITUDE** 90° S**LONGITUDE** _____OFFICE OF POLAR PROGRAMS
NATIONAL SCIENCE FOUNDATION
ARLINGTON, VA 22230

TRANSMITTERS				RECEIVERS				REMARKS
TYPE	FREQUENCY BANDS	TYPES OF TRANSMISSION AND POWER	FREQUENCY SELECTION (CRYSTAL VFO, etc.)	TYPE	FREQUENCY BANDS	TYPES OF RECEPTION AVAILABLE	FREQUENCY SELECTION (CRYSTAL VFO, etc.)	
MACKAY MSR 8000D	1.6-30 MHz 10 Channel	3K00J3E 6K00A3E 100HA1A 1KW	SYNTHESIZED	MACKAY MSR 8000	1.6-30 MHz	3K00J3E 6K00A3E 100HA1A	SYNTHESIZED	
ICOM 735	1.6-30 MHz 20 Channel	3K00J3E 6K00A3E 100HA1A 100W	SYNTHESIZED	ICOM R70 ICOM IC-735	0.1-30 MHz 0.1-30 MHz	3K00J3E 6K00A3E 100HA1A	VFO VFO	
Motorola Maxar Transceiver	135.5-149.3 MHz 4 Channel	16F3/20W	CRYSTAL	Motorola Maxar Transceiver	135.5-149.3 4 Channel	15K00FZD		
REPCO Exciter	149.282	4F3/1W	CRYSTAL	Hamtronics	135.57 MHz	4F3	CRYSTAL	ATS-3
Kenwood TM-721 Transceiver with Mirage/KLM Amplifier	130-150 MHz 430-460 MHz	F3/300W	SYNTHESIZED	Kenwood TM-721 Kenwood R-5000	130-150 MHz 0.1-30 MHz	15K00F2D 3K00J3E 6K00A3A 100HA1A	SYNTHESIZED VFO	ATS-3
Kenwood TH25	140-150 MHz	F3 / 3W	SYNTHESIZED	Kenwood TH25	140-150 MHz	F3	SYNTHESIZED	
ABA Transmit.	1.5-5.26 Hz	90K00G2W/50W	SYNTHESIZED	ICOM-735	0-30 MHz	4F4, 6A3B, 6A9B		
Kenwood TH45	440-450 MHz	F3 / 3W	SYNTHESIZED	Kenwood TH45	440-450 MHz	F3	SYNTHESIZED	
RITRON	450 MHz	F3 / 7W	CRYSTAL	RITRON	450 MHz	F3	CRYSTAL	

INFORMATION ON TELECOMMUNICATIONS EQUIPMENT AND SCHEDULES FOR THE YEAR 1999-2000
COUNTRY United States of America
ADDRESS FOR CORRESPONDENCE ON THIS INFORMATION:

 OFFICE OF POLAR PROGRAMS
 NATIONAL SCIENCE FOUNDATION
 ARLINGTON, VA 22230

STATION Amundsen-Scott South Pole
CALL SIGN NPX
LATITUDE 90° S **LONGITUDE** _____

ANTENNA			FACSIMILE		TELEPRINTER		REMARKS	
TYPE	AZIMUTH (IN DEGREES OR OMNI)		INDEX OF COOPERATION	DRUM SPEED	TYPE	SPEED (bauds)		LIST OF AVAILABLE FREQUENCIES
RHOMBIC	167 T	T/R					HF COMMUNICATIONS	0-30 MHz
RHOMBIC	167 T	T/R					HF COMMUNICATIONS	0-30 MHz
SLOPING V	64 T	T/R					HF COMMUNICATIONS	0-30 MHz
CONICAL MONOPOLE	OMNI	R					ANTARCTIC BROADCAST	0-30 MHz
CONICAL MONOPOLE	OMNI	T/R					HF COMMUNICATIONS	0-30 MHz