Activities Planned for 1998-99

Sections one through sixteen of the 1998-99 season plans list particulars of all activities planned by the United States Antarctic Program during this period.

I. Ships and Aircraft

Section I of the 1998-99 season plans lists the names, types, numbers, descriptions, and armament of ships, aircraft, and other vehicles introduced to the Antarctic Treaty area and information on military equipment, if any, and its location in the area.

Ships

- **Icebreakers**

Ship:	USCGC POLAR SEA (WAGB-11)
Aircraft:	2 each HH-65A helicopters
Armament:	Small arms only

- **Supply/Tankers**

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

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

- **Research Vessels**

Ship:	R/V LAURANCE M. GOULD
Armament:	None

Ship:	R/V NATHANIEL B. PALMER
Armament:	None

Aircraft

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

Four LC-130 transport aircraft operated by the U.S. Navy.

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 1998, C-141B and C-5B 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 1999, 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 1998 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 1998, and depart early February 1999.

Note: No armament

II. Expedition Dates

Section II of the 1998-99 season plans 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 1998. 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 5 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 1998 with wheeled aircraft operations between Christchurch, New Zealand and the sea-ice runways at McMurdo Station, Antarctica. This will involve approximately 17 C-141B flights and 3 C-5 flights of transport aircraft of the U.S. Air Force Air Mobility Command (AMC), and 13 flights by C-130 aircraft of the Royal New Zealand Air Force transport aircraft. The sea-ice runway and wheeled aircraft operations will cease about early December 1998 and then continue about mid January to seasons end. During the in between period, aircraft operations will be conducted by USAP LC-130 aircraft (the Navy VXE-6 Squadron and the ANG 109th AW) from a prepared skiway.

The 109th Tactical Air Group of the Air National Guard in Schenectady, New York will provide four LC-130 aircraft and three crews for intra-continental flights from late October 1998 through McMurdo station closing.

Significant Dates

Other significant dates for the summer season include:

1. 29 September 1998 - McMurdo Station "Mainbody" begins
2. 14 September 1998 - Palmer Station opens
3. 03 October 1998 - Marble Point opens
4. 26 October 1998 - South Pole Station Opens
5. 27 October 1998 - Siple Dome Camp Opens
6. 28 October 1998 - Downstream Bravo Camp Opens
7. 16 November 1998 - Upstream Delta Camp opens
8. 01 December 1998 - Ford Range Camp 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 1999 after onloading cargo and transit directly to Port Lyttelton, New Zealand. The Green Wave will again onload additional cargo and depart New Zealand for McMurdo. Cargo will be off-loaded between 02-10 February, after which the ship will depart McMurdo and proceed to Lyttelton, New Zealand to offload additional cargo. 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 15 March 1999.

R/V NATHANIEL B. PALMER

The R/V NATHANIEL B. PALMER will conduct 9 scientific research cruises, totaling an estimated 292 days at sea, during the 1998-99 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, CHILE, Lyttelton, NEW ZEALAND, and McMurdo Station, Antarctica.

R/V LAURENCE M. GOULD

The R/V LAURENCE M. GOULD will conduct 10 scientific research cruises, totaling an estimated 315 days at sea, during the 1998-99 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 1998-99 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:	29 September 1998

Amundsen-Scott South Pole Station

Location:	90° 00'S Latitude
Annual Relief:	26 September 1998

Palmer Station

Location:	Anvers Island near Bonaparte Point
	64° 46'S Latitude
	64° 05'W Longitude
Annual Relief:	14 September 1998

Austral Summer Camps

Siple Dome Camp

Location:	81° 39'S Latitude 149° 04'W Longitude
Open:	27 October 1998
Close:	01 February 1999

Downstream Bravo Camp

Location:	84° 01'S Latitude 155° 00'W Longitude
Open:	28 October 1998
Close:	01 February 1999

Ford Range Camp

Location:	77° 16'S Latitude 142° 27'W Longitude
Open:	01 December 1998
Close:	01 February 1999

Upstream Delta Camp

Location:	81° 0'S Latitude 140° 00'W Longitude
Open:	16 November 1998
Close:	01 February 1999

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

Location:	62° 10'S Latitude 58° 28'W Longitude
Open:	early October 1998
Close:	late February 1999

Cape Shirreff Field Station, Livingston Island

Location:	62° 28'S Latitude 60° 47'W Longitude
Open:	late November 1998
Close:	late February 1999

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 1998-99 season will be:

McMurdo Station

Terry Melton	(Oct 98 - Oct 99)

Amundsen-Scott South Pole Station

David Fischer	(Nov 98 - Feb 99)
Michael Masterman	(Feb 99 - Nov 99)

Palmer Station

Ronald E. Nugent, Jr.	(Sep 98 - Mar 99)
Ronald P. Baltz	(Mar 99 - Sep 99)

Officers in Charge of Ships

USCGC POLAR SEA (WAGB-11)	Captain Gerald Davis, 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 Specializations of Personnel

McMurdo

	Summer		Winter	
	Military	*Civilian*	*Military*	*Civilian*
Administrators	12	9	0	4
Medical	0	16	0	3

	Summer		Winter	
	Military	*Civilian*	*Military*	*Civilian*
Comm/ET	0	11	0	4
Supply	0	45	0	20
Civil Engineering	0	7	0	1
Operations	0	150	0	33
Term Ops	12	63	0	0
Aviation	281	58	0	5
Construction	0	115	0	55
Science Lab Manager	0	1	0	0
Working Visitors	0	35	0	0
Scientists	0	140	0	7
Science Support	0	39	0	4

South Pole

	Summer		Winter	
	Military	*Civilian*	*Military*	*Civilian*
Science Support	0	8	0	4
Area Management	0	7	0	2
Station Operations	0	12	0	3
Food Service	0	12	0	1
Logistics	0	12	0	3
Construction	0	82	0	19
Information Systems	0	8	0	3
Scientists	0	50	0	8

Palmer Station

	Summer		Winter	
	Military	*Civilian*	*Military*	*Civilian*
Resident Manager	0	1	0	1
Administrators	0	1	0	0
FMC Coordinator	0	1	0	1
Mechanics	0	1	0	1

Communications/Computer Support	0	3	0	2
Supply	0	2	0	2
Cook	0	2	0	1
General Assistants	0	2	0	2
Construction/Tradesmen	0	3	0	7
Boating Coordinator	0	1	0	0
Scientists	0	18	0	0
Medical	0	1	0	1
Lab Manager/Instrument Technician	0	2	0	1
Working Visitors	0	10	0	0
Science Technician	0	1	0	1

Siple Dome Field Camp

	Summer Only	
	Military	*Civilian*
Camp Manager	0	1
Heavy Vehicle Mechanic	0	1
Cook(s)	0	3
Heavy Equipment Operator	0	1
Met Tech	0	2
Fuelie	0	1
Scientists	0	5
Aviation	0	13

Downstream Bravo Field Camp

	Summer Only	
	Military	*Civilian*
Camp Manager	0	1
Heavy Vehicle Mechanic	0	1
Scientists	0	12

Upstream Delta Camp

	Summer Only	
	Military	*Civilian*
Camp Manager	0	1
Heavy Vehicle Mechanic	0	1
Cook	0	1
Scientists	0	10

Ford Range Camp

	Summer Only	
	Military	*Civilian*
Camp Manager	0	1
Met Tech	0	1
Cook	0	1
Scientists	0	8

SHIPS

USCGC POLAR SEA

	Number of Personnel
Crew	160

Champion Class T-5 Tanker

	Number of Personnel
Crew	24

M/V GREEN WAVE

	Number of Personnel
Crew	21

R/V NATHANIAL B. PALMER

	Number of Personnel
Crew	21
Scientists	37

R/V LAURENCE M. GOULD

	Number of Personnel
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 (373 Scientists)

Aeronomy & Astrophysics (46 Scientists)

	I.D. No.	*Institution*
Piccirillo (+0)	AO-140-O	University of Wisnocsin
Adriani (+2)	AO-107-O	Instituto De Fisica Dell'Atmosfera
Rosenberg (+0)	AO-112-O	University of Maryland
Deshler (+3)	AO-131-O	University of Wyoming
Fraser-Smith (+1)	AO-100-O	Stanford University
deZafra (+2)	AO-137-O	State University of New York at Stony Brook
Lange (+13)	AB-033-O	California Institute of Technology

	I.D. No.	Institution
Rust (+)	AB-146-O	Johns Hopkins University, Applied Physics Lab
Peterzen (+11)	AB-145-O	National Scientific Balloon Facility (NSBF)

Biology & Medical Research (140 Scientists)

	I.D. No.	Institution
Doran (+1)	BM-118-O	University of Chicago
DeVries (+7)	BO-005-M	University of Illinois
Ainley (+7)	BO-031-O	H.T. Harvey & Associates
Bowser (+7)	BO-043-O	New York State Department of Health
Petzel (+9)	BO-012-O	Creighton University School of Medicine
Manahan (+40)	BO-301-O	University of Southern California
Berkman (+1)	BO-086-O	The Ohio State University
Davis (+9)	BO-017-O	Texas A & M University
Priscu (+1)	BM-042-P	Montana State University, Bozeman
Wall (+1)	BM-042-W	Colorado State University
Siniff (+7)	BO-009-O	University of Minnesota
Fritsen (+6)	BO-044-O	Montana State University
McKnight (+1)	BM-042-M	University of Colorado
Reed (+3)	BO-008-O	Madigan Army Medical Center (MAMC)
Lyons (+21)	BM-042-L	University of Alabama
Fountain (+1)	BM-042-F	Portland State University
Wharton (+1)	BM-042-B	Desert Research Institute

Environmental Research (9 Scientists)

	I.D. No.	Institution
Peterson (+8)	EO-302-O	University of North Carolina at Chapel Hill

Geology & Geophysics (94 Scientists)

	I.D. No.	Institution
Hallet (+7)	GO-053-O	University of Washington
Anandakrishnan (+4)	GO-180-O	The Pennsylvania State University
Kyle (+3)	GO-182-O	New Mexico Institute of Mining & Technology

	I.D. No.	Institution
Luyendyk (+6)	GF-121-O	University of California
Harvey (+5)	GO-058-O	Case Western Reserve University
Fitzgerald (+3)	GO-059-O	University of Arizona
Prentice (+4)	GO-063-O	University of New Hampshire
Goodge (+3)	GO-014-O	Southern Methodist University
Grunow (+3)	GO-062-O	The Ohio State University
Reynolds (+10)	GO-078-B	United States Geological Service
Siddoway (+5)	GF-088-O	Colorado College
Anderson (+2)	GO-078-A	U.S. Geological Survey
Jarrard (+1)	GL-055-O	University of Utah
Wilson (+2)	GL-079-O	The Ohio State University
Askin (+1)	GL-080-O	The Ohio State University
Kettler (+0)	GL-064-O	University of Nebraska
Harwood (+2)	GL-051-O	University of Nebraska-Lincoln
Webb (+1)	GL-049-A	The Ohio State University
Krissek (+3)	GL-070-O	Ohio State University
Verosub (+3)	GL-075-O	University of California -- Davis
Raymond (+2)	GO-082-O	California Institute of Technology
Webb (+1)	GL-049-B	The Ohio State University
Watkins (+0)	GL-057-O	University of Nebraska, Lincoln

Glaciology (55 Scientists*)*

	I.D. No.	Institution
Bindschadler (+2)	IO-173-O	National Aeronautics and Space Administration
Morack (+2)	IO-164-O	University of Alaska
Kamb (+9)	IO-157-O	California Institute of Technology
Taylor (+2)	II-152-O	Desert Research Institute
Mayewski (+7)	II-153-O	University of New Hampshire
Gow (+1)	II-165-O	Cold Regions Research and Engineering Laboratory
Albert (+1)	II-155-O	Cold Regions Research and Engineering Laboratory
Bender (+0)	IO-162-O	University of Rhode Island

	I.D. No.	Institution
Whillans (+4)	IO-169-O	The Ohio State University
Whillans (+1)	IS-166-O	The Ohio State University
Denton (+5)	IO-156-O	University of Maine
Fitzpatrick (+0)	II-160-O	United States Geological Survey
Bales (+1)	IO-158-O	The University of Arizona
Raymond (+2)	IO-163-O	University of Washington
McIntosh (+3)	IO-277-O	New Mexico Institute of Mining and Technology

Information Systems (2 Scientists)

	I.D. No.	Institution
Currier (+1)	TO-308-O	NASA Wallops Flight Facility

Polar Information (2 Personnel)

	I.D. No.	Institution
Barker (+0)	WO-003-O	No affiliation
Markle (+0)	WO-031-O	No affiliation

Ocean & Climate Systems (3 Scientists)

	I.D. No.	Institution
Stearns (+2)	OO-283-M	University of Wisconsin
Stearns (+0)	OO-202-O	University of Wisconsin

Polar Research Support (21 Scientists)***)***

	I.D. No.	Institution
Kuivinen (+21)	TI-150-B	University of Nebraska - Lincoln

McMURDO and PALMER STATIONS

Polar Research Support *(1 Scientist)*

	I.D. No.	*Institution*
Whritner (+TBA)	TO-312-O	Scripps Institution of Oceanography

MCMURDO, SOUTH POLE AND VOSTOK STATIONS

Aeronomy and Astrophysics (2 Scientists)

	I.D. No.	*Institution*
Papitashvili (+1)	AO-105-O	University of Michigan

MCMURDO STATION and R/V NATHANIEL B. PALMER

Polar Ocean and Climate Systems (8 Scientists)

	I.D. No.	*Institution*
Lizotte (+7)	OR-216-C	University of Wisconsin

MCMURDO AND SOUTH POLE STATIONS (48 Scientists)

Aeronomy and Astrophysics (12 Scientists)

	I.D. No.	*Institution*
Arnoldy (+0)	AO-102-O	University of New Hampshire
Rosenberg (+1)	AO-111-O	University of Maryland
Murcray (+1)	AO-148-O	University of Denver
Abshire (+2)	AO-126-O	NASA Goddard Flight Center
Bieber (+1)	AO-120-O	University of Delaware
Lanzerotti (+0)	AO-101-O	Bell Laboratories, Lucent Technologies
LaBelle (+0)	AO-128-O	Dartmouth College

Biology and Medicine Program (4 Scientists)

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

Geology and Geophysics (27 Scientists)

	I.D. No.	*Institution*
Blankenship (+17)	GS-098-O	University of Texas at Austin
Johns (+1)	GO-295-O	UNAVCO/UCAR
Mullins (+6)	GO-052-O	US Geological Survey

Polar Research Support (5 Scientists)

	I.D. No.	*Institution*
Rainbow (+4)	TO-296-O	Antarctic Support Associates

MCMURDO STATION AND USCGC POLAR SEA

Polar Ocean and Climate Systems (4 Scientists)

	I.D. No.	*Institution*
Wendler (+3)	OO-263-O	University of Alaska Fairbanks

OTHER NATIONAL ANTARCTIC PROGRAM STATIONS

(11 Scientists)

Aeronomy and Astrophysics (No deploying personnel)

	I.D. No.	*Institution*
Engebretson	AO-273-O	Augsburg College

Biology and Medicine Program (3 Scientists)

	I.D. No.	*Institution*
Costa (+2)	BO-267-O	University of California Santa Cruz

Geology and Geophysics (5 Scientists)

	I.D. No.	*Institution*
Grew (+0)	GO-067-O	University of Maine
Case (+3)	GO-061-O	Saint Mary's College of California

Polar Ocean and Climate Systems (3 Scientists)

	I.D. No.	*Institution*
Pilskaln (+2)	OO-278-O	University of Maine

PALMER STATION - ONLY (15 Scientists)

Aeronomy and Astrophysics (1 Scientist)

	I.D. No.	*Institution*
Inan (+0)	AO-106-O	Stanford University

Biology and Medicine Program (2 Scientists)

	I.D. No.	*Institution*
Martinson (+1)	BP-021-O	Columbia University

Geology and Geophysics (2 Scientists)

	I.D. No.	*Institution*
Butler (+1)	GO-091-O	Incorporated Research Institutions for Seismology

Polar Climate and Ocean Systems (10 Scientists)

	I.D. No.	*Institution*
Peterson (+1)	OO-264-O	National Oceanic and Atmospheric Administration
Sanderson (+1)	OO-275-O	U.S. Department of Energy
Keeling (+1)	OO-204-O	University of California, San Diego
Rasmussen (+1)	OO-254-O	Oregon Graduate Institute of Science and Technology
Stearns (+1)	OO-283-P	University of Wisconsin

PALMER STATION and R/V LAURENCE M. GOULD

(43 Scientists and Personnel)

Biology and Medicine Program (41 Scientists)

	I.D. No.	Institution
Detrich, III (+5)	BO-037-O	Northeastern University
Smith (+5)	BP-032-O	University of California, Santa Barbara
Detrich, III (+2)	BO-029-O	Northeastern University
Day (+3)	BO-003-O	Arizona State University
Fraser (+3)	BP-013-O	Montana State University
Sidell (+4)	BO-036-O	University of Maine
Vernet (+4)	BP-016-O	Scripps Institution of Oceanography
Quetin (+7)	BP-028-O	University of California, Santa Barbara

Polar Information (2 Personnel)

	I.D. No.	Institution
deLeiris (+1)	WO-004-O	Antarctic Artists and Writers Program

R/V LAURENCE M. GOULD - ONLY (48 Scientists)

Biology and Medicine Program (38 Scientists)

	I.D. No.	Institution
Mopper (+8)	BO-002-A	Washington State University
Felbeck (+3)	BO-085-O	University of California, San Diego
Trivelpiece (+4)	BO-040-O	NOAA
Neale (+3)	BO-010-O	Smithsonian Institution
Smith (+9)	BO-050-O	University of California at San Diego
Jeffrey (+3)	BO-200-O	University of West Florida
Kieber (+1)	BO-002-B	SUNY College of Environmental Science and Forestry

Environmental Research (2 Scientists)

	I.D. No.	*Institution*
Anderson (+1)	BO-300-O	Woods Hole Oceanographic Institution

Geology and Geophysics (6 Scientists)

	I.D. No.	*Institution*
Dalziel (+1)	GO-087-O	University of Texas
Domack (+3)	GO-072-A	Hamilton College

Polar Information (1 Scientist)

	I.D. No.	*Institution*
Vuilleumier (+0)	WO-002-O	American Museum of Natural History

Polar Ocean and Climate Systems (1 Scientist)

	I.D. No.	*Institution*
Peterson (+0)	OO-260-O	University of California San Diego

R/V NATHANIEL B. PALMER - ONLY (66 Scientists)

Biology and Medicine Program (15 Scientists)

	I.D. No.	*Institution*
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 (19 Scientists)

	I.D. No.	*Institution*
Klinkhammer (+9)	GO-060-O	Oregon State University
Anderson (+8)	GO-083-O	Rice University

Polar Ocean and Climate Systems (32 Scientists)

	I.D. No.	Institution
Barry (+4)	OR-216-B	Monterey Bay Aquarium Research Institute
Kawamura (+1)	OX-266-O	Institute of Low Temperature Science
Van Woert (+3)	OR-216-D	National Oceanographic Atmospheric Association
Leventer (+1)	OR-216-F	Colgate University
Jeffries (+10)	OX-286-O	University of Alaska, Fairbanks
Dunbar (+7)	OR-216-A	Stanford University

R/V NATHANIEL B. PALMER and R/V LAURENCE M. GOULD (18 Scientists)

Biology and Medicine Program (10 Scientists)

	I.D. No.	Institution
Karl (+9)	BP-046-O	University of Hawaii

Geology and Geophysics (8 Scientists)

	I.D. No.	Institution
Dorman (+4)	GO-135-O	University of California San Diego
Wiens (+2)	GO-097-O	Washington University

SOUTH POLE STATION - ONLY (112 Scientists)

Aeronomy & Astrophysics (89 Scientists)

	I.D. No.	Institution
Gaisser (+2)	AO-109-O	University of Delaware
Novak (+1)	AC-132-G	Northwestern University
Besson (+0)	AA-123-O	University of Kansas
Papen (+3)	AO-127-O	University of Illinois
Ejiri (+5)	AO-117-O	National Institute of Polar Research
Meyer (+19)	AC-132-A	University of Chicago

Mende (+1)	AO-104-O	University of California
Hernandez (+2)	AO-110-O	University of Washington
Peterson (+1)	AC-132-F	Carnegie-Mellon University
DeZafra (+1)	AO-138-O	State University of New York at Stony Brook
Morse (+34)	AA-130-O	University of Wisconsin
Inan (+0)	AO-108-O	Stanford University
Loewenstein (+1)	AC-132-E	University of Chicago
Platt (+1)	AC-132-D	University of Nebraska
Loewenstein (+1)	AC-132-C	University of Chicago
Stark (+1)	AC-132-B	Smithsonian Institution

Environmental Research (2 Scientists)

	I.D. No.	*Institution*
Hansen (+1)	EO-314-O	Magee Scientific Company

Geology & Geophysics (6 Scientists)

	I.D. No.	*Institution*
Butler (+2)	GO-090-O	Incorporated Research Institutions for Seismology

Ocean & Climate Systems (13 Scientists)

	I.D. No.	*Institution*
Tape (+2)	OO-208-O	University of Alaska, Fairbanks
Davis (+3)	OO-270-O	Georgia Institute of Technology
Hofmann (+5)	OO-257-O	National Oceanic and Atmospheric Administration

Polar Research Support (5 Scientists)

	I.D. No.	*Institution*
Kuivinen (+4)	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 1998-99 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.

	McMurdo	SPole	Palmer	LMG[1]	NBP[2]	AGO[3]
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				
Dewar, Liquid Nitrogen Storage		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				

	McMurdo	SPole	Palmer	LMG[1]	NBP[2]	AGO[3]
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				
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				
Telescope, Optical		X				
Telescope, Submillimeter		X				

	McMurdo	SPole	Palmer	LMG[1]	NBP[2]	AGO[3]
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				
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			
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			
Camera, Solid State, for Microscopic Image Analysis	X			X		
Camera, Still, Underwater	X					X
Camera, Video, for Microscopy	X					
Camera, Video, Underwater, w/time lapse capability and remote viewing	X		X			
Cell Disrupter	X		X			

	McMurdo	SPole	Palmer	LMG[1]	NBP[2]	AGO[3]
Cell Injector, Micro	X					
Centrifuge, Clinical	X		X	X	X	
Centrifuge, 20K RPM	X		X			
Centrifuge, Refrigerated Speed Vac	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	
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		

	McMurdo	SPole	Palmer	LMG[1]	NBP[2]	AGO[3]
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		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			
Hood, Fume	X		X	X	X	
Hood, Portable Fume Absorber			X	X	X	
Incubator,Hybridization	X					
Incubator, Low Temperature	X		X	X	X	
Laboratory, Portable (for sea ice)	X			X	X	
Laminar Flow Bench	X		X		X	
Light Pipette	X					
Lipid Analysis System	X					
Luminometer			X			

	McMurdo	SPole	Palmer	LMG[1]	NBP[2]	AGO[3]
Melter, Ice Hole	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					
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					
Microscope, Inverted, Epifluorescence	X		X			
Microtome	X					
Microtome, Cryostat	X					
Oscillograph, Recording, Thermal, 8 Channel	X					
Oscilloscope	X	X	X	X	X	
Osmometer, Vapor Pressure	X		X			
Oven	X	X	X	X	X	
Oxygen-Analyzing System	X		X		X	
Photometer, Integrating (for ATP)	X					
Photometer, Flame	X					
Photosynthesis System	X					
Phototransilluminator	X		X			
Processor, Tissue	X		X			

	McMurdo	SPole	Palmer	LMG[1]	NBP[2]	AGO[3]
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			
Thermocycler, PCR	X		X			
Thermometer, Digital	X		X	X	X	
Transponder Reader	X					
Ultracentrifuge	X		X		X	
Ultrafiltration Unit	X		X	X		
VCR, High Resolution	X					
Vibration-free table	X		X	X	X	
Video System, Underwater	X		X	X	X	
Voltage Clamp	X					

	McMurdo	SPole	Palmer	LMG[1]	NBP[2]	AGO[3]
Water Purification System	X	X	X	X	X	
Workstation, PICO Tag	X					
Computers						
MacIntosh:						
Computer, Desktop, LC	X	X				
Computer, Desktop, IICI	X		X		X	
Computer, Portable, Powerbook 170	X		X			
Computer, Power 604 Clone	X			X	X	
Computer, Powerbook 5300c	X		X	X		
Computer, Quadra 950	X	X				
Computer, Classic	X	X				
Macintosh Power PC 7100	X	X				
Macintosh Power PC 7200	X		X	X	X	
Mini:						
DEC Microvax	X	X	X			
DEC PDP-II	X	X				
DEC PDP II-73		X				
PC:						
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, XT	X					
Computer, Portable, 286	X					
Computer, Portable, 386	X		X		X	
Computer, Portable, 486	X		X	X	X	
Computer, Server, 486	X	X	X		X	

	McMurdo	SPole	Palmer	LMG[1]	NBP[2]	AGO[3]
Computer, Server, 586	X			X	X	
Workstation:						
HP 9000	X		X			
SGI Challenge L (Multibeam computers)					X	
SGI Indigo R3000						
SGI Iris	X				X	
SPARC IPX	X	X				
Sun SPARC 2	X	X	X		X	
SGI Indy				X	X	
Printers						
Dot Matrix	X	X	X	X	X	
Dye Sublimation, Color	X				X	
Ink Jet, Monochrome	X			X	X	
Ink Jet, Color	X		X	X	X	
Laser	X	X	X	X	X	
Miscellaneous						
Bernoulli Disk			X			
CDRom - R	X		X	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				

	McMurdo	SPole	Palmer	LMG[1]	NBP[2]	AGO[3]
Analyzer, CO	X				X	
Analyzer, NOx	X					
Analyzer, Pesticide/PUF	X					
Analyzer, SO_2	X					
Calibration System, Multigas	X				X	
Concentrator, Turbo-Vap II	X					
Current Meter	X			X	X	
Deck unit/Transducer	X			X	X	
Sampler, Air, Hi-Vol.	X					
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, 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	

	McMurdo	SPole	Palmer	LMG[1]	NBP[2]	AGO[3]
Recorders, EPC Analog				X	X	
Rock Saws	X			X		
Rock Polisher, Automatic	X			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			
Swath bathymetric mapping system					X	
Thin-Section Machine	X			X		
Time Standard			X		X	
X-ray Instrument, whole core	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	

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

	McMurdo	SPole	Palmer	LMG[1]	NBP[2]	AGO[3]
Weather Station	X		X			
Weather Stations, Automatic	X	X	X			
Weather System				X	X	
Wind System and Recorder with Transmitter	X		X	X	X	
Wind Anemometers	X	X	X	X	X	
Wind Indicators	X	X	X	X	X	
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	
Go-Flo Bottles	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						

	McMurdo	SPole	Palmer	LMG[1]	NBP[2]	AGO[3]
Laboratory Van				X	X	
Launcher, XBT				X	X	
Magnetometers	X				X	
Messenger	X		X	X	X	
Metering Sheave	X			X	X	
Niskin Bottle	X		X	X	X	
PDR System, 3.5 and 12 KHz				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			
Seismology						
Gravimeters, Earth Tide						
Gravimeter, Lacoste & Romberg (Land)						
Gravimeter, Lacoste & Romberg (Marine)					X	
IRIS System		X	X			
Receiver, GPS	X	X	X	X	X	

	McMurdo	SPole	Palmer	LMG[1]	NBP[2]	AGO[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					
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	
Tracking System, Satellite	X	X				
Transceivers, Satellite, ATS-3	X	X	X	X	X	
Un-interruptable power supply (UPS)	X	X	X	X	X	
Video Camcorder		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)	106
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

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 of frequencies see attached forms at end of this section.

The following projects are contemplated for the FY98-99 season in Antarctica.

McMurdo Station

1. Implement modifications to portable repeater power systems.
2. Install Base radio at T-site for ANG requirements.
3. Install new Helo Flight Following station for ATS in Bldg. 165.
4. Install VHF base radio in Crary Lab Rm. 213.
5. Install Microwave radio equipment for MRSF and LDB.

6. Install CoastCom channel banks and signal conditioning equipment for MRSF ANG HF remote control to T-site.
7. Install Pairgain equipment at Williams Field for AB-145-0 support.
8. Install and configure new DEC Prioris file server to replace MCM2.
9. Install and implement new SIMS e-mail system to replace DaVinci and Unix e-mail accounts.
10. Install 10 GPS units in Sprites for BFC.
11. Receive and install 2 refurbished AN/FRT-83 transmitters for T-site.
12. Stage, install, and test prototype GOES-3 satellite communications system for field camp use.
13. Install remote HF radio equipment for ANG at Ice Tower.
14. Erect 3 antenna towers at big Razorback for S-009.
15. Install, configure, and support the NYANG's new computer equipment and meet their operational requirements.
16. Terminate 36-MM fiber optic cable for MGS-AH/CRARY.
17. Install 24/12 composite fiber optic cable for MGS-AH/CRARY.
18. Install 24/12 composite fiber optic cable for MGS-AH/AH B-197.
19. Install SW56 terminal selection switch in AFRTS studio.
20. Install 2 DEC Prioris Servers to complete the server life cycle replacement.

South Pole Station

1. Replace the GOES-3 antenna controller, and upgrade the antenna systems.
2. Relocate the GOES-3 and LES-9 controller and preamplifiers from the first floor communications closet to the second floor TDRSS satellite operations room.
3. Install new 12 pair telephone cables from the new TACAN location to Building 68 IDF.
4. Install telephone and LAN landlines from the NSF office to the Construction Office network concentrator and the telephone IDF.
5. Install backup Windows NT Exchange server.
6. Complete all LAN, telephone, fire alarm, and CCTV installations required for the new Garage facility, and the new fuel arch upgrades.

Palmer Station

1. Replace HF transceivers.
2. Replace ATS-3 communications system.
3. Install backup Windows NT Exchange server.
4. Upgrade communication and data system equipment space.
5. Install the necessary telephone and network hardware, cabling, and terminal connections to BIOMED and GWR spaces.

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. A Mobile Microwave Landing System (MMLS) will be installed for testing during the early Austral Summer.

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, C-130 and TC-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 100 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.

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, two 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 1998-99 season using 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-829
November 1998

Ports	Dates
Port Stanley, FALKLAND ISLANDS	07 NOV 1998
Southeast Falklands	08 NOV 1998
at sea	09-10 NOV 1998
South Georgia	11-13 NOV 1998
at sea	14 NOV 1998
South Orkneys	15 NOV 1998
Antarctic Peninsula	16-19 NOV 1998
at sea	20-21 NOV 1998
Ushuaia, ARGENTINA	22 NOV 1998

Cruise EX-830
November/December 1998

Ports	Dates
Ushuaia, ARGENTINA	22 NOV 1998
at sea	23-24 NOV 1998
Antarctic Peninsula	25-29 NOV 1998
at sea	30 NOV - 01 DEC 1998
Ushuaia, ARGENTINA	02 DEC 1998

Cruise EX-831
December 1998

Ports	Dates
Ushuaia, ARGENTINA	02 DEC 1998
at sea	03-04 DEC 1998
Antarctic Peninsula	05-09 DEC 1998
Drake Passage (at sea)	10-11 DEC 1998
Ushuaia, ARGENTINA	12 DEC 1998

Cruise EX-832
December 1998

Ports	**Dates**
Ushuaia, ARGENTINA	12 DEC 1998
at sea	13-14 DEC 1998
Antarctic Peninsula	15-19 DEC 1998
at sea	20-21 DEC 1998
New & Carcass Islands, Falklands	22 DEC 1998
Port Stanley, FALKLAND ISLANDS	23 DEC 1998

Cruise EX-833
December 1998/January 1999

Ports	**Dates**
Port Stanley, FALKLAND ISLANDS	23 DEC 1998
Carcass/New Island	24 DEC 1998
at sea	25-26 DEC 1998
Antarctic Peninsula	27 DEC - 01 JAN 1999
Drake Passage (at sea)	02-03 JAN 1999
Ushuaia, ARGENTINA	04 JAN 1999

Cruise EX-901
January 1999

Ports	**Dates**
Ushuaia, ARGENTINA	04 JAN 1999
Drake Passage (at sea)	05-06 JAN 1999
Antarctic Peninsula	07-11 JAN 1999
at sea	12-13 JAN 1999
Ushuaia, ARGENTINA	14 JAN 1999

Cruise EX-902
January/February 1999

Ports	**Dates**
Ushuaia, ARGENTINA	17 JAN 1999
at sea	18-19 JAN 1999
Antarctic Peninsula	20-23 JAN 1999

South Orkneys	24 JAN 1999
at sea	25 JAN 1999
South Georgia	26-28 JAN 1999
at sea	29-30 JAN 1999
Southeast Falklands	31 JAN 1999
Port Stanley, FALKLAND ISLANDS	01 FEB 1999

Cruise EX-903
February 1999

Ports	**Dates**
Port Stanley, FALKLAND ISLANDS	01 FEB 1999
Carcass/New Island	02 FEB 1999
at sea	03-04 FEB 1999
Antarctic Peninsula	04-11 FEB 1999
at sea	12-13 FEB 1999
Ushuaia, ARGENTINA	14 FEB 1999

Cruise EX-904
February 1999

Ports	**Dates**
Ushuaia, ARGENTINA	14 FEB 1999
at sea	15-16 FEB 1999
Antarctic Peninsula	17-21 FEB 1999
at sea	22-23 FEB 1999
Ushuaia, ARGENTINA	24 FEB 1999

Cruise EX 905
February /March 1999

Ports	**Dates**
Ushuaia, ARGENTINA	24 FEB 1999
at sea	25-26 FEB 1999
Antarctic Peninsula	27 FEB -02 MAR 1999
South Orkneys	03 MAR 1999
at sea	04 MAR 1999
South Georgia	05-07 MAR 1999

at sea	08-09 MAR 1999
Southeast Falklands	10 MAR 1999
Port Stanley, FALKLAND ISLANDS	11 MAR 1999

Society Expeditions

Society Expeditions of Seattle, Washington, is planning six cruises to the Antarctic Peninsula during the 1998-99 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-#83011
November/December 1998

Ports	**Dates**
Ushuaia, ARGENTINA	30 NOV 1998
at sea	01-02 DEC 1998
Antarctic Peninsula	03-07 DEC 1998
Elephant Island	08 DEC 1998
South Orkney Islands	09 DEC 1998
at sea	10 DEC 1998
South Georgia	11-13 DEC 1998

at sea	14-15 DEC 1998
Sea Lion and Bleaker Islands, Falklands	16 DEC 1998
Port Stanley, FALKLAND ISLANDS	17 DEC 1998

Cruise WD-#81712
December 1998/January 1999

Ports	**Dates**
Port Stanley, FALKLAND ISLANDS	17 DEC 1998`
Seal Lion and Bleaker Islands, Falklands	18 DEC 1998
at sea	19-20 DEC 1998
South Georgia	21-23 DEC 1998
at sea	24 DEC 1998
South Orkneys	25 DEC 1998
Elephant Island	26 DEC 1998
Antarctic Peninsula	27-31 DEC 1998
at sea	01-02 JAN 1999
Ushuaia, ARGENTINA	03 JAN 1999

Cruise WD-#90301
January 1999

Ports	**Dates**
Ushuaia, ARGENTINA	03 JAN 1999
at sea	04-05 JAN 1999
Antarctic Peninsula	06-11 JAN 1999
at sea	12-13 JAN 1999
Ushuaia, ARGENTINA	14 JAN 1999

Cruise WD-#91401
January 1999

Ports	**Dates**
Ushuaia, ARGENTINA	14 JAN 1999
at sea	15-16 JAN 1999
Antarctic Peninsula	17-21 JAN 1999
Elephant Island	22 JAN 1999
South Orkneys	23 JAN 1999
at sea	24 JAN 1999

South Georgia	25-27 JAN 1999
at sea	28-29 JAN 1999
Sea Lion/Bleaker Islands, Falklands	30 JAN 1999
Port Stanley, FALKLAND ISLANDS	31 JAN 1999

Cruise WD-#93101
January/February 1999

Ports	**Dates**
Port Stanley, FALKLAND ISLANDS	31 JAN 1999
at sea	01-02 FEB 1999
Antarctic Peninsula	03-06 FEB 1999
Elephant Island	07 FEB 1999
South Orkneys	08 FEB 1999
at sea	09 FEB 1999
South Georgia	10-12 FEB 1999
at sea	13-14 FEB 1999
Sea Lion/Bleaker Islands, Falklands	15 FEB 1999
Port Stanley, FALKLAND ISLANDS	16 FEB 1999

Cruise WD-#91602
February/March 1999

Ports	**Dates**
Port Stanley, FALKLAND ISLANDS	16 FEB 1999
Sea Lion/Bleaker Islands, Falklands	17 FEB 1999
at sea	18 FEB 1999
Antarctic Peninsula	19-24 FEB 1999
at sea	25-26 FEB 1999
Beagle Channel	27 FEB 1999
Chilean Fjords	28 FEB - 03 MAR 1999
Castro, Chiloe Island	04 MAR 1999
at sea	05 MAR 1999
Talchauano, CHILE	06 MAR 1999

Quark Expeditions

Quark Expeditions of Darien, Connecticut, is planning approximately 23 cruises to the Antarctic during 1998-99 using three chartered vessels. The Professor Molchanov will conduct 10 cruises, the Professor Multanovskiy will conduct 10 and Kapitan Khlebnikov will conduct three.

PROFESSOR MOLCHANOV

The vessel was built in 1983 in Finland and designed as an ice-strengthened research vessel. It has now been refurbished and refitted to provide comfortable passenger accommodation. The vessel's call sign is UUQR. It measures 71.6 meter in length, 12.8 meters in breadth, approximately 4.5 meters in draft, and a displacement of 2140 tons. The vessel is powered by two 1560 hp diesel engines and is capable of sea speeds of 14 knots. The Molchanov has a full compliment of zodiac landing craft. The vessel can accommodate 38 passengers and approximately 30 crew.

Schedules for each of the cruises follows:

Cruise MOL #890

November 1998

Port	**Dates**
Puerto Madryn, ARGENTINA	11 NOV 1998
at sea	12-13 NOV 1998
New Island, Falkand Islands	14 NOV 1998
at sea	15-16 NOV 1998
Antarctic Peninsula	17-20 NOV 1998
Drake Passage (at sea)	21-22 NOV 1998
Ushuaia, ARGENTINA	23 NOV 1998

Cruise MOL #891
November/December 1998

Port	Dates
Ushuaia, ARGENTINA	23 NOV 1998
at sea	24 NOV 1998
Sea Lion Isalnd, Falkland Islands	25 NOV 1998
Port Stanley, Falkland Islands	26 NOV 1998
at sea	27-28 NOV 1998
South Georgia	29 NOV - 02 DEC 1998
at sea	03 DEC 1998
South Orkneys	04 DEC 1998
Antarctic Peninsula	05-08 DEC 1998
Drake Passage (at sea)	09-10 DEC 1998
Ushuaia, ARGENTINA	11 DEC 1998

Cruise MOL #892
December 1998

Port	Dates
Ushuaia, ARGENTINA	11 DEC 1998
Drake Passage (at sea)	12-13 DEC 1998
Antarctic Peninsula	14-18 DEC 1998
Drake Passage (at sea)	19-20 DEC 1998
Ushuaia, ARGENTINA	21 DEC 1998

Cruise MOL #893
December 1998

Port	Dates
Ushuaia, ARGENTINA	21 DEC 1998
Drake Passage (at sea)	22-23 DEC 1998
Antarctic Peninsula	24-28 DEC 1998
Drake Passage (at sea)	29-30 DEC 1998
Ushuaia, ARGENTINA	31 DEC 1998

Cruise MOL #894
December 1998/January 1999

Port	Dates
Ushuaia, ARGENTINA	31 DEC 1998
Drake Passage (at sea)	01-02 JAN 1999
Antarctic Peninsula	03-07 JAN 1999
Drake Passage (at sea)	08-09 JAN 1999
Ushuaia, ARGENTINA	10 JAN 1999

Cruise MOL #901
January 1999

Port	Dates
Ushuaia, ARGENTINA	10 JAN 1999
Drake Passage (at sea)	11 JAN 1999
Sea Lion Island, Falklands	12 JAN 1999
Port Stanley, Falkland Islands	13 JAN 1999
at sea	14-15 JAN 1999
South Georgia	16-19 JAN 1999
at sea	20 JAN 1999
South Orkneys	21 JAN 1999
Elephant Island	22 JAN 1999
Antarctic Peninsula	23-25 JAN 1999
Drake Passage (at sea)	26-27 JAN 1999
Ushuaia, ARGENTINA	28 JAN 1999

Cruise MOL #902
January/February 1999

Port	Dates
Ushuaia, ARGENTINA	28 JAN 1999
Drake Passage (at sea)	29-30 JAN 1999
Antarctic Peninsula	31 JAN - 04 FEB 1999
Drake Passage (at sea)	05-06 FEB 1999
Ushuaia, ARGENTINA	07 FEB 1999

Cruise MOL #903
February 1999

Port	Dates
Ushuaia, ARGENTINA	07 FEB 1999
Drake Passage (at sea)	08-09 FEB 1999
Antarctic Peninsula	10-15 FEB 1999
Drake Passage (at sea)	16-17 FEB 1999
Ushuaia, ARGENTINA	18 FEB 1999

Cruise MOL #904
February/March 1999

Port	Dates
Ushuaia, ARGENTINA	18 FEB 1999
Drake Passage (at sea)	19-20 FEB 1999
Antarctic Peninsula	21-26 FEB 1999
Drake Passage (at sea)	27-28 FEB 1999
Ushuaia, ARGENTINA	01 MAR 1999

Cruise MOL #905
March 1999

Port	Dates
Ushuaia, ARGENTINA	01 MAR 1999
Drake Passage (at sea)	02-03 MAR 1999
Antarctic Peninsula	04-06 MAR 1999
Elephant Island	07 MAR 1999
at sea	08-09 MAR 1999
South Georgia	10-12 MAR 1999
at sea	13-15 MAR 1999
Port Stanley, Falkland Islands	16 MAR 1999
Carcass/Westpoint Islands, Falkland Islands	17 MAR 1999
at sea	18 MAR 1999
Ushuaia, ARGENTINA	19 MAR 1999

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 #890

November 1998

Port	Dates
Ushuaia, ARGENTINA	12 NOV 1998
at sea	13-14 NOV 1998
Antarctic Peninsula	15-19 NOV 1998
at sea	20-21 NOV 1998
Ushuaia, ARGENTINA	22 NOV 1998

Cruise MUL #891

November/December 1998

Port	Dates
Ushuaia, ARGENTINA	22 NOV 1998
at sea	23 NOV 1998
Falkland Islands	24-25 NOV 1998
at sea	26-27 NOV 1998
South Georgia	28 NOV - 01 DEC 1998
at sea	02-03 DEC 1998
Antarctic Peninsula	04-07 DEC 1998
Drake Passage (at sea)	08-09 DEC 1998
Ushuaia, ARGENTINA	10 DEC 1998

Cruise MUL #892
December 1998

Port	Dates
Ushuaia, ARGENTINA	10 DEC 1998
Drake Passage (at sea)	11-12 DEC 1998
Antarctic Peninsula	13-17 DEC 1998
Drake Passage (at sea)	18-19 DEC 1998
Ushuaia, ARGENTINA	20 DEC 1998

Cruise MUL #893
December 1998

Port	Dates
Ushuaia, ARGENTINA	20 DEC 1998
Drake Passage (at sea)	21-22 DEC 1998
Antarctic Peninsula	23-26 DEC 1998
Drake Passage (at sea)	27-28 DEC 1998
Ushuaia, ARGENTINA	29 DEC 1998

Cruise MUL #894
December1998/January 1999

Port	Dates
Ushuaia, ARGENTINA	29 DEC 1998
Drake Passage (at sea)	30-31 DEC 1998
Antarctic Peninsula	01-04 JAN 1999
Drake Passage (at sea)	05-06 JAN 1999
Ushuaia, ARGENTINA	07 JAN 1999
(repositioning of ship to Port Stanley)	08 JAN 1999

Cruise MUL #901
January 1999

Port	Dates
Port Stanley, FALKLAND ISLANDS	09 JAN 1999
at sea	11-12 JAN 1999

South Georgia	13-16 JAN 1999
at sea	17-19 JAN 1999
Port Stanley, FALKLAND ISLANDS	20 JAN 1999

Cruise MUL #902
January 1999

Port	**Dates**
Port Stanley, FALKLAND ISLANDS	20 JAN 1999
Drake Passage (at sea)	21-22 JAN 1999
Antarctic Peninsula	23-28 JAN 1999
Drake Passage (at sea)	29-30 JAN 1999
Ushuaia, ARGENTINA	31 JAN 1999

Cruise MUL #903
January/February 1999

Port	**Dates**
Ushuaia, ARGENTINA	31 JAN 1999
Drake Passage (at sea)	01-02 FEB 1999
Antarctic Peninsula	03-07 FEB 1999
Drake Passage (at sea)	08-09 FEB 1999
Sea Lion/Bleeker Islands, Falklands	10 FEB 1999
Port Stanley, FALKLAND ISLANDS	11 FEB 1999

Cruise MUL #904
February 1999

Port	**Dates**
Port Stanley, FALKLAND ISLANDS	11 FEB 1999
at sea	12-14 FEB 1999
South Georgia	15-18 FEB 1999
at sea	19-21 FEB 1999
Port Stanley, FALKLAND ISLANDS	22 FEB 1999

Cruise MUL #905
February/March 1999

Port	Dates
Port Stanley, FALKLAND ISLANDS	22 FEB 1999
at sea	23-24 FEB 1999
Antarctic Peninsula	25-28 FEB 1999
South Orkneys	01 MAR 1999
at sea	02 MAR 1999
South Georgia	03-06 MAR 1999
at sea	07-08 MAR 1999
Port Stanley, Falkland Islands	09 MAR 1999
Carcass/Westpoint Islands, Falklands	10 MAR 1999
at sea	11 MAR 1999
Ushuaia, ARGENTINA	12 MAR 1999

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 #831
November/December 1998

Port	Dates
Port Elizabeth, AUSTRALIA	18 NOV 1998
at sea	19-23 NOV 1998
Crozet Island	24 NOV 1998
at sea	25-26 NOV 1998

Kerguelen Island	27-28 NOV 1998
Heard Island	29 NOV 1998
at sea	30 NOV - 02 DEC 1998
Pack Ice Edge	03 DEC 1998
Kloa Point Rookery	04 DEC 1998
Mawson/Auster Rookery	05 DEC 1998
Scullin/Murray Monolith	06 DEC 1998
Darnley/Flutter	07 DEC 1998
Prrydz Bay	08 DEC 1998
Zongshan Station/Larsemann Hills	09 DEC 1998
Davis Station	10 DEC 1998
Pack Ice Edge	11-12 DEC 1998
at sea	13-18 DEC 1998
Fremantle, AUSTRALIA	19 DEC 1998

Cruise KLB #832
December 1998/January 1999

Port	**Dates**
Freemantle, AUSTRALIA	20 DEC 1998
at sea	21-27 DEC 1998
Heard Island	28-29 DEC 1998
at sea	30-31 DEC 1998
Mawson Station	01 JAN 1999
Scullin/Murray Monolith	02 JAN 1999
Cape Darnley/Amery	03 JAN 1999
Zhongshan Station	04 JAN 1999
(swing day)	05 JAN 1999
Davis Station	06 JAN 1999
Pack ice edge	07-08 JAN 1999
at sea	09-14 JAN 1999
Hobart, AUSTRALIA	15 JAN 1999

Cruise KLB #901
January/February 1999

Port	**Dates**
Hobart, AUSTRALIA	15 JAN 1999

at sea	16-17 JAN 1999
Macquarie Island	18-19 JAN 1999
at sea	20-21 JAN 1999
Balleny Islands	22 JAN 1999
Cape Adare/Possession Island	23 JAN 1999
Ross Sea	24-29 JAN 1999
Cape Hallett	30 JAN 1999
at sea	31 JAN -02 FEB 1999
Campbell Island	03 FEB 1999
Enderby Island	04 FEB 1999
at sea	05-06 FEB 1999
Hobart, AUSTRALIA	07 FEB 1999

Cruise KLB #902
February/March 1999

Port	**Dates**
Hobart, AUSTRALIA	08 FEB 1999
at sea	09-10 FEB 1999
Macquarie Island	11-12 FEB 1999
at sea	13-14 FEB 1999
Balleny Islands	15 FEB 1999
Cape Adare	16 FEB 1999
Cape Hallett	17 FEB 1999
Coulman Island	18 FEB 1999
McMurdo Station/Scott Basee	19 FEB 1999
Dry Valleys	20 FEB 1999
Cape Royds/Cape Evans	21 FEB 1999
Ross Ice Shelf	22 FEB 1999
at sea	23- 27 FEB 1999
Peter 1st Island	28 FEB 1999
at sea	01 MAR 1999
Antarctic Peninsula	02-05 MAR 1999
at sea	06 MAR 1999
Ushuaia, ARGENTINA	07 MAR 1999

Orient Lines, Inc.

Orient Lines, Inc. of For Lauderdale, Florida, plans to conduct 4 cruises to the Antarctic during the 1998-99 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 1998/January 1999

Port	Dates
Buenos Aires, ARGENTINA	30 DEC 1998
at sea	31 DEC - 01 JAN 1999
Falkland Islands	02-03 JAN 1999
at sea	04 JAN 1999
Antarctic Peninsula	05-08 JAN 1999
at sea	09-10 JAN 1999
Ushuaia, ARGENTINA	11 JAN 1999

Cruise MP #2
January 1999

Port	Dates
Ushuaia, ARGENTINA	11 JAN 1999
at sea	12-13 JAN 1999
Antarctic Peninsula	14-17 JAN 1999
at sea	18-19 JAN 1999
Ushuaia, ARGENTINA	20 JAN 1999

Cruise MP #3
January 1999

Port	Dates
Ushuaia, ARGENTINA	20 JAN 1999
at sea	21 22 JAN 1999
Antarctic Peninsula	23-25 JAN 1999
at sea	26 JAN 1999
Ushuaia, ARGENTINA	27 JAN 1999

Cruise MP#4
January/February 1999

Port	Dates
Ushuaia, ARGENTINA	27 JAN 1999
at sea	28 JAN 1999
Antarctic Peninsula	29-31 JAN 1999

at sea		01-07 FEB 1999
Ross Sea		08-09 FEB 1999
McMurdo Station	-	10 FEB 1999
Cape Evans		11 FEB 1999
Cape Royds/Ross Ice Shelf		12 FEB 1999
Terra Nova Bay		13 FEB 1999
cruise Cape Hallett & Cape Adare		14 FEB 1999
at sea	-	15-17 FEB 1999
Christchurch, NEW ZEALAND		18 FEB 1999

Clipper Cruise Lines

Clipper Cruise Lines, of St. Louis, Missouri, plans to conduct 7 cruises to the Antarctic during the 1998-99 season using the Clipper Adventurer.

CLIPPER ADVENTURER

The vessel was built in 1975 and rebuilt in 1998. 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 #21
December 1998

Port	**Dates**
Port Stanley, FALKLAND ISLANDS	01 DEC 1998
Carcass/Westpoint Islands, Falkland Islands	02 DEC 1998
at sea	03-04 DEC 1998

Antarctic Peninsula	05-09 DEC 1998
at sea	10-11 DEC 1998
Ushuaia, ARGENTINA	12 DEC 1998

Cruise CA #23
December 1998

Port	**Dates**
Ushuaia, ARGENTINA	12 DEC 1998
at sea	13-14 DEC 1998
Antarctic Peninsula	15-19 DEC 1998
at sea	20-21 DEC 1998
Ushuaia, ARGENTINA	22 DEC 1998

Cruise CA #24
December 1998/January 1999

Port	**Dates**
Ushuaia, ARGENTINA	22 DEC 1998
at sea	23-24 DEC 1998
Antarctic Peninsula	25-29 DEC 1998
at sea	30-31 DEC 1998
Westpoint/Carcass Islands, Falklands	01 JAN 1999
Port Stanley, FALKLAND ISLANDS	02 JAN 1999

Cruise CA #25
January 1999

Port	**Dates**
Port Stanley, FALKLAND ISLANDS	02 JAN 1999
Falklands	03-04 JAN 1999
at sea	05-06 JAN 1999
South Georgia	07-09 JAN 1999
at sea	10 JAN 1999
South Orkneys	11 JAN 1999
Antarctic Peninsula	12-17 JAN 1999
at sea	18-19 JAN 1999
Ushuaia, ARGENTINA	20 JAN 1999

Cruise CA #26
January/February 1999

Port	Dates
Ushuaia, ARGENTINA	20 JAN 1999
at sea	21-22 JAN 1999
Antarctic Peninsula	23-28 JAN 1999
South Orkneys	29 JAN 1999
at sea	30 JAN 1999
South Georgia	31 JAN -02 FEB 1999
at sea	03-04 FEB 1999
Sea Lion/Bleeker Islands, Falklands	05 FEB 1999
Port Stanley, FALKLAND ISLANDS	06 FEB 1999

Cruise CA #27
February 1999

Port	Dates
Port Stanley, FALKLAND ISLANDS	06 FEB 1999
Carcass/Westpoint Islands, Falklands	07 FEB 1999
at sea	08-09 FEB 1999
Antarctic Peninsula	10-14 FEB 1999
at sea	15-16 FEB 1999
Ushuaia, ARGENTINA	17 FEB 1999

Cruise CA #28
February 1999

Port	Dates
Ushuaia, ARGENTINA	17 FEB 1999
at sea	18-19 FEB 1999
Antarctic Peninsula	20-24 FEB 1999
at sea	25-26 FEB 1999
Ushuaia, ARGENTINA	27 FEB 1999

Other

In addition, several other organizations plan to arrange/conduct or support tourism activities in the Antarctic during the 1998-99 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 Shuleykin, the Akademik Ioffe and the Disko.

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 1998 - mid-January 1999 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 1998-99 season will be reported in Section XII of the Modifications of the United States Antarctic Activities Planned for 1998-99.

XIII. Radioactive Materials

Section XIII of the 1998-99 season plans lists the radioactive materials to be used and provides information regarding their form, nuclide, site, and specific use.

PROJECT	NUCLIDE	FORM	SITE	USE
BO-004-O	^{14}C ^{15}N	^{14}C - bicarbonate $^{15}N_2$, $^{15}NO_3$,$^{15}NH_4$	McMurdo Station	Metabolic studies of microscopic algae in permanent ice and snow
BO-010-O	^{14}C	^{14}C - Sodium Bicarbonate	R/V/ LAURENCE M. GOULD	New approaches to Measuring and Understanding the Effects of Ultraviolet Radiation on Photosynthesis by antarctic Phytoplankton on the Weddell Sea and Palmer Station
BO-012-O	^{3}H	^{3}H - Ouabain solution	McMurdo Station	Binding assay to study Nalk-ATPase
BP-016-O	^{14}C	^{14}C - Sodium bicarbonate	Palmer Station; R/V LAURENCE M. GOULD; R/V NATHANIEL B. PALMER	Palmer Station/LM Gould: LTER on the Antarctic Marine Ecosystem: An Ice Dominated Environment - Phytoplankton Ecology Component
BO-037-O	^{35}S	^{35}S - Methionine/ Cysteine Mix	Palmer Station	Molecular Adaptations of Microtubule Production in Antarctic Fish
BM-042-P	^{3}H ^{14}C	^{3}H - Thymidine ^{14}C - Carbonate/ Bicarbonate	McMurdo Station/Dry Valleys	McMurdo Dry Valleys: A Cold Desert Ecosystem

PROJECT	NUCLIDE	FORM	SITE	USE
BO-044-O	^{14}C ^{3}H	^{14}C - Sodium Bicarbonate ^{3}H - Thymidone ^{3}H - Leucine ^{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
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-085-O	^{14}C	^{14}C - Sodium Bicarbonate ^{14}C - Glucose	R/V LAURENCE M. GOULD	Adaptations of organisms at the sulfide and methane containing hydrothermal areas of Deception Island
AO-109-O	^{241}Am	^{241}Am - Metal Disk	South Pole Station	South Pole Air Shower Experiment (SPASE)-2
BO-200-O	^{3}H ^{14}C	^{3}H - Leucine ^{14}C -	R/V LAURENCE M. GOULD; Weddell Sea	Determination of bacteria plankton response to UV radiation in the Weddell Sea and Palmer Station LTER grid.
OR-216-B	^{3}H	^{3}H - Leucine	R/V NATHANIEL B. PALMER	Research on Ocean-Atmosphere Variability in Ecosystem Response in the Ross Sea (ROAVERRS)
OR-216-C	^{3}H ^{14}C	^{3}H - Leucine ^{14}C - Thymidine	R/V NATHANIEL B. PALMER	Research on Ocean-Atmosphere Variabaility and Ecosystem Response in the Ross Sea (ROAVERRS)

PROJECT	NUCLIDE	FORM	SITE	USE
OO-257-O	^{63}Ni	^{63}Ni - Foil or Plated source	South Pole Station	South Pole Monitoring for Climatic Change: U.S. Deparment 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
OO-270-O	^{241}Am	^{241}Am - Sealed Sources	South Pole Station	Investigation of sulfur chemistry in the Antarctic Troposphere (ISCAT); these sources are used to generate ions for the mass spectrometers and an aerosol monitor.
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
BX-325-O	^{14}C	^{14}C - Sodium Bicarbonate	R/V NATHANIEL B. PALMER; Ross Sea	Primary productivity station Ross Sea

XIV. Research Rockets

Section XIV reports the planned use of research rockets. The United States Antarctic Program will launch no research rockets during the 1998-99 season.

XV. Oceanography - Government

Section XV outlines plans for United States Antarctic Program sponsored oceanographic expeditions during the 1998-99 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 and HF and VHF transceivers. The vessel is equipped with Dynamic Positioning. A deep sea trawl and coring winch and two hydrowinches are operated through stern and starboard A-frames. One hydrowinch, 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 Talchuano, Chile, Lyttleton, 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 State 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 hydrowinches 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 and logistic support cruises October 1998 through September 1999. Research to be conducted includes biological, chemical, and physical oceanography as well as marine geology and geophysics. The R/V LAURENCE M. GOULD will also serve to transport scientists, cargo, and personnel to/from Palmer Station.

Intended Tracks and Schedule

The R/V LAURENCE M. GOULD is scheduled to begin the 1998-99 season at sea from Punta Arenas, Chile, September 24, 1998. The vessel will transport support personnel to and from Palmer Station on this and all other cruises. The vessel will perform approximately 10 cruises in the Antarctic Peninsula area during 98-99 season.

XVI. Visiting Expeditions

Section XVI provides information on expeditions visiting U.S. stations during the 1998-99 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 1998-99 lists the Initial Environmental Evaluation/Environmental Assessments from October 1, 1997- September 30, 1998.

1. Adoption Of Standard Operating Procedures For Placement, Management, And Removal Of Materials Cached At Field Locations for the United States Antarctic Program [PGFC9801.EAF].

2. Improving the Bulk Fuel Storage System at McMurdo Station, Antarctica, [MCST9801.EAF].

3. Relocating and Increasing the Capacity of Summer Camp at Amundsen-Scott South Pole Station, Antarctica, [SPST9801.EAF].

4. Removal of Geophysical Sampling Equipment at Don Juan Pond [77° 34'S, 161° 11'E] Wright Valley and Site Reclamation at Lake Vida [77° 23'S, 161° 57'E] Victoria Valley, Antarctica, [MCDV9801.EAF].

5. Modifications to Ongoing Hydrologic Data Collection in the McMurdo Dry Valleys, Antarctica [MCDV9802.EAF]

Appendix II

Appendix II of the 1998-99 season plans provides information on planned science projects in Antarctica during this time period.

National Science Foundation
Arlington, Virginia 22230
November 30, 1998

Attachment A, Comms Forms

Attachment A of the 1998-99 season plans lists the, types, schedules and frequencies of telecommunications equipment used by the United States Antarctic Program.

National Science Foundation
Arlington, Virginia 22230
November 30, 1998

NSF FORM 1172A (4-82)

INFORMATION ON TELECOMMUNICATIONS EQUIPMENT AND SCHEDULES FOR THE YEAR 1998-99

COUNTRY United States of America

STATION McMurdo

CALL SIGN NGD

LATITUDE 77°55'S **LONGITUDE** 166°39'E

ADDRESS FOR CORRESPONDENCE ON THIS INFORMATION:

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.)	
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	116-149.95 MHz	6K00A3E, 10W	SYNTHESIZED	AN/GRR-23	116-149.95 MHz	6K00A3E	CRYSTAL	
AN/GRT-22	225-399.95 MHz	6K00A3E, 10W	SYNTHESIZED	AN/GRR-24	255-399.95 MHz	6K00A3E	CRYSTAL	
AN/URC-110	225-399.995 MHz	30K0F3E/20W	SYNTHESIZED	AN/URC-110	225-399.995 MHz	30K0F3E	SYNTHESIZED	
AN/GRC-211	116-149.95 MHz	25W	SYNTHESIZED	AN/GRC-211	116-149.95 MHz	6K00A3E	SYNTHESIZED	
AN/GRC-171	225-399.95 MHz	20W	SYNTHESIZED	AN/GRC-171	225-399.95 MHz	6K00A3E	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	

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INFORMATION ON TELECOMMUNICATIONS EQUIPMENT AND SCHEDULES FOR THE YEAR 1998-96

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LATITUDE 77°55'S **LONGITUDE** 166°39'E

ANTENNA		FACSIMILE		TELEPRINTER		REMARKS	
TYPE	AZIMUTH (IN DEGREES OR OMNI)	INDEX OF COOPERATION	DRUM SPEED	TYPE	SPEED (bauds)		LIST OF AVAILABLE FREQUENCIES
RHOMBIC RHOMBIC RHOMBIC	088T T 088T T 146T 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	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 ROSETTE ARRAY END-FIRE ARRAY	OMNI T DIRECTIONAL R 088T 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,
CONICAL MONOPOLE RHOMBIC	OMNI T/R 088T/146T/220T			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

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INFORMATION ON TELECOMMUNICATIONS EQUIPMENT AND SCHEDULES FOR THE YEAR 1998-99

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LATITUDE 77°55'S **LONGITUDE** 166°39'E

	GMT		FREQUENCIES USED		CIRCUIT CONDUCT				REMARKS
STATION WORKED	OPEN	CLOSE	TRANSMITTING	RECEIVING	TYPE OF EMISSION (See ccir 432) (X)	TYPE OF TRAFFIC	SX OR DX	SIDE BAND	
SOUTH POLE	OCT-- ON MAR-- 2000-- DAILY SUN-	--NOV CALL --OCT --2130 LESS DAY	2650 5810 6397 8090 11004 4872	7340 - P&SP 7750 - P&SP 9073 - P&SP 13551.5 - P&SP	1.24F1	ALL SYNOPS HOURLIES (AS REQUIRED) TERMINAL	DX		
			11554.5 8998.5 13252.5	11554.5 8998.5 13252.5	3A3J 3A3J	VOICE VOICE	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			

NSF FORM 1172A (4-82)

INFORMATION ON TELECOMMUNICATIONS EQUIPMENT AND SCHEDULES FOR THE YEAR 1998-99

COUNTRY United States of America

STATION Palmer

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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					

NSF FORM 1172C (4-82)

INFORMATION ON TELECOMMUNICATIONS EQUIPMENT AND SCHEDULES FOR THE YEAR 1998-99

COUNRY United States of America

STATION Palmer

CALL SIGN NHG

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OFFICE OF POLAR PROGRAMS
NATIONAL SCIENCE FOUNDATION
ARLINGTON, VA 22230

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

	GMT		FREQUENCIES USED		CIRCUIT CONDUCT				REMARKS
STATION WORKED	OPEN	CLOSE	TRANSMITTING	RECEIVING	TYPE OF EMISSION (See ccir 432) (X)	TYPE OF TRAFFIC	SX OR DX	SIDE BAND	
MCMURDO SOUTH POLE	DEC-- 1100 Dai- MAR-- 1100 Daily Satur-	-MAR 0000 ly --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	

NSF FORM 1172B (4-82)

INFORMATION ON TELECOMMUNICATIONS EQUIPMENT AND SCHEDULES FOR THE YEAR 1998-99

COUNRY United States of America
STATION Palmer
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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 SATAELLITE					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

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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

NSF FORM 1172A (4-82)

INFORMATION ON TELECOMMUNICATIONS EQUIPMENT AND SCHEDULES FOR THE YEAR 1998-99

COUNTRY United States of America

STATION Amundsen-Scott South Pole

CALL SIGN NPX **LATITUDE** 90° S **LONGITUDE** ____

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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	

NSF FORM 1172B (4-82)

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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