
Activities Planned for 1997-98

*Sections one through sixteen of the 1997-98 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 1997-98 season plans lists the names, types, numbers, descriptions, and armament of ships, aircraft, and other vehicles introduced to the Antarctic Treaty area and information on military equipment, if any, and its location in the area.

Ships

- **Icebreakers**

Ship:	<u>USCGC POLAR STAR (WAGB-10)</u>
Aircraft:	2 each HH-65A helicopters
Armament:	Small arms only

- **Supply/Tankers**

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

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

- **Research Vessels**

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

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

Aircraft

Five 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 1997, 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.

Note: No armament

Other Aircraft

The 109th Tactical Airlift Group (TAG) of the Air National Guard (ANG) based in Schenectady, New York, will provide two LC-130 aircraft and three aircrews for approximately six weeks in November/December 1997 and six weeks in January/February 1998 to assist with intra-continental flight operations.

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 1997 in support of the U.S. and New Zealand Antarctic Programs.

Two DeHavilland DHC-6/300 Twin Otters will be used; both aircraft will arrive at McMurdo in early November 1997, and depart late January 1998.

Note: No armament

II. Expedition Dates

Section II of the 1997-98 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 1997. The aircraft will carry scientists and support personnel to start early pre-summer projects, to augment maintenance personnel, and to prepare skiways and ice runways at McMurdo Station. This will involve 4 U.S. Air Force C-141B flights and will increase station population from the winter-over level of about 154 to a transition level of about 373.

Mainbody Activities

Austral summer activities will be initiated in late September 1997 with wheeled aircraft operations between Christchurch, New Zealand and the sea-ice runways at McMurdo Station, Antarctica. This will involve approximately 19 C-141B flights of transport aircraft of the U.S. Air Force Air Mobility Command (AMC), 12 flights by C-130 aircraft of the Royal New Zealand Air Force, and 3 flights by an Italian Air Force C-130 transport aircraft. The sea-ice runway and wheeled aircraft operations will cease about early December 1997 and all subsequent aircraft operations will be conducted by USAP LC-130 aircraft 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 during a twelve week period in November/ December 1997 and January/February 1998

Significant Dates

Other significant dates for the summer season include:

- | | | |
|----------------------------|---|-----------------------------------|
| 1. First week in Oct 1996 | - | Marble Point opens |
| 2. Last week in Oct 1997 | - | McMurdo Station "Mainbody" begins |
| 3. Fourth week in Oct 1997 | - | Siple Dome Camp opens |
| 4. Fourth week in Oct 1997 | - | South Pole Station Opens |
| 5. Second Week in Oct 1997 | - | Downstream "B" 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 1998 after unloading cargo and transit directly to Port Lyttelton, New Zealand. The Green Wave will again unload 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 unload 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 1998.

R/V POLAR DUKE

R/V POLAR DUKE was taken off charter May 1997 after making 6 research cruises during the season. The vessel supported various biological, geological, geophysics and oceanographic research programs in the Antarctic Peninsula area and provide logistical support to Palmer Station.

R/V NATHANIEL B. PALMER

R/V NATHANIEL B. PALMER will conduct 7 scientific research cruises, totaling an estimated 272 days at sea, during the 1996-97 season. The vessel will provide support throughout the season for biological, chemical, physical oceanographic, and marine geophysics investigations in the Weddell and the Ross Seas. Ports of call include Punta Arenas and Talchuano, CHILE, Lyttelton, NEW ZEALAND, and McMurdo Station, Antarctica.

R/V LAURENCE M. GOULD

The R/V LAURENCE M. GOULD is scheduled to be dedicated and begin charter-share in October 1997. Plans are for the vessel to replace the R/V POLAR DUKE in research efforts, transport of personnel, and cargo in and around the Antarctic Peninsula area.

III. Station Openings

Section III of the 1997-98 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: First Week in October 1997

Amundsen-Scott South Pole Station

Location: 90° 00'S Latitude
Annual Relief: First Week in November 1997

Palmer Station

Location: Anvers Island near Bonaparte Point
64° 46'S Latitude
64° 05'W Longitude
Annual Relief: Third Week of September 1997

Austral Summer Camps

Siple Dome Camp

Location: 81° 39'S Latitude
149° 04'W Longitude
Open: 24 October 1997
Close: 07 February 1998

Downstream Bravo Camp

Location: 84° 01'S Latitude
155° 00'W Longitude
Open: 24 November 1997
Close:

Ford Range Camp

Location: 77° 16'S Latitude
142° 27'W Longitude
Open: 24 November 1997
Close: 30 January 1998

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 1997-98 season will be:

McMurdo Station

Albert G. Martin, III	(Oct 97 - Dec 97)
John S. Sherve	(Jan 98 - Oct 98)

Amundsen-Scott South Pole Station

David Fischer	(Nov 97 - Feb 98)
Katharine M. Jensen	(Feb 98 - Nov 98)

Palmer Station

Ronald E. Nugent, Jr.	(Sep 97 - Mar 98)
Ronald P. Baltz	(Mar 98 - Sep 98)

Officers in Charge of Ships

USCGC POLAR SEA (WAGB-11)	TBA, USCG
Champion Class T-5 Tanker (fuel tanker)	TBA
M/V GREEN WAVE (cargo ship)	Captain Peter Stalkus
R/V POLAR DUKE	CAPT Karl Birger Sanden CAPT Magnar Aklestad
R/V NATHANIEL B. PALMER	Captain Joe Bokowski CAPT Mike Watson
R/V LAURENCE M. GOULD (pending)	Captain Joe Bokowski Captain Warren Sanamo

Numbers, Occupations and Specializations of Personnel

McMurdo

	Summer		Winter	
	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>
Administrators	30	9	4	3
Medical	26	0	4	0
Comm/ET	42	29	13	11
Supply	136	46	18	18
Civil Engineering	0	14	0	3
Operations	80	153	21	60
Term Ops	134	0	0	0
Aviation	42	0	4	0
Construction	0	165	0	93
Science Lab Manager	0	1	0	0
Working Visitors	50	48	0	0
Scientists	0	214	0	5
Science Support	0	39	0	4

South Pole

	Summer		Winter	
	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>
Administration	0	3	0	0
Winter Site Manager	0	0	0	1
Utilities	0	3	0	1
Vehicle Maintenance	0	3	0	1
Equipment Operations	0	3	0	0
Food Service	0	9	0	1
Janitorial	0	1	0	0
Medical	0	1	0	1
Construction/Facilities	0	65	0	3
Maintenance				

	Summer		Winter	
	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>
Science Support	0	4	0	3
Meteorology	0	4	0	2
Logistics/Cargo/Supply	0	16	0	3
Information Systems/ Communications	0	8	0	3
Safety, Environment, Health, Waste Management	0	3	0	1
Scientists	0	50	0	8
Other (NSF, Media, etc.)	0	10	0	0

Palmer Station

	Summer		Winter	
	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>
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	1
Construction/Tradesmen	0	3	0	2
Boating Coordinator	0	1	0	0
Scientists	0	102	0	0
Medical	0	1	0	1
Lab Manager/Instrument Technician	0	2	0	1
Working Visitors	0	29	0	0
Science Technician	0	1	0	1

Byrd Surface Camp

	Summer Only	
	<u><i>Military</i></u>	<u><i>Civilian</i></u>
Camp Manager	0	1
Light Vehicle Mechanic	0	1
Cook(s)	0	1
Equipment Operator	0	1
General Assistant(s)	0	1
Medical	0	1
Scientists	0	13
Aviation	0	5

Up-stream Bravo Field Camp

	Summer Only	
	<u><i>Military</i></u>	<u><i>Civilian</i></u>
Camp Manager	0	1
Heavy Vehicle Mechanic	0	1
Cook(s)	0	1
Scientists	0	10

Shackleton Glacier Field Camp

	Summer Only	
	<u><i>Military</i></u>	<u><i>Civilian</i></u>
Camp Manager	0	1
Heavy Vehicle Mechanic	0	1
Cook(s)	0	2
Equipment Operators	0	1
Met Tech	0	1
Field Safety Instructor	0	1
Aviation	0	4
Scientists	0	45

Central West Antarctica Field Camp

	Summer Only	
	<u>Military</u>	<u>Civilian</u>
Camp Manager	0	1
Light Vehicle Mechanic(s)	0	2
Cook(s)	0	2
Equipment Operators	0	0
General Assistants	0	1
Medical	0	1
Aviation	0	1
Scientists	0	42

SHIPS

USCGC POLAR STAR

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

Champion Class T-5 Tanker

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

M/V GREEN WAVE

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

R/V POLAR DUKE

	<i>Number of Personnel</i>
Crew	13
Scientists	22

R/V NATHANIAL B. PALMER

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

R/V LAURENCE M. GOULD (pending)
(replaces R/V POLAR DUKE)

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

Names and Professional Affiliation of Personnel Engaged in Scientific Activities

Names and professional affiliation of personnel engaged in scientific activities. Further details are found in Section VI ([Appendix II](#)), cross-referenced here according to the three-digit project identification code (S-XXX and T-XXX). The numbers in parentheses, besides the principal investigator's name, represents the anticipated number of additional field party members.

MCMURDO STATION (316 Scientists)

Aeronomy & Astrophysics (39 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Papitashvili (+1)	S-105	University of Michigan
Adriani (+1)	S-107	Instituto De Fisica Dell'Atmosfera
Fritts (+4)	S-113	Colorado Research Associates
Lin (+12)	S-116	University of California, Berkeley
Deshler (+3)	S-131	University of Wyoming
DeZafra (+2)	S-137M	State University of New York at Stony Brook
Peterzen (+9)	S-145	National Scientific Balloon Facility (NSBF)

Biology & Medical Research (85 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
DeVries (+7)	S-005	University of Illinois
Manahan (+4)	S-006	University of Southern California
Reed (+5)	S-008	Madigan Army Medical Center (MAMC)
Siniff (+4)	S-009	University of Minnesota
Petzel (+4)	S-012	Creighton University School of Medicine
Davis (+7)	S-017	Texas A & M University
Baker (+7)	S-022	Florida Institute of Technology
McClintock (+0)	S-022	University of Alabama at Birmingham
Ainley (+5)	S-031	H.T. Harvey & Associates
Wharton (+1)	S-042B	Desert Research Institute
Fountain (+4)	S-042FO	Portland State University
Freckman (+6)	S-042Fr	Colorado State University
Lyons (+2)	S-042L	University of Alabama
McKnight (+6)	S-042M	University of Colorado
Priscu (+4)	S-042P	Montana State University, Bozeman
Wharton (+3)	S-042W	Desert Research Institute

Environmental Research (11 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Peterson (+6)	S-302	University of North Carolina at Chapel Hill
Chin (+3)	S-305	The Ohio State University

Geology & Geophysics (99 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Webb (+1)	S-049A	The Ohio State University
Webb (+2)	S-049B	The Ohio State University
Harwood (+2)	S-051	University of Nebraska-Lincoln
Mullins (+4)	S-052	US Geological Survey
Marchant (+3)	S-054	Boston University
Jarrard (+5)	S-055	University of Utah
Wise (+1)	S-057	Florida State University
Harvey (+7)	S-058	Case Western Reserve University
Kettler (+1)	S-064	University of Nebraska

	<u>I.D. No.</u>	<u>Institution</u>
Krissek (+3)	S-070	Ohio State University
Verosub (+4)	S-075	University of California -- Davis
Taylor (+3)	S-076	University of Kansas
Reynolds (+1)	S-078	United States Geological Service
Wilson (+1)	S-079	The Ohio State University
Wrenn (+2)	S-080	Louisiana State University
Kyle (+5)	S-081	New Mexico Institute of Mining and Technology
Raymond (+5)	S-082	California Institute of Technology
Whillans (+2)	S-084	The Ohio State University
Isbell (+5)	S-094	University of Wisconsin, Milwaukee
Bell (+1)	S-095	Columbia University
Blankenship (+12)	S-098	University of Texas at Austin
Wilson (+3)	S-099	The Ohio State University
Anandakrishnan (+1)	S-180	The Pennsylvania State University
Ware (+1)	S-295	UNAVCO/UCAR

Glaciology (68 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Taylor (+1)	S-152	Desert Research Institute
Albert (+1)	S-155	Cold Regions Research and Engineering Laboratory
Denton (+5)	S-156	University of Maine
Kamb (+8)	S-157	California Institute of Technology
Bales (+1)	S-158	The University of Arizona
Bindschadler (+0)	S-159	National Aeronautics and Space Administration
Fitzpatrick (+0)	S-160	United States Geological Survey
Saltzman (+13)	S-161	University of Miami
Harrison (+3)	S-164	University of Alaska Fairbanks
Gow (+1)	S-165	Cold Regions Research and Engineering Laboratory
Whillans (+4)	S-166A	The Ohio State University

	<u>I.D. No.</u>	<u>Institution</u>
Whillans (+1)	S-166B	The Ohio State University
Waddington (+2)	S-171	University of Washington
Bindschadler (+2)	S-173	National Aeronautics and Space Administration
Bentley (+4)	S-176	University of Wisconsin-Madison
Hamilton (+3)	S-178	The Ohio State University
Mosley-Thompson (+1)	S-185	The Ohio State University
Braaten (+0)	S-190	University of Kansas

Ocean & Climate Systems (4 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Stearns (+0)	S-202	University of Wisconsin
Stearns (+2)	S-283M	University of Wisconsin

Operations (10 Scientists))

	<u>I.D. No.</u>	<u>Institution</u>
Giles (+9)	S-150B	University of Nebraska

Technical Support to USAP (13 Technical Representatives)

	<u>I.D. No.</u>	<u>Institution</u>
Stuchlik (+3)	T-308	Allied Signal Technical Services Company
Comberiate (+4)	T-315	NASA
TBA (+0)	T-378	Federal Aviation Administration
TBA (+0)	T-379	FOH/DHHS
Jech (+0)	T-380	United States Army
Kumin (+0)	T-383	Kumin Associates

SOUTH POLE STATION (120 Scientists)

Aeronomy & Astrophysics (96 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Lanzerotti (+0)	S-101	Bell Laboratories, Lucent Technologies
Inan (+0)	S-108	Stanford University
Gaisser (+3)	S-109D	University of Delaware
Hernandez (+3)	S-110	University of Washington
Rosenberg (+2)	S-111	University of Maryland
Ejiri (+0)	S-117	National Institute of Polar Research
Bieber (+0)	S-120	University of Delaware
Besson (+0)	S-123	University of Kansas
Abshire (+2)	S-126	NASA Goddard Flight Center
Papen (+0)	S-127	University of Illinois
LaBelle (+0)	S-128	Dartmouth College
Sivjee (+2)	S-129	Embry Riddle Aeronautical University
Morse (+8)	S-130	University of Wisconsin
Meyer (+9)	S-132A	University of Chicago
Stark (+14)	S-132B	Smithsonian Institution
Loewenstein (+8)	S-132C	University of Chicago
Loewenstein (+9)	S-132E	University of Chicago
Peterson (+14)	S-132F	Carnegie-Mellon University
DeZafra (+0)	S-138	State University of New York at Stony Brook
Murcray (+2)	S-148	University of Denver

Environmental Research (1 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Hansen (+0)	S-101	Magee Scientific Company

Geology & Geophysics (6 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Wannamaker (+4)	S-068	University of Utah
Butler (+0)	S-090	Incorporated Research Institutions for Seismology

Ocean & Climate Systems (7 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Tape (+2)	S-208	University of Alaska, Fairbanks
Hofmann (+3)	S-257A	NOAA

Operations (10 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Makovicka (+9)	S-150A	University of Nebraska

Technical Support for USAP (9 Technical Representatives)

	<u>I.D. No.</u>	<u>Institution</u>
Johnston (+0)	T-376	NASA
Culin (+2)	T-377	Allied Signal Technical Services
Maeda (+1)	T-382	PACDIV
Walsh (+3)	T-384	Cold Regions Research and Engineering Laboratory

PALMER STATION (39 Scientists)

Aeronomy and Astrophysics (1 Scientist)

	<u>I.D. No.</u>	<u>Institution</u>
Inan (+0)	S-106	Stanford University

Biology and Medical Research (33 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Mopper (+4)	S-002A	Washington State University
Kieber (+0)	S-002B	SUNY College of Environmental Science & Forestry
Day (+3)	S-003	Arizona State University
Karentz (+4)	S-007	University of San Francisco
Bosch (+0)	S-007B	State University of New York
Neale (+2)	S-010	Smithsonian Institution
Vernet (+4)	S-016	Scripps Institution of Oceanography

Quetin (+4)	S-028	University of California, Santa Barbara
Smith (+0)	S-032	University of California, Santa Barbara
Fraser (+2)	S-035	Montana State University

Environmental Research (5 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Fraser (+1)	S-013	Montana State University
Anderson (+2)	S-300	Woods Hole Oceanographic Institution

R/V LAURENCE M. GOULD (48 Scientists)

Aeronomy and Astrophysics (1 Scientist)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Fritts (+4)	S-113	Colorado Research Associates

(6 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Karl (+5)	S-046	University of Hawaii

Geology and Geophysics (24 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Domack (+19)	S-072	Hamilton College
Dalziel (+1)	S-087	University of Texas
Wiens (+1)	S-097	Washington University

R/V NATHANIEL B. PALMER (116 Scientists)

Biology and Medical Research (63 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Trivelpiece (+3)	S-040	Montana State University
Eastman (+2)	S-048	Ohio University
Codispoti (+1)	S-209	Old Dominion University
Morrison (+1)	S-210	North Carolina State University

	<u>I.D. No.</u>	<u>Institution</u>
Anderson (+4)	S-211	Columbia University
Abbott (+0)	S-212	Oregon State University
Takahashi (+5)	S-214	Columbia University
Sayles (+4)	S-217	Woods Hole Oceanographic Institution
Hansell (+1)	S-223	Bermuda Biological Station for Research
Dymond (+4)	S-227	Oregon State University
Honjo (+3)	S-228	Woods Hole Oceanographic Institution
Smith (+2)	S-233	University of Tennessee
Bronk (+1)	S-238	The University of Georgia
Cochlan (+0)	S-239	University of Southern California
Ducklow (+1)	S-244	Virginia Institute of Marine Sciences
Kirchman (+0)	S-245	University of Delaware
Hedges (+0)	S-246	University of Washington
Lee (+1)	S-247	State University of New York at Stony Brook
Wakeham (+0)	S-248	Skidaway Institute of Oceanography
Smith (+2)	S-255	University of Tennessee
Gordon (+1)	S-256	Oregon State University
Masten (+1)	S-258	University of California, San Diego
Garrison (+3)	S-325	University of California, Santa Cruz

Geology and Geophysics (7 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Anderson (+6)	S-083	Rice University

Ocean and Climate Systems (46 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Muench (+24)	S-203	Earth & Space Research
Dunbar (+8)	S-216A	William Marsh Rice University
Mitchell (+0)	S-261	University of California, San Diego
Stramski (+1)	S-262	University of Southern California
Jeffries (+9)	S-286	University of Alaska, Fairbanks

R/V ROGER REVELLE (131 Scientists)

Biology and Medical Research (127 Scientists)

	<u><i>I.D. No.</i></u>	<u><i>Institution</i></u>
Codispoti (+5)	S-209	Old Dominion University
Morrison (+5)	S-210	North Carolina State University
Abbott (+4)	S-212	Oregon State University
Peltzer (+3)	S-213	Woods Hole Oceanographic Institution
Takahashi (+3)	S-214	Columbia University
Olson (+1)	S-215	Woods Hole Oceanographic Institution
Bender (+3)	S-218	University of Rhode Island
Coale (+4)	S-219	Moss Landing Marine Laboratory
Dagg (+3)	S-220	Louisiana Universities Marine Consortium
Gardner (+5)	S-222	Texas A & M University
Hansell (+0)	S-223	Bermuda Biological Station for Research
Buesseler (+2)	S-224	Woods Hole Oceanographic Institution
Measures (+7)	S-225	University of Hawaii
Sambrotto (+3)	S-226	Columbia University
Barber (+0)	S-231	Duke University
Marra (+0)	S-232	Columbia University
Smith (+0)	S-233	University of Tennessee
Brzezinski (+3)	S-234	University of California, Santa Barbara
Nelson (+2)	S-235	Oregon State University
Altabet (+1)	S-236	University of Massachusetts Dartmouth
Bacon (+1)	S-240	Woods Hole Oceanographic Institution
Cochran (+1)	S-241	State University of New York, Stony Brook
Cowles (+11)	S-242	Oregon State University
Azam (+0)	S-243	University of California, San Diego
Ducklow (+0)	S-244	Virginia Institute of Marine Sciences
Kirchman (+1)	S-245	University of Delaware
Landry (+7)	S-249	University of Hawaii - Manoa
Huntley (+3)	S-250	University of California, San Diego
Millero (+3)	S-253	University of Miami

	<u>I.D. No.</u>	<u>Institution</u>
Smith (+3)	S-255	University of Tennessee
Gordon (+5)	S-256	Oregon State University
Masten (+6)	S-258	University of California, San Diego

Ocean and Climate Systems (4 Scientists)

	<u>I.D. No.</u>	<u>Institution</u>
Mitchell (+1)	S-261	University of California, San Diego
Stramski (+1)	S-262	University of Southern California

V. Armaments

Section V details the number and type of armaments possessed by personnel at the main Antarctic stations and on research vessels.

McMurdo Station

- 1 rifle, dart, "CAP-CHUR" powder projector (#350)
- 1 barrel and grip, for Savage .22 long over/20-gauge under
- 8 pistols, pyrotechnic (5 ea 25 mm) (2 ea 12-gauge)

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, Centrur 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

One pistol, pyrotechnic.

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 1997-98 season and is available in [appendix II](#) of this document.

VII. Scientific Equipment

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

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> 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				
Counter Timer	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				
Hood, Portable Fume Absorber				X	X	
Interferometer		X				
Ionosonde, Digital		X				
Leak Detection and Vacuum Pump Equipment		X				
Lidar	X	X				
Line Connector, 1.2 KVA		X				
Liquid Nitrogen Plant	X	X				

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> ³
Magnetometer, Three Component Air Core Induction	X	X				
Magnetometer, Three Axis Fluxgate	X					
Neutron Monitor, Super Multisection	X	X				
Nitrogen Liquifier		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, Near Infrared		X				
Telescope, Optical		X				
Telescope, Submillimeter		X				

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> 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					
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					
Cell Disrupter	X		X			
Cell Injector, Micro	X					

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> ³
Centrifuge, Clinical	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	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		
Counter, Gamma	X					
Counter, Geiger Muller	X		X	X	X	
Counter, Particle	X		X			
Counter, Scintillation, CPM Output	X					
Counter, Scintillation, DPM Output	X		X	X	X	
Counter, Liquid Scintillation			X		X	X
Cryogen, Transfer Equipment	X	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					

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> ³
Dry Ice Maker	X		X	X		
Dry Shippers, Liquid Nitrogen	X		X	X	X	
Electrocardiograph	X	X	X			
Electrophoresis Equipment	X		X			
Electroporator	X					
Environmental Room, Controlled Temperature	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	
Ice Maker	X	X	X	X	X	
Incubator,Hybridization	X					
Incubator, Low Temperature	X		X	X	X	
Laboratory, Portable (for sea ice)	X					
Laminar Flow Bench	X		X		X	
Light Pipette		X				
Lipid Analysis System	X					

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> ³
Luminometer			X			
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			
Evap Microscope, Cold Stage	X					
Microscope, Differential Interference Contrast (DIC)	X					
Microscope, Dissecting (for light/dark field microscopy)	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			

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> ³
Processor, Tissue	X		X			
Pump, Suction		X	X			
Pump, Vacuum	X		X	X	X	
Pyranometer						
Pyrgemeter						
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			

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

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> ³
Computer, Server, 486	X	X	X		X	
Computer, Server, 586	X			X	X	
<u>Workstation:</u>						
HP 9000			X			
SGI Challenge L (Multibeam computers)					X	
SGI Indigo R3000	X					
SGI Iris					X	
SPARC IPX	X	X				
Sun SPARC 2	X	X	X		X	
SGI Indy	X				X	
<u>Printers</u>						
Dot Matrix	X	XX	X	X	X	
Dye Sublimation, Color					X	
Ink Jet, Monochrome	X			X		
Ink Jet, Color	X		X			
Laser	X	X	X	X	X	
<u>Miscellaneous</u>						
Bernoulli Disk	X		X			
CDRom - R			X	X	X	
Computer Interface	X					
Magneto-optical Drive						X
Digitizer	X					
Plotter, Ink Jet, Monochrome	X			X	X	
Plotter, Pen, Color	X	X	X		X	
Zip Drive		X	X			
Environmental Monitoring						
Acoustic Release	X			X	X	
Aethelometer		X				

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> ³
Analyzer, CO	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	
Deck unit/Transducer	X					
Sampler, Air, Hi-Vol	X					
Water Quality Logging System	X					
Water Quality System	X		X			
Geology/Geophysics						
Ball Mill	X					
Chronolog 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, Sunrad 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	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> ³
Recorders, EPC Analog				X	X	
Rock Saws	X			X		
Rock Polisher, Automatic	X			X		
Seismic, G/I airguns (210 cu in)					X	
Seismic, G/I watgun (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-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	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> ³
Glaciology						
Drill, Jiffy w/ Power Head	X		X		X	
Drill, Shallow (100 meters)	X					
Drill, Ice Coring, Intermediate (500-1000 meters)	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					
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, Tyrohelometers and Net Radiometers		X		X	X	
Temperature Probe Aspirators, Qualimetrics/ Weather Measure		X				
Temperature Probes, RTD-Platinum	X	X				
Temperature Thermometers	X	X	X	X	X	

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> ³
Transmitters, PTT	X					
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	
Wind Translators		X		X	X	
Oceanography/Limnology						
A-Frame				X	X	
Acoustic Doppler Current Profiler					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	
Depth Finder	X		X	X	X	
Go-Flo Bottles			X	X		
Gradiometer, Magnetic					X	
Hood Laminar Flow, Portable					X	
Hydraulic Boom				X	X	
Hydrodavit				X	X	
Inflatable Boat, Zodiac	X		X	X	X	
Isotope Van						

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> ³
Jumbo Depth Finder					X	
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	X	
Plankton Net	X		X	X	X	
Pressure Transducer	X					
Radar				X	X	
Rosette				X	X	
Salinometer	X		X	X	X	
SAT P-Code GPS					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	X	X				
Gravimeter, Lacoste & Romberg (Land)					X	

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

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> ³
Transceivers, Satellite, ATS-3	X	X	X	X	X	
Uninterruptable power supply (UPS)	X	X	X	X	X	
Video Camcorder		X		X	X	X

1 = R/V LAURENCE M. GOULD

2 = R/V NATHANIEL B. PALMER

3 = AUTOMATED GEOPHYSICAL OBSERVATORY

VIII. Transportation and 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)	44
Trailer, (tracked and wheeled)	40
Front-end loader, bucket and forklift	50
Forklift, warehouse	21
Motor toboggans	90
Crane	2
Road grader	4
Roller	4
Tractor, crawler	27
Tractor, wheeled	2
Sweeper, magnet	1
Snow plane	6
Truck, fire, pumper	8
Trencher	2
Aircraft, LC-130	?
Aircraft, TC-130	?
Helicopters, UH-1N	?

Hovercraft	1
Scraper	2
Backhoe	2

Amundsen-Scott South Pole Station

Cranes	1
Front Loader, tracked	7
Motor Toboggans	2
Personnel Carrier	5
Snow Plane	2
Tractor Crawler	2
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
Vehicle, all terrain, 4-wheel	2

Description of Communications Facilities

Note: For information on frequencies see [Communications Forms](#).

The following projects are contemplated for the FY97-98 season in Antarctica.

McMurdo Station

The following projects are contemplated for the FY97-98 season in Antarctica.

1. A Relocation of the Military Affiliated Radio Station equipment is planned.
2. Refurbishment of the AN/FRT-83(V) HF transmitters located at the McMurdo transmitter facility.

3. Dormitory Local Area Network connections are planned for the Mammoth Mountain Inn and Hotel California.
4. New repeaters utilizing CTCSS (continuous tone coded squelch system), will be deployed in the field.
5. An upgrade to the FOCC (Field Operations Communications Center) Zetron console is planned that will allow the unit to detect MDC1200 FSK messages.
6. Rewiring and electrical grounding work is scheduled for the Black Island Remote Communications facility.
7. The transition of AFRTS, T-site, and MacRelay from the NAVY to ASA will take place during the 1997/98 season.
8. Completion of the telephone upgrade in dormitories 201 through 205 is planned.
9. The CATV distribution systems will be balanced in dormitories 206 through 209.
10. There is a planned upgrade to the MCM3 file server in McMurdo.
11. A new E-mail message system and associated equipment upgrade is scheduled.
12. An upgrade to the remote message server is planned

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 Pumps, 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)

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 physician assistants. It is augmented during the austral summer season with 2 medical officers, 1 dentist, 1 medical administration officer, 1 dental technician, and 8 hospital corpsmen.

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.

Abercrombie & Kent International, Inc. of Oak Brook, Illinois, is planning nine cruises to the Antarctic Peninsula during the 1997-98 season using M/S Explorer.

M/S EXPLORER

Call letters of the vessel are ELJD8; registry is Liberian. The Explorer 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 classification. 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-731

November/December 1997

Ports	Dates
Port Stanley, FALKLAND ISLANDS	27 NOV 1997
Carcass Island/New Island	28 NOV 1997
at sea	29-30 NOV 1997
Antarctic Peninsula	01-05 DEC 1997
at sea	06-07 DEC 1997
Ushuaia, ARGENTINA	08 DEC 1997

Cruise EX-732

December 1997

Ports	Dates
Ushuaia, ARGENTINA	08 DEC 1997
at sea	09-10 DEC 1997
Antarctic Peninsula	11-13 DEC 1997
Elephant Island	14 DEC 1997
South Orkney Islands	15 DEC 1997
at sea	16 DEC 1997
South Georgia	17-19 DEC 1997
at sea	20-21 DEC 1997
Southeast Falkland Islands	22 DEC 1997
Port Stanley, FALKLAND ISLANDS	23 DEC 1997

Cruise EX-733

December 1997/January 1998

Ports	Dates
Port Stanley, FALKLAND ISLANDS	23 DEC 1997
Carcass/New Island	24 DEC 1997
at sea	25-26 DEC 1997
Antarctic Peninsula	27 DEC - 01 JAN 1998
Drake Passage (at sea)	02-03 JAN 1998
Ushuaia, ARGENTINA	04 JAN 1998

Cruise EX-801

January 1998

Ports	Dates
Ushuaia, ARGENTINA	04 JAN 1998
at sea	05-06 JAN 1998
Antarctic Peninsula	07-10 JAN 1998
South Orkneys	11 JAN 1998
at sea	12 JAN 1998
South Georgia	13-15 JAN 1998
at sea	16-17 JAN 1998
Southwest Falkland Islands	18 JAN 1998
Port Stanley, FALKLAND ISLANDS	19 JAN 1998

Cruise EX-802

January 1998

Ports	Dates
Port Stanley, FALKLAND ISLANDS	19 JAN 1998
Carcass/New Island	20 JAN 1998
at sea	21-22 JAN 1998
Antarctic Peninsula	23-26 JAN 1998
Drake Passage (at sea)	27-28 JAN 1998
Ushuaia, ARGENTINA	29 JAN 1998

Cruise EX-803

January/February 1998

Ports	Dates
Ushuaia, ARGENTINA	29 JAN 1998
Drake Passage (at sea)	30-31 JAN 1998
Antarctic Peninsula	01-05 FEB 1998
at sea	06-07 FEB 1998
Ushuaia, ARGENTINA	08 FEB 1998

Cruise EX-804

February 1998

Ports	Dates
Port Stanley, FALKLAND ISLANDS	08 FEB 1998
at sea	09-10 FEB 1998
Antarctic Peninsula	11-15 FEB 1998
Drake Passage (at sea)	16-17 FEB 1998
Ushuaia, ARGENTINA	18 FEB 1998

Cruise EX-805

February 1998

Ports	Dates
Ushuaia, ARGENTINA	18 FEB 1998
Drake Passage (at sea)	19-20 FEB 1998
Antarctic Peninsula	21-25 FEB 1998
at sea	26-27 FEB 1998
Ushuaia, ARGENTINA	28 FEB 1998

Cruise EX-806

March 1998

Ports	Dates
Ushuaia, ARGENTINA	28 FEB 1998
at sea	01-02 MAR 1998
Antarctic Peninsula	03-06 MAR 1998
at sea	07-08 MAR 1998
South Georgia	09-12 MAR 1998
at sea	13-14 MAR 1998
Southeast Falkland Islands	15 MAR 1998
Port Stanley, FALKLAND ISLANDS	16 MAR 1998

Society Expeditions

Society Expeditions of Seattle, Washington, is planning eight cruises to the Antarctic Peninsula during the 1997-98 season using the M/V World Discoverer.

M/V WORLD DISCOVERER

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

Schedules for each of the cruises follows:

Cruise WD-#1

November 1997

Ports	Dates
Ushuaia, ARGENTINA	09 NOV 1997
at sea	10-11 NOV 1997
Antarctic Peninsula	12-17 NOV 1997
at sea	18-19 NOV 1997
Ushuaia, ARGENTINA	20 NOV 1997

Cruise WD-#2

November 1997

Ports	Dates
Ushuaia, ARGENTINA	20 NOV 1997
at sea	21-22 NOV 1997
Antarctic Peninsula	23-26 NOV 1997
Elephant Island	27 NOV 1997
at sea	28-29 NOV 1997
West Point/Carcass Island, Falkland Is.	30 NOV 1997
Port Stanley, FALKLAND ISLANDS	01 DEC 1997

Cruise WD-#3

December 1997

Ports	Dates
Port Stanley, FALKLAND ISLANDS	01 DEC 1997
at sea	02-03 DEC 1997
South Georgia	04-06 DEC 1997
at sea	07 DEC 1997
Elephant Island	08-09 DEC 1997
Antarctic Peninsula	10-13 DEC 1997
at sea	14-15 DEC 1997
Port Stanley, FALKLAND ISLANDS	16 DEC 1997

Cruise WD-#4

December 1997/January 1998

Ports	Dates
Port Stanley, FALKLAND ISLANDS	16 DEC 1997
Carcass/New Island	17 DEC 1997
East Falkland Islands	18 DEC 1997
at sea	19-20 DEC 1997
South Georgia	21-23 DEC 1997
at sea	24 DEC 1997
South Orkneys	25 DEC 1997

Elephant Island	26 DEC 1997
Antarctic Peninsula	27-31 DEC 1997
at sea	01-02 JAN 1998
Ushuaia, ARGENTINA	03 JAN 1998

Cruise WD-#5
January 1998

Ports	Dates
Ushuaia, ARGENTINA	03 JAN 1998
at sea	04-05 JAN 1998
Antarctic Peninsula	06-11 JAN 1998
Drake Passage (at sea)	12-13 JAN 1998
Ushuaia, ARGENTINA	14 JAN 1998

Cruise WD-#6
January 1998

Ports	Dates
Ushuaia, ARGENTINA	14 JAN 1998
at sea	15-16 JAN 1998
Antarctic Peninsula	17-21 JAN 1998
Elephant Island	22 JAN 1998
South Orkneys	23 JAN 1998
at sea	24 JAN 1998
South Georgia	25-27 JAN 1998
at sea	28-29 JAN 1998
Sea Lion Island, Falklands	30 JAN 1998
Port Stanley, FALKLAND ISLANDS	31 JAN 1998

Cruise WD-#7
February 1998

Ports	Dates
Port Stanley, FALKLAND ISLANDS	31 JAN 1998
at sea	01-02 FEB 1998
South Georgia	03-05 FEB 1998
at sea	06 FEB 1998
South Orkneys	07 FEB 1998

Elephant Island	08 FEB 1998
Antarctic Peninsula	09-12 FEB 1998
at sea	13-14 FEB 1998
Sea Lion Island, Falklands	15 FEB 1998
Port Stanley, FALKLAND ISLANDS	16 FEB 1998

Cruise WD-#8
February/March 1998

Ports	Dates
Port Stanley, FALKLAND ISLANDS	16 FEB 1998
West Point/Carcass Island	17 FEB 1998
at sea	18-19 FEB 1998
Antarctic Peninsula	20-24 FEB 1998
Drake Passage (at sea)	25-26 FEB 1998
Beagle Channel	27 FEB 1998
Chilean Fjords (cruising)	28 FEB - 03 MAR 1998
Chiloe Island	04 MAR 1998
Puerto Montt, CHILE	05 MAR 1998

Quark Expeditions

Quark Expeditions of Darien, Connecticut, is planning approximately 20 cruises to the Antarctic during 1997-98 using three chartered vessels. The Professor Molchanov will conduct 9 cruises, the Professor Multanovskiy will conduct 7 and Kapitan Khlebnikov will conduct four.

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#1

November 1997

Port	Dates
Puerto Madryn, ARGENTINA	04 NOV 1997
at sea	05-06 NOV 1997
Falkand Islands	07-08 NOV 1997
at sea	09-10 NOV 1997
South Georgia	11-14 NOV 1997
at sea	15 NOV 1997
South Orkneys	16 NOV 1997
Elephant Island	17 NOV 1997
Antarctic Peninsula	18-20 NOV 1997
Drake Passage (at sea)	21-22 NOV 1997
Ushuaia, ARGENTINA	23 NOV 1997

Cruise MOL#2

November/December 1997

Port	Dates
Ushuaia, ARGENTINA	23 NOV 1997
at sea	24 NOV 1997
Westpoint/New Island, Falkland Islands	25 NOV 1997
Carcass Island	26 NOV 1997
at sea	27-29 NOV 1997
South Georgia	30 NOV - 02 DEC 1997
at sea	03-04 DEC 1997
Elephant Island	05 DEC 1997
Antarctic Peninsula	06-08 DEC 1997
Drake Passage (at sea)	08-10 DEC 1997
Ushuaia, ARGENTINA	11 DEC 1997

Cruise MOL#3

December 1997

Port	Dates
Ushuaia, ARGENTINA	11 DEC 1997
Drake Passage (at sea)	12-13 DEC 1997
Antarctic Peninsula	14-18 DEC 1997
Drake Passage (at sea)	19-20 DEC 1997
Ushuaia, ARGENTINA	21 DEC 1997

Cruise MOL#4

January 1998

Port	Dates
Ushuaia, ARGENTINA	21 DEC 1997
Drake Passage (at sea)	22-23 DEC 1997
Antarctic Peninsula	24-28 DEC 1997
Drake Passage (at sea)	29-30 DEC 1997
Ushuaia, ARGENTINA	31 DEC 1997

Cruise MOL#5

January 1998

Port	Dates
Ushuaia, ARGENTINA	31 DEC 1997
Drake Passage (at sea)	01-02 JAN 1998
Antarctic Peninsula	03-07 JAN 1998
Drake Passage (at sea)	08-09 JAN 1998
Ushuaia, ARGENTINA	10 JAN 1998

Cruise MOL#6

January/February 1998

Port	Dates
Ushuaia, ARGENTINA	28 JAN 1998
Drake Passage (at sea)	29-30 JAN 1998
Antarctic Peninsula	31 JAN - 04 FEB 1998
Drake Passage (at sea)	05-06 FEB 1998
Ushuaia, ARGENTINA	07 FEB 1998

Cruise MOL#7

February 1998

Port	Dates
Ushuaia, ARGENTINA	07 FEB 1998
Drake Passage (at sea)	08-09 FEB 1998
Antarctic Peninsula	10-14 FEB 1998
Drake Passage (at sea)	15-16 FEB 1998
Ushuaia, ARGENTINA	17 FEB 1998

Cruise MOL#8

February 1998

Port	Dates
Ushuaia, ARGENTINA	17 FEB 1998
Drake Passage (at sea)	18-19 FEB 1998
Antarctic Peninsula	20-25 FEB 1998
Drake Passage (at sea)	26-27 FEB 1998
Ushuaia, ARGENTINA	28 FEB 1998

Cruise MOL#9

February 1998

Port	Dates
Ushuaia, ARGENTINA	28 FEB 1998
Drake Passage (at sea)	01-02 MAR 1998
Antarctic Peninsula	03-05 MAR 1998
Elephant Island	06 MAR 1998
at sea	07-08 MAR 1998
South Georgia	09-12 MAR 1998
at sea	13-14 MAR 1998
Falkland Islands	15-16 MAR 1998
at sea	17 MAR 1998
Ushuaia, ARGENTINA	18 MAR 1998

PROFESSOR MULTANOVSKIY

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

Schedules for each of the cruises follows:

Cruise MUL#1

December 1997

Port	Dates
Ushuaia, ARGENTINA	17 DEC 1997
at sea	18-19 DEC 1997
Antarctic Peninsula	20-25 DEC 1997
at sea	26-27 DEC 1997
Ushuaia, ARGENTINA	28 DEC 1997

Cruise MUL#2

December 1997/January 1998

Port	Dates
Ushuaia, ARGENTINA	28 DEC 1997
at sea	29 DEC 1997
Falkland Islands	30-31 DEC 1997
at sea	01-03 JAN 1998
South Georgia	05-07 JAN 1998
at sea	08 JAN 1998
South Orkneys	09 JAN 1998
at sea	10 JAN 1998
Antarctic Peninsula	11-13 JAN 1998
Drake Passage (at sea)	14-15 JAN 1998
Ushuaia, ARGENTINA	16 JAN 1998

Cruise MUL#3

January 1998

Port	Dates
Ushuaia, ARGENTINA	16 JAN 1998
Drake Passage (at sea)	17-18 JAN 1998
Antarctic Peninsula	19-23 JAN 1998
Drake Passage (at sea)	24-25 JAN 1998
Ushuaia, ARGENTINA	26 JAN 1998

Cruise MUL#4

January/February 1998

Port	Dates
Ushuaia, ARGENTINA	26 JAN 1998
Drake Passage (at sea)	27-28 JAN 1998
Antarctic Peninsula	29 JAN - 02 FEB 1998
Drake Passage (at sea)	03-04 FEB 1998
Ushuaia, ARGENTINA	05 FEB 1998

Cruise MUL#5

February 1998

Port	Dates
Ushuaia, ARGENTINA	05 FEB 1998
Drake Passage (at sea)	06-07 FEB 1998
Antarctic Peninsula	08-12 FEB 1998
Drake Passage (at sea)	13-14 FEB 1998
Ushuaia, ARGENTINA	15 FEB 1998

Cruise MUL#6

February 1998

Port	Dates
Ushuaia, ARGENTINA	15 FEB 1998
Drake Passage (at sea)	16-17 FEB 1998
Antarctic Peninsula	18-22 FEB 1998
Drake Passage (at sea)	23-24 FEB 1998
Ushuaia, ARGENTINA	25 FEB 1998

Cruise MUL#7

March 1998

Port	Dates
Ushuaia, ARGENTINA	17 MAR 1998
Drake Passage (at sea)	18-19 MAR 1998
Antarctic Peninsula	20-24 MAR 1998
Drake Passage (at sea)	25-26 MAR 1998
Ushuaia, ARGENTINA	27 MAR 1998

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 KK#1

November/December 1997

Port	Dates
Port Elizabeth	19 NOV 1997
at sea	20-23 NOV 1997
Crozet Island	24-25 NOV 1997
at sea	26-27 NOV 1997
Kerguelen Island	28-29 NOV 1997
Heard Island	30 NOV - 01 DEC 1997
at sea	02-04 DEC 1997
Kloa Point Rookery	05 DEC 1997
Mawson/Auster Rookery	06 DEC 1997
Scullin/Murray Monolith	07 DEC 1997
Amery Ice Shelf	08 DEC 1997

Flutter Emperor Rookery	09 DEC 1997
Amanda Bay	10 DEC 1997
Davis Station	11 DEC 1997
Gaussberg	12 DEC 1997
Mirny Station	13 DEC 1997
Bowman Island	14 DEC 1997
at sea	15-21 DEC 1997
Fremantle, AUSTRALIA	22 DEC 1997

Cruise KK#2

December 1997/January 1998

Port	Dates
Freemantle, AUSTRALIA	28 DEC 1997
at sea	29 DEC - 04 JAN 1998
Mawson/Auster Rookery	05 JAN 1998
Scullin/Murray Monolith	06 JAN 1998
Cape Darnley7/Flutterer	07 JAN 1998
Amanda Bay	08 JAN 1998
Zhongshan/Davis Station	09 JAN 1998
West Ice/Shackleton Island	10 JAN 1998
Mirny Station	11 JAN 1998
Bowman Island	12 JAN 1998
Vincennes Bay/Casey Station	13 JAN 1998
Antarctic Continent	14-15 JAN 1998
at sea	16-20 JAN 1998
Hobart, AUSTRALIA	21 JAN 1998

Cruise KK#3

January/February 1998

Port	Dates
Hobart, AUSTRALIA	22 JAN 1998
at sea	23-24 JAN 1998
Macquarie Island	25-26 JAN 1998
at sea	27-29 JAN 1998
Balleny Islands	30 JAN 1998
Cape Adare/Possession Island	31 JAN 1998

Franklin Island/Ross Ice Shelf	01 FEB 1998
McMurdo/Cape Evans, Cape Royds	02 FEB 1998
Dry Valleys	03 FEB 1998
Terra Nova Bay Station/Campbell Ice Tongue	04 FEB 1998
Coulmann Island/Cape Hallett	05 FEB 1998
at sea	06-09 FEB 1998
Campbell Island	10 FEB 1998
Enderby Island	11 FEB 1998
at sea	12-13 FEB 1998
Hobart, AUSTRALIA	14 FEB 1998

Cruise KK#4

February 1998

Port	Dates
Hobart, AUSTRALIA	14 FEB 1998
at sea	15-16 FEB 1998
Macquarie Island	17-18 FEB 1998
at sea	19-20 FEB 1998
Balleny Islands	21 FEB 1998
Cape Adare/Possession Island	22 FEB 1998
Franklin Island/Ross Ice Shelf	23 FEB 1998
McMurdo/Cape Evans, Cape Royds	24 FEB 1998
Dry Valleys	25 FEB 1998
Terra Nova Bay Station/Campbell Ice Tongue	26 FEB 1998
Coulmann Island/Cape Hallett	27 FEB 1998
at sea	28 FEB - 03 MAR 1998
Campbell Island	04 MAR 1998
Enderby Island	05 MAR 1998
Snares Island	06 MAR 1998
at sea	07 MAR 1998
Lyttleton, NEW ZEALAND	08 MAR 1998

Orient Lines, Inc.

Orient Lines, Inc. of Fort Lauderdale, Florida, plans to conduct 4 cruises to the Antarctic during the 1997-98 season using the Marco Polo.

MARCO POLO

The vessel is ice-strengthened and was built by VEB Mathias-Thesau 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 Sulzer 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 passengers.

Schedules for each of the cruises follows:

Cruise MP#1

December 1997/January 1998

Port	Dates
Buenos Aires, ARGENTINA	22 DEC 1997
at sea	23-24 DEC 1997
Falkland Islands	25-26 DEC 1997
at sea	27 DEC 1997
Antarctic Peninsula	28-31 DEC 1997
at sea	01 JAN 1998
Ushuaia, ARGENTINA	02 JAN 1998

Cruise MP#2

January 1998

Port	Dates
Ushuaia, ARGENTINA	03 JAN 1998
at sea	04 JAN 1998
Antarctic Peninsula	05-08 JAN 1998
at sea	09 JAN 1998
Ushuaia, ARGENTINA	10 JAN 1998

Cruise MP#3

January 1998

Port	Dates
Ushuaia, ARGENTINA	11 JAN 1998
at sea	12 JAN 1998
Antarctic Peninsula	13-16 JAN 1998
at sea	17 JAN 1998
Ushuaia, ARGENTINA	18 JAN 1998

Cruise MP#4

January/February 1998

Port	Dates
Ushuaia, ARGENTINA	19 JAN 1998
at sea	20 JAN 1998
Antarctic Peninsula	21-23 JAN 1998
at sea	24 JAN - 01 FEB 1998
McMurdo Station -	0203 FEB 1998
Cape Royds/Cape Evans/Ross Ice Shelf	04 FEB 1998
Terra Nova Bay	05 FEB 1998
at sea -	0609 FEB 1998
Lyttelton, NEW ZEALAND	10 FEB 1998

Other

In addition, several other organizations plan to arrange/conduct or support tourism activities in the Antarctic during the 1997-98 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 will conduct 6 cruises and the Bremen will conduct 7 cruises.

b) Marine Expeditions of Toronto, Canada, intends to conduct approximately 30 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 1997 - mid-January 1998 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 1997-98 season are reported in Section XII of the Modifications of the United States Antarctic Activities Planned for 1997-98. Please see ['Killed/Captured forms'](#).

XIII. Radioactive Materials

Section XIII of the 1997-98 season plans lists the radioactive materials to be used and provides information regarding their form, nuclide, site, and specific use.

<u>PROJECT</u>	<u>NUCLIDE</u>	<u>FORM</u>	<u>SITE</u>	<u>USE</u>
S-006	³ H ¹⁴ C ¹⁴ C ³⁵ S ⁸⁶ Rb ³² P/ ³³ P	³ H - Uridine ¹⁴ C - ATP ¹⁴ C - Alanine ³⁵ S - Methionine ⁸⁶ Rb - Rubidium Chloride ³² P/ ³³ P - Deoxycytidine 5'-triphosphate salt	McMurdo Station/Sea Ice	Metabolic physiology during embryonic and larval development of Antarctic echinoderms
S-010	¹⁴ C	¹⁴ C - Sodium Bicarbonate	Palmer Station	New approaches to Measuring and Understanding the Effects of Ultraviolet Radiation on Photosynthesis by antarctic Phytoplankton
S-016	¹⁴ C	¹⁴ C - Sodium bicarbonate	Palmer Station; R/V L.M.GOULD	Palmer Station/LM Gould: LTER on the Antarctic Marine Ecosystem: An Ice Dominated Environment - Phytoplankton Ecology Component

<u>PROJECT</u>	<u>NUCLIDE</u>	<u>FORM</u>	<u>SITE</u>	<u>USE</u>
S-042P	³ H ¹⁴ C	³ H - Thymidine ¹⁴ C - Carbonate - Bicarbonate	McMurdo Station/Dry Valleys	McMurdo Dry Valleys: A Cold Desert Ecosystem
S-046	³ H ¹⁴ C	³ H - Leucine ¹⁴ C - Sodium Bicarbonate	R/V L.M. GOULD	LTER: Microbiology and carbon flux
S-109D	²⁴¹ Am	²⁴¹ Am - Metal Disk	South Pole Station	South Pole Air Shower Experiment (SPASE)-2
S-116	⁶⁰ Co ¹³³ Ba ¹⁵⁴ Eu composite	⁶⁰ Co - sealed source ¹³³ Ba - sealed source ¹⁵⁴ Eu - sealed source composite - sealed source	McMurdo Station	Astrophysical Gamma-Ray Spectroscopy with the High Resolution Gamma-Ray and Hard X-ray Spectrometer (HIREGS) on Long Duration Balloon Flights
S-171	²⁰⁸ Po	²⁰⁸ Po - Acetate	McMurdo Station	Reconstruction of Paleotemperatures from precision bore hole temperature logging: a Transantarctic Mountains Transect from Taylor Dome to Ross Sea
S-211	²³³ Pa	²³³ Pa - Nitric Acid	R/V ROGER REVELLE	U.S. JGOFS Antarctic Environment and Southern Ocean Process Study - Coring and water column studies of paleproductivity proxies
S-216B	³ H	³ H - Leucine	R/V NATHANIEL B. PALMER	Research on Ocean- Atmosphere Variability in Ecosystem Response in the Ross Sea (ROAVERRS)

<u>PROJECT</u>	<u>NUCLIDE</u>	<u>FORM</u>	<u>SITE</u>	<u>USE</u>
S-216C	³ H ¹⁴ C	³ H - Leucine ¹⁴ C - Thymidine	R/V NATHANIEL B. PALMER	Research on Ocean- Atmosphere Variability and Ecosystem Response in the Ross Sea (ROAVERRS)
S-223	¹⁴ C	¹⁴ C - Sodium ¹⁴ C - Bicarbonate	R/V NATHANIEL B. PALMER; Ross Sea	NBP/REVELLE: Carbon and Nitrogen in Dissolved Organics: A Contribution to the U.S. JGOFS Southern Ocean Program I
S-231	¹⁴ C	¹⁴ C - Sodium Bicarbonate	R/V ROGER REVELLE	Primary Production in the Southern Ocean: APFZ Process I on REVELLE
S-232	¹⁴ C	¹⁴ C - Sodium Bicarbonate	R/V ROGER REVELLE	Primary Production in the Southern Ocean: Polar Front Process Study 2
S-233	³ H ³ H ¹⁴ C	³ H - Leucine ³ H - Thymidine ¹⁴ C - Sodium Bicarbonate	R/V NATHANIEL B. PALMER; Ross Sea	NBP: Primary Production in the Southern Ocean: PROCESS STUDY IV
S-243	³ H	³ H - aqueous dissolved organic compounds	R/V NATHANIEL B. PALMER; Ross Sea	Bacterial production uncoupled from primary production: Implications for carbon cycling in the southern ocean.
S-244	³ H	³ H - aqueous, dissolved organic compounds	R/V NATHANIEL B. PALMER; Ross Sea	Bacterial production uncoupled from primary production: Implications for carbon cycling in the southern ocean.

<u>PROJECT</u>	<u>NUCLIDE</u>	<u>FORM</u>	<u>SITE</u>	<u>USE</u>
S-245	^3H ^{55}Fe	^3H - aqueous, dissolved organic compounds ^{55}Fe - ferric chloride	R/V NATHANIEL B. PALMER; Ross Sea	Bacterial production uncoupled from primary production: implications for DOM fluxes in the Southern Ocean (U.S. JGOFS)
S-257A	^{63}Ni	^{63}Ni - Foil or Plated source	South Pole Station	South Pole Monitoring for Climatic Change: U.S. Department of Commerce; National Oceanic and Atmospheric Administration, Climate Monitoring and Diagnostics Laboratory (Source is inside an electron capture detector of a gas chromatograph)

XIV. Research Rockets

Section XIV reports the planned use of research rockets. The United States Antarctic Program will launch no research rockets during the 1997-98 season.

XV. Oceanography- Government

Section XV outlines plans for United States Antarctic Program sponsored oceanographic expeditions during the 1997-98 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 Masters: Captain Joe Borkowski and Mike Watson.

Scientific Programs in the Antarctic Treaty Area

The R/V NATHANIEL B. PALMER will conduct cruises in the Southern Ocean surrounding Antarctica, including Physical and Chemical Oceanography, Marine Geology and Geophysics, and Marine Biology.

Intended Tracks and Schedule

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

R/V LAURENCE M. GOULD

R/V LAURENCE M. GOULD is scheduled for completion and dedication in October 1997. The R/V LAURENCE M. GOULD 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

It is anticipated that the R/V LAURENCE M. GOULD will have the same research capabilities and be outfitted similar to the R/V POLAR DUKE. The vessel will be 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 Masters: Captain Joe Borkowski and Captain Warren Sanamo

Scientific Programs in the Antarctic Treaty Area

The R/V LAURENCE M. GOULD will support research and logistic support cruises October 1997 through September 1998. 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 1997-98 season at sea from Punta Arenas, Chile, October 14, 1997. The vessel will transport support personnel to and from Palmer Station on this and all other cruises. The vessel will perform approximately 11 cruises in the Antarctic Peninsula area during 97-98 season.

R/V ROGER REVELLE

The R/V ROGER REVELLE, built in 1996 is a U.S. Navy owned, University of California, San Diego, Scripps Institution of Oceanography, operated general purpose undocumented oceanographic research ship. A member of the UNOLS fleet, the vessel operates under U.S. flag, is inspected under U.S. Coast Guard rules for oceanographic research vessels and is registered in the state of California. R/V ROGER REVELLE is rated ABS Class A1 and Ice Classed 'C' and 3180 Gross Registered Tons. The ship has an overall length of 83.3 meters, a registered length of 75.38 meters, beam of 16 meters and a maximum draft of 5.2 meters. Propulsion is diesel electric, 6000 shaft horsepower, driving two 360 degree azimuthing Z-Drive LIPS thrusters. A bow thruster is installed. The vessel has a crew of 22, with accommodations for 37 scientists.

Research Capabilities

The vessel is equipped with satellite precision navigation system, multibeam ocean bottom mapping capability, INMARSAT communications and full GMDSS capabilities.

Dynamic Positioning System is installed. Installed winches include a double drum, deep sea trawling/coring traction winch usually equipped with mechanical and electromechanical cables located below decks. Cables are led through the stern A-Frame or a port side trawl crane. There are two topside hydrographic winches capable of handling both mechanical and electromechanical cables which are deployed via a hydroboom on the starboard side. In addition, the ship carries several portable winches. Seismic capability is available. There are laboratories totaling approximately 372 square meters, all located contiguously on the main deck. There is also a suite of portable laboratory vans.

Ship Masters: Captain Thomas Desjardins and Captain Albert Arsenault.

Scientific Programs in the Antarctic Treaty Area

R/V ROGER REVELLE will conduct 4 scientific cruises in support of the JGOFS program between October 1997 and March 1997. Research in support of this program includes physical and chemical oceanography and marine biology.

Intended Tracks and Schedule

All four cruises will depart from and return to Lyttelton, NZ. Each one will proceed to 65 degrees South Latitude at some point. It is estimated that approximately 5 days will be spent south of 60 degrees South Latitude per cruise. All operations in the treaty zone will occur between 60 and 65 degrees South

XVI. Visiting Expeditions

*Section XVI provides information on expeditions visiting U.S.
stations during the 1997-98 austral summer. Please see [Section XVI](#)
of the Modifications of the United States Antarctic Activities
Planned for 1997-98.*

