

Modifications of Activities Planned for 1997-98

*Sections one through sixteen of the Modifications of Activities
Planned for 1997-98 list any updates or changes to information
provided in the respective sections of the 1997-98 plans.*

I. Ships and Aircraft

*Section I of the Modifications of Activities Planned for 1997-98
lists any changes to ship and aircraft usage
planned for this time period.*

Ships

No significant changes are reported.

Aircraft

The 109th Tactical Airlift Group (TAG) of the Air National Guard (ANG) based in Schenectady, New York provided three LC-130 aircraft instead of two as originally planned to assist with intra-continental flight operations.

The Royal New Zealand Air Force provided airlift support between Christchurch, New Zealand and McMurdo Station, Antarctica in February of 1998 in addition to November and December of 1997 as originally planned.

II. Expedition Dates

*Section II of the Modifications of Activities Planned for 1997-98
lists the actual dates of significant events occurring
during this time period.*

Significant Dates of Expeditions

Date	Activity
03 Mar 97	R/V POLAR DUKE (S-036 Sidell, S-037 Detrich) PD97-2,-3,-4
12 May 97	R/V NATHANIEL B. PALMER Transit from Lyttelton, NZ, to Valpariso, Chile (Multibeam Tests) NBP97-4
30 Jun 97	R/V POLAR DUKE end of Charter
05 Jul 97	R/V NATHANIEL B. PALMER Transit (cont'd) from Lyttelton, NZ, to Valpariso, Chile (Muench S-203) NBP97-5,NBP97-6,NBP97-7
21 Aug 97	First flight of Winfly
17 Sep 97	Palmer Station opens
30 Sep 97	McMurdo Station opens for Mainbody
02 Oct 97	Single C-5 mission to McMurdo of the season
05 Oct 97	Marble Point opens
28 Oct 97	Siple Dome opens
05 Nov 97	R/V NATHANIEL B. PALMER (JGOFs Process Study IV) NBP97-8
07 Nov 97	109th AW arrives at McMurdo
08 Nov 97	South Pole opens (Winfly)
17 Nov 97	Vostok Station opens
21 Nov 97	Downstream B opens
21 Nov 97	R/V ABEL-J Open NOAA Field Camp, Livingston Island; Palmer Station support
06 Dec 97	Move runway from sea ice to Williams field skiway.

Date	Activity
	Fueling operations at Vostok Station
08 Dec 97	R/V ABEL-J (S-087 Taylor, S-097 Wiens) LMGR#5
17 Dec 97	109th AW departs McMurdo
21 Dec 97	R/V NATHANIEL B. PALMER (S-216 Dunbar, S-048 Eastman) NBP97-9
03 Jan 98	R/V ABEL-J (S-003 Day, S-013 Fraser) LMGR#7
07 Jan 98	109th AW returns to McMurdo
11 Jan 98	R/V ABEL-J (S-028 Quetin) LMGR#8
15 Jan 98	R/V NATHANIEL B. PALMER (S-083 J. Anderson) NBP98-1
19 Jan 98	M/T SAMUEL V. COBB arrives at McMurdo; station refueling
22 Jan 98	R/V LAURENCE M. GOULD (S-046 Karl) LMG98-1 Marble Point refueling operations
23 Jan 98	M/T SAMUEL V. COBB departs McMurdo
31 Jan 98	Downstream B closes
04 Feb 98	Vostok Station closes
05 Feb 98	Siple Dome closes
06 Feb.98	Marble Point closes
07 Feb 98	M/V GREENWAVE arrives at McMurdo
14 Feb 98	M/V GREENWAVE departs McMurdo
18 Feb 98	South Pole Station closes
21 Feb 98	109th AW departs McMurdo
22 Feb 98	McMurdo Station closes via LC130
22 Feb 98	Final LC-130 turnaround at McMurdo
25 Feb 98	R/V LAURENCE M. GOULD (S-072 Domack) LMG98-2
25 Feb 98	R/V NATHANIEL B. PALMER (S-228 J. Anderson) NBP98-2

III. Station Openings

Section III of the Modifications of Activities Planned for 1997-98 lists the names, locations, and actual 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: 3 September 1997

Amundsen-Scott South Pole Station

Location: 90° 00'S Latitude

Annual Relief: 8 November 1997

Palmer Station

Location: Anvers Island near Bonaparte Point
64° 46'S Latitude
64° 05'W Longitude

Annual Relief: 17 September 1997

Austral Summer Camps

Siple Dome Camp

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

Open: 28 October 1997

Close: 05 February 1998

Downstream Bravo Camp

Location: 84° 01'S Latitude
155° 00'W Longitude

Open: 23 November 1997

Close: 31 January 1998

Ford Range Camp

Location: 77° 16'S Latitude
142° 27'W Longitude

Open: 24 November 1997

Close: 30 January 1998

IV. Personnel

Section IV of the Modifications of Activities Planned for 1997-98 lists actual dates that senior management personnel were on-station in Antarctica during this time period. [Appendix III](#) of this document provides a comprehensive listing of all persons transiting the 60th parallel South, the date of transit, their professional affiliation, and visitor category.

Senior United States Representatives

DATES	NAME
01 Oct 97 - 05 Oct 97	Erick Chiang
06 Oct 97 - 15 Dec 97	Dwight D. Fisher
11 Jan 98 - 02 Feb 98	Erick Chiang

NSF Representatives in Antarctica

* Denotes Science Representative

DATES	NAME	LOCATION
01 Oct 97 - 16 Dec 97	David M. Bresnahan	McMurdo
17 Dec 97 - 19 Feb 98	Alexander L. Sutherland	McMurdo
01 Oct 97 - 15 Nov 97	Scott G. Borg *	McMurdo
16 Nov 97 - 10 Dec 97	Julie M. Palais *	McMurdo
07 Jan 98 - 23 Jan 98	Roberta Marinelli *	McMurdo
24 Jan 98 - 10 Feb 98	Margaret J. Dionne *	McMurdo
08 Nov 97 - 13 Dec 97	Jerry W. Marty	South Pole
11 Jan 98 - 17 Feb 98	Jerry W. Marty	South Pole
08 Nov 97 - 01 Dec 97	Leonard E. Johnson*	South Pole
02 Dec 97 - 06 Jan 98	Hilleary D. Everist *	South Pole

07 Jan 97 - 28 Jan 98	Linda E. Duguay *	South Pole
16 Sep 97 - 03 Oct 97	Harry Mahar	Palmer
29 Nov 97 - 30 Dec 97	Sonja Ortega*	Palmer
25 Jan 98 - 17 Feb 98	David M. Bresnahan	Palmer

Offices 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 were:

McMurdo Station

CAPT Hugh Smith, USN	03 Oct 97 - 22 Feb 98
Albert G. Martin (winter over)	18 Oct 96 - 12 Dec 97
John S. Sherve (winter-over)	13 Dec 97 -

Amundsen-Scott South Pole Station

David Fischer, Station Manager	26 Oct 97- 18 Feb 98
Katherine M. Jensen (winter-over)	19 Feb 98 -

Palmer Station

Ronald Nugent, Station Manager	16 Sep 97- 05 Apr 98
Ronnie P. Baltz, Station Manager (winter over)	06 Apr 98-

Numbers, Occupations and Specializations of Personnel

No Significant Changes

Numbers of Personnel Who Are Members of The Military Service

No significant Changes

Personnel Engaged in Scientific Activities

(with professional affiliation)

Please see [Appendix III](#)

V. Armaments

Section V of the Modifications of Activities Planned for 1997-98 details changes in 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). This rifle was retrograded and returned to Don Siniff of the University of Minnesota.
- 1 barrel and grip, for Savage .22 long over/20-gauge under. This weapon was destroyed on station and the pieces retrograded in 1994.
- 8 pistols, pyrotechnic (5 ea. 25 mm) (2 ea. 12-gauge). These signaling devices were retrograded and replaced with disposable hand held flares.

Palmer Station

No significant changes are noted.

South Pole Station

No significant changes are noted.

R/V NATHANIEL B. PALMER

No significant changes are noted.

R/V LAURENCE M. GOULD

No significant changes are noted.

VI. Project Descriptions

No modifications of field research projects are presented here, but original plans and project descriptions are available in [appendix II](#) of this document.

VII. Scientific Equipment

Section VII of the Modifications of Activities Planned for 1997-98 lists additions and deletions to the principal scientific equipment available at McMurdo, South Pole, and Palmer stations and onboard USAP research vessels.

Additions to Scientific Equipment

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>	<u>REV⁴</u>
Astrophysics Aeronomy							
Centrifuge, Refrigerated							
12K RPM Micro							X
Optical Time Domain Reflectometer							
Biology							
Bath, Water, Circulating							X
Camera, CCD						X	
Camera, Still Underwater					X		
Dry Ice Maker		X					
Filtration Apparatus, Water							X
Incubator, Low Temperature	X						
Oven	X						
Spectrophotometer	X						
Computers							
<u>Macintosh:</u>							

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG¹</u>	<u>NBP²</u>	<u>AGO³</u>	<u>REV⁴</u>
Macintosh Power PC 9500					X		
<u>Workstation:</u>							
Sun SPARC 5					X		
SGI Indy				X			
<u>Printers:</u>							
Ink Jet Color					X		
<u>Miscellaneous:</u>							
Magneto-optical Drive					X		
Zip Drive					X		
Geology/Geophysics							
Echo Sounder, Knudsen				X			
Seismic Sensor System	X	X	X				
Swath bathymetric mapping system					X		
Geomagnetism							
Magnetometer, Portable					X		
Meteorology							
Weather FAX					X		
Oceanography/Limnology							
Sat P-Code GPS				X			
Other							
Frequency counter					X		
Turbo Molecular Pump	X						

Deletions to Scientific Equipment

	<u>McMurdo</u>	<u>SPole</u>	<u>Palmer</u>	<u>LMG</u> ¹	<u>NBP</u> ²	<u>AGO</u> ³	<u>REV</u> ⁴
Biology							
Camera, Still Underwater						X	
Counter, Liquid Scintillation						X	
Computers							
<u>Macintosh:</u>							
Macintosh Power PC 7200					X		
<u>Miscellaneous:</u>							
Bernoulli Disk						X	
<u>Printers:</u>							
Ink Jet, Color						X	
<u>Workstation:</u>							
Sun SPARC 2					X		
Geology/Geophysics							
Swath bathymetric mapping system						X	
Meteorology							
Laser Ceilometer		X					
Oceanography/Limnology							
Sonar, Side Scan				X			

1 = R/V LAURENCE M. GOULD

2 = R/V NATHANIEL B. PALMER

3 = AUTOMATED GEOPHYSICAL OBSERVATORY

4 = R/V ROGER REVELLE

VIII. Transportation and Comms

Section VIII of Modifications of Activities Planned for 1997-98 details additions and deletions to the number and type transportation facilities, and changes to proposed projects that affect communications equipment used within the Antarctic treaty area.

Surface, Marine, and Air Transportation Vehicles

McMurdo Station

Delete

Carrier, Personnel and Cargo (tracked and wheeled)	1
Trailer, (tracked and wheeled)	1
Forklift, warehouse	1
Bulldozers	2
Trackloaders	5
Hovercraft	1

Amundsen-Scott South Pole Station

Add

Cranes	2
Tractor Crawler	1

Palmer Station

Add

Telescopic Material Handler

1

Description of Communications Facilities

McMurdo Station

No significant changes are noted.

South Pole Station

1. A Naval Order Wire System (NOWS) RTTY link was installed from South Pole to McMurdo Station.
2. An Intranet Web site was installed at South Pole Station.
3. MBONE high quality Video Teleconferencing capabilities were installed and tested
4. The TDRRS Satellite Relay System was installed during the austral summer season.
5. Vocal Tech Voice over IP Internet Phone was installed during the austral summer
6. TPC Internet Fax capabilities were installed during the austral summer.

Palmer Station

1. INMARSAT "B" was installed during the summer season.
2. CU-CEE-ME Video teleconferencing was installed and tested successfully during the summer season.

Description of Airfields

McMurdo Station

Navigation Aids

A precision approach path indicator (PAPI) was installed at Williams field.

Amundsen-Scott South Pole Station

No significant changes are noted.

Palmer Station

No significant changes are noted.

Marble Point Camp

No significant changes are noted.

IX. Assistance Facilities

Section IX of the Modifications of Activities Planned for 1997-98 details changes in the facilities available for rendering assistance in Antarctica including medical, transport services and emergency shelters.

McMurdo Station

Medical Facilities

Due to the transition from military to civilian medical personnel at McMurdo station, the following changes apply. 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.

No other significant changes are noted.

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, conducted a total of nine cruises to the Antarctic Peninsula during the 1997-98 season using M/S Explorer. Given below, for each cruise, is the port of origin, sites visited (with dates) and the return port.

M/S EXPLORER

Cruise EX-731

November/December 1997
79 PAX; 13 STAFF; 64 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Port Stanley, FALKLAND ISLANDS		27 NOV 1997
Carcass Island/New Island		28 NOV 1997
at sea		29-30 NOV 1997
Penguin Island	93	01 DEC 1997
Arctowski Station, King George Island	98	01 DEC 1997
Gourdin Island	99	02 DEC 1997
Hannah Point, Livingston Island	88	03 DEC 1997
Whaler's Bay, Deception Island	87	03 DEC 1997
Pendulum Cove, Deception Island	52	03 DEC 1997
Cuerverville Island	94	04 DEC 1997
Paradise Bay	99	04 DEC 1997

Petermann Island	71	05 DEC 1997
Goudier Island	74	05 DEC 1997
Jouglá Point, Port Lockroy	47	05 DEC 1997
at sea		06-07 DEC 1997
Ushuaia, ARGENTINA		08 DEC 1997

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise EX-732

December 1997

68 PAX; 14 STAFF; 63 CREW

<u>Ports</u>	<u># PAX ¹ Landed</u>	<u>Dates</u>
Ushuaia, ARGENTINA		08 DEC 1997
at sea		09-10 DEC 1997
Gonzales Videla Station, Waterboat Point, Paradise Bay	83	11 DEC 1997
Petermann Island	88	11 DEC 1997
Goudier Island	77	11 DEC 1997
Jouglá Point, Port Lockroy	75	12 DEC 1997
Palmer Station, Anvers Island	70	12 DEC 1997
Torgersen Island	92	12 DEC 1997
Telefon Bay, Deception Island	80	12 DEC 1997
Pendulum Cove, Deception Island	77	13 DEC 1997
Cape Lookout, Elephant Island	71	13 DEC 1997
South Orkney Islands	84	14 DEC 1997
at sea		15 DEC 1997
South Georgia		16 DEC 1997
at sea		17-19 DEC 1997
Southeast Falkland Islands		20-21 DEC 1997
Port Stanley, FALKLAND ISLANDS		22 DEC 1997
		23 DEC 1997

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise EX-733

December 1997/January 1998
97 PAX; 14 STAFF; 62 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Port Stanley, FALKLAND ISLANDS		23 DEC 1997
Carcass/New Island		24 DEC 1997
at sea		25-26 DEC 1997
Aitcho Island	110	27 DEC 1997
Yankee Harbor, Greenwich Island	110	27 DEC 1997
Paulet Island	107	28 DEC 1997
Hope Bay (Uruguayan hut)	105	28 DEC 1997
Rancho Point, Deception Island	98	29 DEC 1997
Whaler's Bay, Deception Island	105	29 DEC 1997
Telefon Bay, Deception Island	101	29 DEC 1997
Pendulum Cove, Deception Island	77	29 DEC 1997
Goudier Island	105	30 DEC 1997
Jouglá Point, Port Lockroy	98	30 DEC 1997
Palmer Station, Anvers Island	110	30 DEC 1997
Torgersen Island	104	30 DEC 1997
Flanders Bay, Graham Land	64*	31 DEC 1997
Foyn Harbor,	106*	01 JAN 1998
Cuerville Island	108	01 JAN 1998
Drake Passage (at sea)		02-03 JAN 1998
Ushuaia, ARGENTINA		04 JAN 1998

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise EX-801

January 1998
91 PAX; 12 STAFF; 62 CREW

<u>Ports</u>	<u># PAX</u> ¹	<u>Dates</u>
Ushuaia, ARGENTINA		04 JAN 1998
at sea		05-06 JAN 1998
Cuverville Island	103	07 JAN 1998
Spigot Peak, Orne Island	97	07 JAN 1998
Petermann Island	101	07 JAN 1998
Goudier Island	105	08 JAN 1998
Jouglá Point, Port Lockroy	99	08 JAN 1998
Palmer Station, Anvers Island	101	08 JAN 1998
Torgersen Island	100	08 JAN 1998
Telefon Bay, Deception Island	98	09 JAN 1998
Aitcho Island	80	09 JAN 1998
Point Wild, Elephant Island	91*	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

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise EX-802

January 1998
94 PAX; 12 STAFF; 62 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Port Stanley, FALKLAND ISLANDS		19 JAN 1998
Carcass/New Island		20 JAN 1998
at sea		21-22 JAN 1998
Aitcho Island	108	23 JAN 1998
Yankee Harbor	103	23 JAN 1998
Hannah Point, Livingston Island	108	24 JAN 1998
Whaler's Bay, Deception Island	108	24 JAN 1998
Pendulum Cove, Deception Island	96	24 JAN 1998
Almirante Brown Station, Paradise Bay	108	25 JAN 1998
Vernadsky Station, Argentine Island	111	25 JAN 1998
Petermann Island	101	26 JAN 1998
Port Lockroy, Wiencke Island	109	26 JAN 1998
Antarctic Peninsula		23-26 JAN 1998
Drake Passage (at sea)		27-28 JAN 1998
Ushuaia, ARGENTINA		29 JAN 1998

¹ = Includes passengers, staff and crew landed
* = zodiac cruising only

Cruise EX-803

January/February 1998
95 PAX; 12 STAFF ; 62 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Ushuaia, ARGENTINA		29 JAN 1998
Drake Passage (at sea)		30-31 JAN 1998
Gourdin Island	108	01 FEB 1998
Brown Bluff, Tabarin Peninsula	99	01 FEB 1998
Hannah Point, Livingston Island	108	02 FEB 1998
Pendulum Cove, Deception Island	103	02 FEB 1998

Whaler's Bay, Deception Island	103	02 FEB 1998
Enterprise Islands	107*	03 FEB 1998
Dorian Bay, Wiencke Island	106	03 FEB 1998
Port Lockroy, Wiencke Island	108	03 FEB 1998
Pleneau Island	103	04 FEB 1998
Vernadsky Station, Argentine Island	109	04 FEB 1998
Paradise Bay	97*	05 FEB 1998
Cuerverville Island	108	05 FEB 1998
at sea		06-07 FEB 1998
Ushuaia, ARGENTINA		08 FEB 1998

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise EX-804

February 1998

84 PAX; 13 STAFF; 62 CREW

<u>Ports</u>	<u># PAX ¹ Landed</u>	<u>Dates</u>
Port Stanley, FALKLAND ISLANDS		08 FEB 1998
at sea		09-10 FEB 1998
Almirante Brown Station, Paradise Bay	96	11 FEB 1998
Cuerverville Island	98	11 FEB 1998
Pleneau Island	96	12 FEB 1998
Palmer Station, Anvers Island	96	12 FEB 1998
Dorian Bay, Wiencke Island	98	13 FEB 1998
Port Lockroy, Wiencke Island	97	13 FEB 1998
Half Moon Island	98	14 FEB 1998
Aitcho Island	94	14 FEB 1998
Kinnes Cove, Joinville Island	98	15 FEB 1998
Penguin Island	94	15 FEB 1998
Drake Passage (at sea)		16-17 FEB 1998
Ushuaia, ARGENTINA		18 FEB 1998

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise EX-805

February 1998
65 PAX; 14 STAFF; 62 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Ushuaia, ARGENTINA		18 FEB 1998
Drake Passage (at sea)		19-20 FEB 1998
Robert Point, South Shetland Island	78	20 FEB 1998
D'Urville Mount, Joinville Island	74	21 FEB 1998
Devil Island	2	21 FEB 1998
Half Moon Island	77	22 FEB 1998
Whaler's Bay, Deception Island	77	22 FEB 1998
Pendulum Cove	73	22 FEB 1998
Enterprise Islands	77*	23 FEB 1998
Cuerverville Island	78	23 FEB 1998
Lagarrigue Cove (Selvick), Orne Harbor	77	23 FEB 1998
Pleneau Island	73*	24 FEB 1998
Dorian Bay, Wiencke Island	78	24 FEB 1998
Port Lockroy, Wiencke Island	78	24 FEB 1998
Lapeyrere Bay, Gordin Peninsula	76*	25 FEB 1998
at sea		26-27 FEB 1998
Ushuaia, ARGENTINA		28 FEB 1998

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise EX-806

March 1998
78 PAX; 14 STAFF; 61 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Ushuaia, ARGENTINA		28 FEB 1998
at sea		01-02 MAR 1998
Cuerverville Island	92	03 MAR 1998
Ronge Island	92	03 MAR 1998
Skontorp Cove, Paradise Bay	90	03 MAR 1998

Palmer Station, Anvers Island	94	04 MAR 1998
Petermann Island	87	04 MAR 1998
Port Lockroy, Wiencke Island	2	04 MAR 1998
Telefon Bay, Deception Island	92	05 MAR 1998
Pendulum Cove, Deception Island	92	05 MAR 1998
Half Moon Island	92	05 MAR 1998
Point Wild, Elephant Island	73*	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

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Society Expeditions

Society Expeditions of Seattle, Washington, conducted a total of eight cruises to the Antarctic Peninsula during the 1997-98 season using the M/V World Discoverer. Given below, for each cruise, is the port of origin, sites visited (with dates), and the return port.

M/V WORLD DISCOVERER

Cruise WD-#70911

November 1997

116 PAX; 14 STAFF; 74 CREW

<u>Ports</u>	<u># PAX</u> ¹	<u>Dates</u>
Ushuaia, ARGENTINA		09 NOV 1997
at sea		10-11 NOV 1997
Almirante Brown Station, Paradise Bay	153	12 NOV 1997
Port Lockroy, Wiencke Island	82	12 NOV 1997
Palmer Station, Anvers Island	149	13 NOV 1997

Petermann Island	126	13 NOV 1997
Cuerville Island	130	14 NOV 1997
Baily Head, Deception Island	88	15 NOV 1997
Whalers Bay, Deception Island	94	15 NOV 1997
Hannah Point, Livingston Island	88	15 NOV 1997
Turret Point, King George Island (KGI)	107	16 NOV 1997
Comandante Ferraz Station, KGI	121	17 NOV 1998
Aitcho Island	120	17 NOV 1997
at sea		18-19 NOV 1997
Ushuaia, ARGENTINA		20 NOV 1997

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise WD-#72011

November 1997

69 PAX; 15 STAFF; 73 CREW

<u>Ports</u>	<u># PAX</u> ¹	<u>Dates</u>
Ushuaia, ARGENTINA		20 NOV 1997
at sea		21-22 NOV 1997
Petermann Island	72	23 NOV 1997
Gonzales Videla Station, Paradise Bay	103	23 NOV 1997
Palmer Station, Anvers Island	103	24 NOV 1997
Torgersen Island	83	24 NOV 1997
Port Lockroy, Wiencke Island	78	24 NOV 1997
Whalers Bay, Deception Island	93	25 NOV 1997
Aitcho Islands	60	25 NOV 1997
Penguin Island	88	26 NOV 1997
Turret Point, King George Island (KGI)	88	26 NOV 1997
Arctowski Station, King George Island	90	26 NOV 1997
Cape Lookout, Elephant Island	5	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
¹ = Includes passengers, staff and crew landed
 * = zodiac cruising only

Cruise WD-#70112
 December 1997
 123 PAX; 16 STAFF; 74 CREW

<u>Ports</u>	<u># PAX</u> ¹	<u>Dates</u>
Port Stanley, FALKLAND ISLANDS		01 DEC 1997
at seal		02-03 DEC 1997
South Georgia		04-06 DEC 1997
at sea		07-08 DEC 1997
Cape Lookout, Elephant Island	131	09 DEC 1997
Penguin Island	119	10 DEC 1997
Turret Point, King George Island	118	10 DEC 1997
Cuverville Island	122	11 DEC 1997
Ronge Island	123	11 DEC 1997
Gonzales Videla Station, Paradise Bay	110	11 DEC 1997
Vernadsky Station, Argentine Island	136	12 DEC 1997
Petermann Island	116	12 DEC 1997
Baily Head, Deception Island	103	13 DEC 1997
Whalers Bay, Deception Island	105	13 DEC 1997
Hannah Point, Livingston Island	105	13 DEC 1997
at sea		14-15 DEC 1997
Port Stanley, FALKLAND ISLANDS		16 DEC 1997

¹ = Includes passengers, staff and crew landed
 * = zodiac cruising only

Cruise WD-#71612
December 1997/January 1998
103 PAX; 10 STAFF; 73 CREW

<u>Ports</u>	<u># PAX</u> ¹	<u>Dates</u>
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	99	26 DEC 1997
Paulet Island	118	27 DEC 1997
Penguin Island	116	28 DEC 1997
Comandante Ferraz Station, King George Is.	119	28 DEC 1997
Hannah Point, Livingston Island	119	29 DEC 1997
Baily Head, Deception Island	106	29 DEC 1997
Whalers Bay, Deception Island	104	29 DEC 1997
Cuerverville Island	102	29 DEC 1997
Georges Point, Ronge Island	101	30 DEC 1997
Dorian Bay, Wiencke Island	57	30 DEC 1997
Port Lockroy, Wiencke Island	107	30 DEC 1997
Petermann Island	87	31 DEC 1997
Almirante Brown Station, Paradise Bay	97	31 DEC 1997
at sea		01-02 JAN 1998
Ushuaia, ARGENTINA		03 JAN 1998

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise WD-#80301

January 1998
125 PAX; 14 STAFF; 73 CREW

<u>Ports</u>	<u># PAX</u> ¹	<u>Dates</u>
Ushuaia, ARGENTINA		03 JAN 1998
at sea		04-05 JAN 1998
Aitcho Island	142	05 JAN 1998
Paulet Island	142	06 JAN 1998
Hannah Point, Livingston Island	140	07 JAN 1998
Baily Head, Deception Island	127	07 JAN 1998
Whalers Bay, Deception Island	139	07 JAN 1998
Palmer Station, Anvers Island	147	08 JAN 1998
Torgersen Island	141	08 JAN 1998
Port Lockroy, Wiencke Island	143	08 JAN 1998
Petermann Island	107	09 JAN 1998
Vernadsky Station, Argentine Islands	141	09 JAN 1998
Detaille Island	132	10 JAN 1998
Prospect Point, Graham Land	91	10 JAN 1998
Cuerverville Island	42	11 JAN 1998
Georges Point, Ronge Island	83	11 JAN 1998
Almirante Brown Station, Paradise Bay	129	11 JAN 1998
Drake Passage (at sea)		12-13 JAN 1998
Ushuaia, ARGENTINA		14 JAN 1998

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise WD-#81401

January 1998
123 PAX; 14 STAFF; 74 CREW

<u>Ports</u>	<u># PAX</u> ¹	<u>Dates</u>
Ushuaia, ARGENTINA		14 JAN 1998
at sea		15-16 JAN 1998
Cuverville Island	130	17 JAN 1998
Georges Point, Ronge Island	121	17 JAN 1998
Almirante Brown Station, Paradise Bay	138	17 JAN 1998
Vernadsky Station, Argentine Island	130	18 JAN 1998
Petermann Island	125	18 JAN 1998
Palmer Station, Anvers Island	125	19 JAN 1998
Torgersen Island	121	19 JAN 1998
Port Lockroy, Wiencke Island	123	19 JAN 1998
Telefon Bay, Deception Island	109	20 JAN 1998
Pendulum Cove, Deception Island	61	20 JAN 1998
Whalers Bay, Deception Island	107	20 JAN 1998
Paulet Island	121	21 JAN 1998
Point Wild, Elephant Island	135	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

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise WD-#83101

February 1998
122 PAX; 13 STAFF; 74 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Port Stanley, FALKLAND ISLANDS		31 JAN 1998
at sea		01-02 FEB 1998
Aitcho Islands	130	03 FEB 1998
Half Moon Island	125	03 FEB 1998
Dorian Bay, Wiencke Island	106	04 FEB 1998
Palmer Station, Anvers Island	134	04 FEB 1998
Torgersen Island	130	04 FEB 1998
Petermann Island	117	05 FEB 1998
Almirante Brown Station, Paradise Bay	132	05 FEB 1998
Baily Head, Deception Island	103	06 FEB 1998
Pendulum Cove, Deception Island	94	06 FEB 1998
Point Wild, Elephant Island	132*	07 FEB 1998
Gibbon Bay, Coronation Island, S. Orkneys	115	08 FEB 1998
at sea		09 FEB 1998
South Georgia		10-12 FEB 1998
at sea		13-15 FEB 1998
Port Stanley, FALKLAND ISLANDS		16 FEB 1998

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise WD-#81602

February/March 1998
134 PAX; 14 STAFF; 74 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Port Stanley, FALKLAND ISLANDS		16 FEB 1998
West Point/Carcass Island		17 FEB 1998
at sea		18-19 FEB 1998
Hannah Point, Livingston Island	113	20 FEB 1998
Whalers Bay, Deception Island	129	20 FEB 1998

Cuverville Island	135	21 FEB 1998
Georges Point, Ronge Island	135	21 FEB 1998
Almirante Brown Station, Paradise Bay	156	21 FEB 1998
Gunnel Channel	75*	22 FEB 1998
Bongrain Point, Pourqoi Pas Island	80	22 FEB 1998
Detaille Island	140	23 FEB 1998
Port Lockroy, Wiencke Island	140	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

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Quark Expeditions

Quark Expeditions of Darien, Connecticut, conducted approximately 21 cruises to the Antarctic during 1997-98 using three chartered vessels. The Professor Molchanov will conduct 10 cruises, of which 7 cruises were sub-chartered by Aurora Expeditions located in Manly, Australia. The Professor Multanovskiy conducted 7 cruises and Kapitan Khlebnikov conducted a total of four cruises, two of which were sub-chartered, one cruise each by Zegrahm Expeditions of Seattle, Washington, and Aurora Expeditions of Manly, Australia. Provided below for each cruise of all three vessels, is the port of origin, sites visited (with dates) and the return port.

PROFESSOR MOLCHANOV

Cruise MOL#790

November 1997

50 PAX; 6 STAFF; 24 CREW

<u>Ports</u>	<u># PAX</u> ¹	<u>Dates</u>
Puerto Madryn, ARGENTINA		04 NOV 1997
<i>National Science Foundation</i>		<i>126</i>
<i>Arlington, Virginia 22230</i>		
<i>November 30, 1998</i>		

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
at sea		18 NOV 1997
Hannah Point, Livingston Island	52	19 NOV 1997
Whalers Bay, Deception Island	57	19 NOV 1997
Cuerverville Island	56	20 NOV 1997
Neko Harbor, Andvord Bay	56	20 NOV 1997
Almirante Brown Station, Paradise Bay	56	20 NOV 1997
Drake Passage (at sea)		21-22 NOV 1997
Ushuaia, ARGENTINA		23 NOV 1997

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise MOL#791

November/December 1997

51 PAX; 6 STAFF; 24 CREW

<u>Ports</u>	<u># PAX ¹</u>	<u>Dates</u>
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
Cape Lookout, Elephant Island	59	05 DEC 1997
Penguin Island	60	06 DEC 1997
Turret Point, King George Island	60	06 DEC 1997
Neko Harbor, Andvord Bay	58	07 DEC 1997

Hovgaard Island	54*	07 DEC 1997
Whalers Bay, Deception Island	57	08 DEC 1997
Drake Passage (at sea)		08-10 DEC 1997
Ushuaia, ARGENTINA		11 DEC 1997

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise ANP10
Sub-Chartered by Aurora Expeditions of Manly, Australia
 December 1997
 52 PAX; 8 STAFF; 20 CREW

<u>Ports</u>	<u># PAX</u> ¹	<u>Dates</u>
Ushuaia, ARGENTINA		11 DEC 1997
Drake Passage (at sea)		12-13 DEC 1997
Aitcho Island	60	13 DEC 1997
Baily Head, Deception Island	57	14 DEC 1997
Pendulum Cove, Deception Island	58	14 DEC 1997
Danco Island	60	15 DEC 1997
Neko Harbor, Andvord Bay	54	15 DEC 1997
Petermann Island	55	16 DEC 1997
Vernadsky Station, Argentine Island	62	16 DEC 1997
Almirante Brown Station, Paradise Bay	56	17 DEC 1997
Portal Point, Charlotte Bay	54	17 DEC 1997
Hydrurga Rocks	54	18 DEC 1997
Christiania Islands	54	18 DEC 1997
Drake Passage (at sea)		19-20 DEC 1997
Ushuaia, ARGENTINA		21 DEC 1997

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise ANP11
Sub-Chartered by Aurora Expeditions of Manly, Australia
January 1998
52 PAX; 7 STAFF; 20 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Ushuaia, ARGENTINA		21 DEC 1997
Drake Passage (at sea)		22-23 DEC 1997
Aitcho Island	57	23 DEC 1997
Brown Bluff, Tabarin Peninsula	56	24 DEC 1997
Astrolabe Island	53	25 DEC 1997
Whalers Bay, Deception Island	56	25 DEC 1997
Pendulum Cove, Deception Island	45	25 DEC 1997
Cuerverville Island	57	26 DEC 1997
Neko Harbor, Andvord Bay	44	26 DEC 1997
Vernadsky Station, Argentine Island	58	27 DEC 1997
Petermann Island	44	27 DEC 1997
Damoy Point, Wiencke Island	26	27 DEC 1997
Port Lockroy, Wiencke Island	51	28 DEC 1997
Hydrurga Rocks	54	28 DEC 1997
Drake Passage (at sea)		29-30 DEC 1997
Ushuaia, ARGENTINA		31 DEC 1997

¹ = Includes passengers, staff and crew landed
* = zodiac cruising only

Cruise ANP12
Sub-Chartered by Aurora Expeditions of Manly, Australia
January 1998
51 PAX; 5 STAFF; 20 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Ushuaia, ARGENTINA		31 DEC 1997
Drake Passage (at sea)		01-02 JAN 1998
Penguin Island	60	02 JAN 1998
Brown Bluff, Tabarin Peninsula	57	03 JAN 1998

Esperanza Station, Hope Bay	51	03 JAN 1998
Mikkelsen Harbor, Trinity Island	59	04 JAN 1998
Christiania Islands	59*	04 JAN 1998
Cuverville Island	55	05 JAN 1998
Almirante Brown Station, Paradise Bay	52	05 JAN 1998
Vernadsky Station, Argentine Island	55	06 JAN 1998
Petermann Island	50	06 JAN 1998
Port Lockroy, Wiencke Island	58	06 JAN 1998
Damoy Point, Wiencke Island	50	06 JAN 1998
Whalers Bay, Deception Island	56	07 JAN 1998
Pendulum Cove, Deception Island	50	07 JAN 1998
Drake Passage (at sea)		08-09 JAN 1998
Ushuaia, ARGENTINA		10 JAN 1998

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise ASG02

Sub-Chartered by Aurora Expeditions of Manly, Australia

January 1998

53 PAX; 7 STAFF; 20 CREW

<u>Ports</u>	<u># PAX</u> ¹	<u>Dates</u>
Ushuaia, ARGENTINA		10 JAN 1998
Drake Passage (at sea)		11-12 JAN 1998
Falkland Islands		13 JAN 1998
at sea		14-15 JAN 1998
South Georgia		16-19 JAN 1998
at sea		20 JAN 1998
Gibbon Bay, Coronation Island	44	21 JAN 1998
at sea		22 JAN 1998
Brown Bluff, Tabarin Peninsula	59	23 JAN 1998
Cuverville Island	60	24 JAN 1998
Paradise Bay	58*	24 JAN 1998
Pendulum Cove, Deception Island	58	25 JAN 1998
Whalers Bay, Deception Island	59	25 JAN 1998

Hannah Point, Livingston Island	25 JAN 1998
Drake Passage (at sea)	26-27 JAN 1998
Ushuaia, ARGENTINA	28 JAN 1998

¹ = Includes passengers, staff and crew landed
* = zodiac cruising only

***Cruise ANP13
Sub-Chartered by Aurora Expeditions of Manly, Australia
January/February 1998
52 PAX; 7 STAFF; 20 CREW***

<u>Ports</u>	<u># PAX ¹ Landed</u>	<u>Dates</u>
Ushuaia, ARGENTINA		28 JAN 1998
Drake Passage (at sea)		29-30 JAN 1998
Aitcho Island	57	31 JAN 1998
Baily Head, Deception Island	64	31 JAN 1998
Pendulum Cove, Deception Island	52	31 JAN 1998
Curtiss Bay, Graham Land	57	01 FEB 1998
Cuverville Island	57*	01 FEB 1998
Vernadsky Station, Argentine Island	58	02 FEB 1998
Pleneau Island	43@	02 FEB 1998
Port Lockroy, Wiencke Island	56	03 FEB 1998
Paradise Bay	56*	03 FEB 1998
Hydrurga Rocks	57	04 FEB 1998
Hannah Point, Livingston Island	55	04 FEB 1998
Drake Passage (at sea)		05-06 FEB 1998
Ushuaia, ARGENTINA		07 FEB 1998

¹ = Includes passengers, staff and crew landed
* = zodiac cruising only
@ = camping

Cruise ANP14
Sub-Chartered by Aurora Expeditions of Manly, Australia
February 1998
53 PAX; 7 STAFF; 20 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Ushuaia, ARGENTINA		07 FEB 1998
Drake Passage (at sea)		08-09 FEB 1998
Brown Bluff, Tabarin Peninsula	57	10 FEB 1998
Esperanza Station, Hope Bay	50	10 FEB 1998
Half Moon Island	35	11 FEB 1998
Cierva Cove, Graham Land	56*	12 FEB 1998
Cuerverville Island	58	12 FEB 1998
Pleneau Island	59	13 FEB 1998
Port Lockroy, Wiencke Island	57	13 FEB 1998
Paradise Bay	46*	13 FEB 1998
Hydrurga Rocks	34	14 FEB 1998
Whalers Bay, Deception Island	57	14 FEB 1998
Drake Passage (at sea)		15-16 FEB 1998
Ushuaia, ARGENTINA		17 FEB 1998

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise CAP03
Sub-Chartered by Aurora Expeditions of Manly, Australia
February 1998
51 PAX; 9 STAFF; 20 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Ushuaia, ARGENTINA		17 FEB 1998
Drake Passage (at sea)		18-19 FEB 1998
Whalers Bay, Deception Island	58	19 FEB 1998
Orne Harbor, Graham Land	57	20 FEB 1998
Cuerverville Island	24	20 FEB 1998
Peon Peak	33	20 FEB 1998

Port Lockroy, Wiencke Island	59	21 FEB 1998
Vernadsky Station, Argentine Island	63	21 FEB 1998
Detaille Island	59	22 FEB 1998
Adelaide Island	57	22 FEB 1998
Horsehoe Island	55	23 FEB 1998
Bennett Islands	56	23 FEB 1998
Pleneau Island	59	24 FEB 1998
Petermann Island	58	24 FEB 1998
Intercurrence Island	55*	25 FEB 1998
Hannah Point, Livingston Island	51	25 FEB 1998
Drake Passage (at sea)		26-27 FEB 1998
Ushuaia, ARGENTINA		28 FEB 1998

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise MOL#805

February/March 1998

39 PAX; 6 STAFF; 23 CREW

<u>Ports</u>	<u># PAX ¹</u>	<u>Dates</u>
Ushuaia, ARGENTINA		28 FEB 1998
Drake Passage (at sea)		01-02 MAR 1998
Wordie Point	50	03 MAR 1998
Vernadsky Station, Argentine Island	55	03 MAR 1998
Pleneau Bay	49*	03 MAR 1998
Petermann Island	52	03 MAR 1998
Port Lockroy, Wiencke Island	51	04 MAR 1998
Petzval Glacier	49*	04 MAR 1998
Almirante Brown Station, Paradise Bay	50	04 MAR 1998
Whalers Bay, Deception Island	53	05 MAR 1998
Bellingshausen Station, King George Island	57	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

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

PROFESSOR MULTANOVSKIY

Cruise MUL#710

November/December 1997

47 PAX; 7 STAFF; 25 CREW

<u>Ports</u>	<u># PAX ¹</u> <u>Landed</u>	<u>Dates</u>
Ushuaia, ARGENTINA		23 NOV 1997
at sea		24 NOV 1997
Falkland Islands		25-27 NOV 1997
at sea		28-30 NOV 1997
South Georgia		01-06 DEC 1997
at sea		07-09 DEC 1997
Baily Head, Deception Island	48	10 DEC 1997
Hannah Point, Livingston Island	54	10 DEC 1997
Neko Harbor, Andvord Bay	51	11 DEC 1997
Port Lockroy, Wiencke Island	47	11 DEC 1997
Cuverville Island	34	12 DEC 1997
Esperanza Station, Hope Bay	41	13 DEC 1997
Esperanza Station, Hope Bay	55	14 DEC 1997
at sea		15-16 DEC 1997
Ushuaia, ARGENTINA		17 DEC 1997

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise MUL#711
December 1997
48 PAX; 6 STAFF; 25 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Ushuaia, ARGENTINA		17 DEC 1997
at sea		18-19 DEC 1997
Penguin Island	55	19 DEC 1997
Brown Bluff, Tabarin Peninsula	54	20 DEC 1997
Aitcho Island	56	21 DEC 1997
Half Moon Island	58	21 DEC 1997
Almirante Brown Station, Paradise Bay	58	22 DEC 1997
Cuverville Island	56	22 DEC 1997
Palmer Station, Anvers Island	58	23 DEC 1997
Port Lockroy, Wiencke Island	56	23 DEC 1997
Melchoir Island	49*	24 DEC 1997
Whalers Bay, Deception Island	56	25 DEC 1997
Pendulum Cove, Deception Island	58	25 DEC 1997
Hannah Point, Livingston Island	52	25 DEC 1997
at sea		26-27 DEC 1997
Ushuaia, ARGENTINA		28 DEC 1997

¹ = Includes passengers, staff and crew landed
* = zodiac cruising only

Cruise MUL#712
December 1997/January 1998
57 PAX; 7 STAFF; 25 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
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
Point Wild, , Elephant Island	53*	09 JAN 1998

Paulet Island	56	10 JAN 1998
Brown Bluff, Tabarin Peninsula	51	10 JAN 1998
Goudier Island	53	11 JAN 1998
Port Lockroy, Wiencke Island	53	11 JAN 1998
Petermann Island	53	12 JAN 1998
Cuerverville Island	53	12 JAN 1998
Whalers Bay, Deception Island	51	13 JAN 1998
Pendulum Cove, Deception Island	51	13 JAN 1998
Half Moon Island	53	13 JAN 1998
Drake Passage (at sea)		14-15 JAN 1998
Ushuaia, ARGENTINA		16 JAN 1998

¹ = Includes passengers, staff and crew landed
* = zodiac cruising only

Cruise MUL#801

January 1998

48 PAX; 8 STAFF; 25 CREW

<u>Ports</u>	<u># PAX ¹ Landed</u>	<u>Dates</u>
Ushuaia, ARGENTINA		16 JAN 1998
Drake Passage (at sea)		17-18 JAN 1998
Arctowski Station, King George Island	62	19 JAN 1998
Bellingshausen Station, King George Island	66	19 JAN 1998
Hannah Point, Livingston Island	56	20 JAN 1998
Telefon Bay, Deception Island	55	20 JAN 1998
Pendulum Cove, Deception Island	46	20 JAN 1998
Whalers Bay, Deception Island	55	20 JAN 1998
Metchinoff Point, Brabant Island	55	21 JAN 1998
Melchoir Island	57*	21 JAN 1998
Port Lockroy, Wiencke Island	55	21 JAN 1998
Goudier Island	55	21 JAN 1998
Petermann Island	55	22 JAN 1998
Almirante Brown Station, Paradise Bay	57	22 JAN 1998
Paradise Bay	57*	22 JAN 1998
Cuerverville Island	55	22 JAN 1998

Buls Bay, Brabant Island	56	23 FEB 1998
Drake Passage (at sea)		24-25 JAN 1998
Ushuaia, ARGENTINA		26 JAN 1998

¹ = Includes passengers, staff and crew landed
* = zodiac cruising only

Cruise MUL#802
January/February 1998
53 PAX; 5 STAFF; 25 CRW

<u>Ports</u>	<u># PAX ¹ Landed</u>	<u>Dates</u>
Ushuaia, ARGENTINA		26 JAN 1998
Drake Passage (at sea)		27-28 JAN 1998
Turret Point, King George Island	54	28 JAN 1998
Paulet Island	54	29 JAN 1998
Brown Bluff, Tabarin Peninsula	51	29 JAN 1998
Hannah Point, Livingston Island	55	30 JAN 1998
Whalers Bay, Deception Island	55	30 JAN 1998
Telefon Bay, Deception Island	44	30 JAN 1998
Pendulum Cove, Deception Island	36	30 JAN 1998
Cuverville Island	56	31 JAN 1998
Almirante Brown Station, Paradise Bay	57	31 JAN 1998
Port Lockroy, Wiencke Island	56	31 JAN 1998
Petermann Island	54	01 FEB 1998
Melchoir Island	52*	01 FEB 1998
Half Moon Island	57	02 FEB 1998
Aitcho Island	56	02 FEB 1998
Drake Passage (at sea)		03-04 FEB 1998
Ushuaia, ARGENTINA		05 FEB 1998

¹ = Includes passengers, staff and crew landed
* = zodiac cruising only

Cruise MUL#803

February 1998
48 PAX; 7 STAFF; 25 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Ushuaia, ARGENTINA		05 FEB 1998
Drake Passage (at sea)		06-07 FEB 1998
Half Moon Island	56	07 FEB 1998
Hannah Point, Livingston Island	52	08 FEB 1998
Pendulum Cove, Deception Island	52	08 FEB 1998
Whalers Bay, Deception Island	45	08 FEB 1998
Melchoir Island	55*	09 FEB 1998
Port Lockroy, Wiencke Island	55	09 FEB 1998
Palmer Station, Anvers Island	53	10 FEB 1998
Torgersen Island	51	10 FEB 1998
Petermann Island	42	10 FEB 1998
Almirante Brown Station, Paradise Bay	38	11 FEB 1998
Andvord Bay	32*	11 FEB 1998
Cuerverville Island	47	11 FEB 1998
Yankee Harbor, Greenwich Island	53	12 FEB 1998
Aitcho Island	47	12 FEB 1998
Drake Passage (at sea)		13-14 FEB 1998
Ushuaia, ARGENTINA		15 FEB 1998

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise MUL#804

February 1998
51 PAX; 7 STAFF; 25 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Ushuaia, ARGENTINA		15 FEB 1998
Drake Passage (at sea)		16-17 FEB 1998
Maxwell Bay, King George Island	70	17 FEB 1998
Brown Bluff, Tabarin Peninsula	53	18 FEB 1998

Mikkelsen Harbor, Trinity Island	55	19 FEB 1998
Cierva Cove, Graham Land	47*	19 FEB 1998
Port Lockroy, Wiencke Island	52	20 FEB 1998
Petermann Island	52	20 FEB 1998
Almirante Brown Station, Paradise Bay	55	21 FEB 1998
Cuerverville Island	46	21 FEB 1998
Whalers Bay, Deception Island	58	22 FEB 1998
Pendulum Cove, Deception Island	33	22 FEB 1998
Hannah Point, Livingston Island	49	22 FEB 1998
Drake Passage (at sea)		23-24 FEB 1998
Ushuaia, ARGENTINA		25 FEB 1998

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

M/V KAPITAN KHLEBNIKOV

Cruise KK#701

Sub-Chartered by Zegrahm Expeditions of Seattle, Washington

November/December 1997

91 PAX; 12 STAFF; 69 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
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, Edward VIII Plateau	118#	05 DEC 1997
Auster Rookery	115#	06 DEC 1997
Scullin Monolith	115#	07 DEC 1997
Cape Darnley, Bjerko Peninsula	98#	08 DEC 1997
Zhongshan Station	106#	09 DEC 1997

Hovde Cove, Prydz Bay	111#	09 DEC 1977
Davis Station	115#	10 DEC 1997
at sea		11-21 DEC 1997
Freemantle, AUSTRALIA		22 DEC 1997

¹ = Includes passengers, staff and crew landed
= helicopter landing

Cruise KK#731
Sub-Chartered by Aurora Expeditions of Manly, Australia
December 1997/January 1998
107 PAX; 11 STAFF; 70 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Freemantle, AUSTRALIA		23 DEC 1997
at sea		24 DEC - 05 JAN 1998
Mawson Station/Auster Rookery	127#	06 JAN 1998
Murray Monolith	119	07 JAN 1998
Cape Darnley, Bjerko Peninsula	125#	08 JAN 1998
Larsemann Hills, Prydz Bay	116#	09 JAN 1998
Amanda Bay	118#	10 JAN 1998
Rauer Islands	119	10 JAN 1998
Davis Station	128#	11 JAN 1998
at sea		12-20 JAN 1998
Hobart, AUSTRALIA		21 JAN 1998

¹ = Includes passengers, staff and crew landed
= helicopter landing

Cruise KK#801
January/February 1998
113 PAX; 13 STAFF; 65 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Hobart, AUSTRALIA		22 JAN 1998
at sea		23-24 JAN 1998
Macquarie Island		25-26 JAN 1998
at sea		27-29 JAN 1998

Cape Adare	130	29 JAN 1998
Coulman Island	121+	30 JAN 1998
Franklin Island	126	31 JAN 1998
Ross Ice Shelf	127#	31 JAN 1998
Cape Bird	103	01 FEB 1998
Cape Royds, Ross Island	31	01 FEB 1998
Cape Evans, Ross Island	124	01 FEB 1998
McMurdo Station, Ross Island	121	02 FEB 1998
Scott Base, Ross Island	115#	02 FEB 1998
Cape Royds, Ross Island	109	03 FEB 1998
Taylor Valley	127#	03 FEB 1998
Terra Nova Bay Station	146	04 FEB 1998
Campbell Ice Tongue	129*	04 FEB 1998
Cape Hallett	141+	05 FEB 1998
at sea		06-10 FEB 1998
Enderby Island		11 FEB 1998
at sea		12-13 FEB 1998
Hobart, AUSTRALIA		14 FEB 1998

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

= helicopter landing

+ = helicopter flight seeing

Cruise KK#802

February/March 1998

71 PAX; 12 STAFF; 64 CREW

<u>Ports</u>	<u># PAX</u> ¹	<u>Dates</u>
Hobart, AUSTRALIA		14 FEB 1998
at sea		15-16 FEB 1998
Macquarie Island		17-18 FEB 1998
at sea		19-20 FEB 1998
Sturge Island, Balleny Islands	86+	21 FEB 1998
Cape Adare	89	22 FEB 1998
Terra Nova Bay Station	99	23 FEB 1998

Inexpressible Island	84	23 FEB 1998
Drygalski Ice Tongue	75*	23 FEB 1998
Taylor Valley	90#	24 FEB 1998
McMurdo Station, Ross Island	99	25 FEB 1998
Scott Base, Ross Island	84#	25 FEB 1998
Cape Evans, Ross Island	93	25 FEB 1998
Cape Royds, Ross Island	77#	25 FEB 1998
Ross Ice Shelf	87#	26 FEB 1998
Hallett Station	87	27 FEB 1998
Edisto Inlet	121#	27 FEB 1998
at sea		28 FEB - 02 MAR 1998
Macquarie Island		03 04 MAR 1998
Campbell Island		05 MAR 1998
Enderby Island		05 MAR 1998
Snares Island		06 MAR 1998
at sea		07 MAR 1998
Lyttleton, NEW ZEALAND		08 MAR 1998

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

= helicopter landing

+ = helicopter flight seeing

Orient Lines, Inc.

Orient Lines, Inc. of Fort Lauderdale, Florida, conducted a total of 4 cruises to the Antarctic during the 1997-98 season using the Marco Polo. Given below for each cruise, is the port of origin, sites visited (with dates) and the return port.

MARCO POLO

Cruise MPO #9712211

December 1997/January 1998
530 PAX; 18 STAFF; 354 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Buenos Aires, ARGENTINA		21 DEC 1997
at sea		22-24 DEC 1997
Falkland Islands		25-26 DEC 1997
at sea		27 DEC 1997
Pendulum Cove, Deception Island	576	28 DEC 1997
Port Lockroy, Wiencke Island	665	29 DEC 1997
Gonzales Videla Station, Waterboat Point	563	30 DEC 1997
Half Moon Island	499	31 DEC 1997
at sea		01-02 JAN 1998
Ushuaia, ARGENTINA		03 JAN 1998

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Cruise MPO #980103

January 1998
490 PAX; 18 STAFF; 348 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Ushuaia, ARGENTINA		03 JAN 1998
at sea		04 JAN 1998
Pendulum Cove, Deception Island	547	05 JAN 1998
Port Lockroy, Wiencke Island	590	06 JAN 1998
Gonzales Videla Station, Waterboat Point	535	07 JAN 1998
Half Moon Island	497	08 JAN 1998

at sea	09-10 JAN 1998
Ushuaia, ARGENTINA	11 JAN 1998

¹ = Includes passengers, staff and crew landed
* = zodiac cruising only

Cruise MPO #980111

January 1998
542 PAX; 18 STAFF; 347 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Ushuaia, ARGENTINA		11 JAN 1998
at sea		12 JAN 1998
Pendulum Cove, Deception Island	566	13 JAN 1998
Gonzales Videla Station, Waterboat Point	553	14 JAN 1998
Port Lockroy, Wiencke Island	560	15 JAN 1998
Cuerverville Island	468*	15 JAN 1998
Half Moon Island	544	16 JAN 1998
at sea		17 JAN 1998
Ushuaia, ARGENTINA		18 JAN 1998

¹ = Includes passengers, staff and crew landed
* = zodiac cruising only

Cruise MPO #980119

January/February 1998
450 PAX; 20 STAFF; 346 CREW

<u>Ports</u>	<u># PAX</u> ¹ <u>Landed</u>	<u>Dates</u>
Ushuaia, ARGENTINA		19 JAN 1998
at sea		20 JAN 1998
Half Moon Island	508	21 JAN 1998
Gonzales Videla Station, Waterboat Point	481	22 JAN 1998
Hovgaard Island	440	22 JAN 1998
Port Lockroy, Wiencke Island	430	23 JAN 1998

at sea		24-31 JAN 1998
Cape Evans, Ross Island	508	01 FEB 1998
Cape Bird, Ross Island	322*	02 FEB 1998
Granite Harbor, Victoria Land	349*	03 FEB 1998
Cape Royds, Ross Island	493	04 FEB 1998
Terra Nova Bay Station	470	05 FEB 1998
at sea		06-10 FEB 1998
Lyttelton, NEW ZEALAND		11 FEB 1998

¹ = Includes passengers, staff and crew landed

* = zodiac cruising only

Other

In addition, several other organizations arranged/conducted or supported tourism activities in the Antarctic during the 1997-98 season. These organizations are not U.S.-based, although some American citizens are involved. The Treaty Party Member of the country where the company is based should report on those activities.

SHIPBORNE

a) Hapag-Lloyd Cruises of Hamburg, Germany, operated two vessels in the Antarctic Peninsula during the 1997-98 season. The Hanseatic conducted 6 cruises and the Bremen conducted 7 cruises.

b) Marine Expeditions of Toronto, Canada, conducted 32 cruises to the Antarctic Peninsula during the 1997-98 season. The Akademik Shuleykin conducted 11 cruises, the Akademik Ioffe did 11 cruises, and the Disko conducted a total of 10 cruises.

XI. Refuges

Section XI of the Modifications of Activities Planned for 1997-98 notes changes to existing refuges and survival caches in the McMurdo area as well as deactivated camps and stations elsewhere on the continent. No significant changes to these facilities occurred during the 1997-98 season.

XII. Species Killed, Captured

Section XII of the Modifications of Activities Planned for 1997-98 contains information regarding species killed or captured during this time period. Please see ['Kill/Captured forms'](#).

XIII. Radioactive Materials

Section XIII of the Modifications of Activities Planned for 1997-98 lists any changes in the radioactive materials used during this time period and provides information regarding their form, nuclide, site, and specific use.

Add

<u>PROJECT</u>	<u>NUCLIDE</u>	<u>FORM</u>	<u>SITE</u>	<u>USE</u>
S-116	¹⁴ C	¹⁴ C – Carbonate	R/V NATHANIEL B. PALMER	Research on Ocean- Atmosphere Variability in Ecosystem Response in the Ross Sea (ROAVERRS)
S-216B	²² Na	²² Na – sealed source	McMurdo	Astrophysical Gamma-Ray Spectroscopy with the High Resolution Gamma-Ray and Hard X-ray Spectrometer (HIREGS) on Long Duration Balloon Flights

Delete

<u>PROJECT</u>	<u>NUCLIDE</u>	<u>FORM</u>	<u>SITE</u>	<u>USE</u>
S-116	⁶⁰ Co	⁶⁰ Co – sealed source	McMurdo	Astrophysical Gamma-Ray Spectroscopy with the High Resolution Gamma-Ray and Hard X-ray Spectrometer (HIREGS) on Long Duration Balloon Flights

XIV. Research Rockets

Section XIV of the Modifications of Activities Planned for 1997-98 reports any deviations from the original plans regarding the use of research rockets in Antarctica. No significant changes are noted.

XV. Oceanography- Government

Section XV of the Modifications of Activities Planned for 1997-98 presents final information regarding United States Antarctic Program sponsored oceanographic expeditions during the 1997-98 season.

Note: For actual tracks of the Research Vessels NATANIEL B. PALMER and LAURENCE M. GOULD please see Attachment C, [Cruise Tracks](#).

R/V NATHANIEL B. PALMER

The R/ V NATHANIEL B. PALMER made 8 cruises during the period of 30 March 1997 through 31 March 1998. Cruises are:

Cruise NBP97-4

12 May 1997 - 08 June 1997 Transit from Lyttelton, NZ to Valpariso, Chile
Multibeam Sea Trials

Cruise NBP97-4A, NBP97-5, NBP97-6, NBP 97-7

05 July 1997 - 31 October 1997 Weddell Sea and Pacific Ocean (transits from Lyttelton to Valpariso and Punta Arenas to Lyttelton)
S-203 (Muench) DOVETAIL (Leg 1 and Leg 2)

Cruise NBP97-8

05 November, 1997 - 16 December 1997
JGOFS Process Study 4 Ross Sea

Cruise NBP97-9

21 December 1997 - 10 January 10, 1998
S-216 ROAVERRS (Dunbar), S-048 (Eastman) Ross Sea

Cruise NBP98-1

15 January 1998 - 20 February 1998

S-083 (J. Anderson) Timing of Retreat of the West Antarctic Ice Sheet Ross Sea

Cruise NBP98-2

25 February 1998 - 05 April 1998

S-228 (Anderson) Benthic Process and Mooring Recovery Ross Sea

Note: See [Appendix III](#) for complete list of scientific personnel for each science event (listed by S-number).

	I.D. No.	Institution
Muench, Robin	S-203	Earth & Space Research
Gordon, Arnold		

Biology & Medicine

	I.D. No.	Institution
Smith, Walker (+5)	S-233	University of Tennessee
Eastman, Joseph (+2)	S-048	Ohio University
Honjo, Susumu (+3)	S-228	Woods Hole Oceanographic Inst.

Ocean & Climate

	I.D. No.	Institution
Dunbar, Robert (+14)	S-216	Rice University

Geology & Geophysics

	I.D. No.	Institution
Anderson, John (+6)	S-083	Rice University

JGOFs Scientific Personnel

	I.D. No.	Institution
Codispoti, Louis	S-209	Center for Coastal Physical Oceanography, Old Dominion University
Morrison, John	S-210	Department of Marine, Earth & Atmospheric Science, North Carolina State University
Anderson, Robert	S-211	Lamont-Doherty Earth Observatory, Columbia University
Abbott, Mark	S-212	College of Oceanic and Atmospheric Sciences, Oregon State University
Peltzer, Edward	S-213	Monterey Bay Aquarium Research Institute
Takahashi, Taro	S-214	Lamont-Doherty Earth Observatory, Columbia University
Olson, Robert	S-215	Biology Department, Woods Hole Oceanographic Institution
Sayles, Frederick	S-217	Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution
Bender, Michael	S-218	Graduate School of Oceanography, University of Rhode Island
Coale, Kenneth	S-219	Moss Landing Marine Laboratory
Dagg, Michael	S-220	Louisiana Universities Marine Consortium
Quay, Paul	S-221	School of Oceanography, University of Washington
Gardner, Wilford	S-222	Oceanography Department, Texas A & M University
Hansell, Dennis	S-223	Bermuda Biological Station for Research
Buesseler, Ken	S-224	Marine Chemistry and Geochemistry, Woods Hole Oceanographic Inst..

	I.D. No.	Institution
Measures, Christopher	S-225	Department of Oceanography, University of Hawaii
Sambrotto, Raymond	S-226	Lamont-Doherty Earth Observatory, Columbia University
Dymond, Jack	S-227	Oceanic & Atmospheric Sciences, Oregon State University
Honjo, Susumu	S-228	Department of Geology & Geophysics, Woods Hole Oceanographic Inst.
Barber, Richard	S-231	Marine Laboratory, Duke University
Marra, John	S-232	Lamont-Doherty Earth Observatory, Columbia University
Smith, Walker	S-233	Department of Ecology and Evolution- ary Biology, University of Tennessee
Brzezinski, Mark	S-234	Marine Science Institute, University of California, Santa Barbara
Nelson, David	S-235	College of Oceanic and Atmospheric Sciences, Oregon State University
Altabet, Mark	S-236	Center for Marine Science and Techno- logy, University of Massachusetts
Francois, Roger	S-237	Marine Chemistry & Geochemistry, Woods Hole Oceanographic Inst.
Bronk, Deborah	S-238	School of Marine Programs, The University of Georgia
Cochlan, William	S-239	Department of Biological Sciences, University of Southern California
Bacon, Michael	S-240	Marine Chemistry & Geochemistry, Woods Hole Oceanographic Inst.
Cochran, J. Kirk	S-241	Marine Sciences Research Center, State University of New York, Stony Brook
Cowles, Timothy	S-242	College of Oceanic & Atmospheric Sciences, Oregon State University
Azam, Farooq	S-243	Scripps Institution of Oceanography, University of California, San Diego

	I.D. No.	Institution
Ducklow, Hugh	S-244	Department of Biological Sciences, Virginia Institute of Marine Sciences
Kirchman, David	S-245	College of Marine Studies, University of Delaware
Hedges, John	S-246	College of Ocean and Fisheries Sciences, University of Washington
Lee, Cindy	S-247	Marine Sciences Research Center, State University of New York at Stony Brook
Wakeham, Stuart	S-248	Skidaway Institute of Oceanography
Landry, Michael	S-249	Department of Oceanography, University of Hawaii - Manoa
Huntley, Mark	S-250	Scripps Institution of Oceanography, University of California, San Diego
Caron, David	S-251	Department of Biology, Woods Hole Oceanographic Institution
Lonsdale, Darcy	S-252	Marine Sciences Research Center, State University of New York, Stony Brook
Millero, Frank	S-253	RSMAS/MAC, University of Miami
Smith, Walker	S-255	Department of Ecology and Evolution- ary Biology, University of Tennessee
Gordon, Louis	S-256	College of Oceanic and Atmospheric Sciences, Oregon State University
Masten, Douglas	S-258	Scripps Institution of Oceanography, University of California, San Diego
Mitchell, B. Greg	S-261	Scripps Institution of Oceanography, University of California, San Diego
Stramski, Dariusz	S-262	Scripps Institution of Oceanography, University of California, San Diego

R/V LAURENCE M. GOULD

The R/V LAURENCE M. GOULD made two science cruises to the Antarctic Peninsula during the period of 30 March 1997 through 31 March 1998. Maiden cruise for the R/V LAURENCE M. GOULD was the transit from Port Forchon (December 25, 1997) to Punta Arenas (January 16, 1998). Science cruises that commenced and terminated in Punta Arenas, Chile were:

Cruise LMG98-1

22 January 1998 - 19 February 1998

S-046 (Karl) Long-Term Ecological Research (LTER) Bellingshausen Sea

Cruise LMG98-2

25 February 1998 - 21 March 1998 S-072 (Domack) Holocene

Paleoenvironmental Change along the Antarctic Peninsula, Lallemand Fjord, Drake Sea

Note: See [Appendix III](#) for complete list of scientific personnel for each science event (listed by S-number).

Biology & Medical Research

Karl, David (+9) S-046 University of Hawaii

Geology & Geophysics

Domack, Eugene (+16) S-072 Hamilton College

R/V POLAR DUKE

The R/V POLAR DUKE made 3 cruises during the period 30 March 1997 through 30 May 1997. The R/V POLAR DUKE ended her 10+ year charter with the USAP 30 June 1997.

Cruise PD97-2,-3,-4

03 March 1997 - 02 May 1997

S-036 (Sidell), S-037 (Detrich) Fishing in the Dallman Bay

Note: See Appendix III for complete list of scientific personnel for each science event (listed by S-number).

Biology & Medicine

	I.D. No.	Institution
Sidell, Bruce	S-036	University of Maine
Detrich, William	S-037	Northeastern University

R/V ABEL-J

The R/V ABEL-J made 4 cruises during the period 30 March 1997 through 30 May 1997. (The R/V ABEL-J was made available to the U.S Antarctic Program by a special contract, necessitated by delays in the availability of the R/V LAURENCE M. GOULD.)

Cruise LMGR#1

21 November 1997 – 04 December 1997

Palmer Station support. Open NOAA field camp at Cape Shirreff, Livingston Island. Transport one scientist to Copacabana Field Camp, King George Island.

Cruise LMGR#5

08 December 1997 – 31 December 1997

S-087 (Taylor), S-097 (Wiens) Tectonic research using GPS and seismic methods at various shore locations along the South Shetland archipelago.

Cruise LMGR#7

03-09 January 1998

Palmer Station support.

Transported S-003 (Day) and S-013 (Fraser) to Palmer Station.

Cruise LMGR#8

11 January 1998 – 01 February 1998

LTER S-028 (Quetin) support.

Note: See [Appendix III](#) for complete list of scientific personnel for each science event (listed by S- number).

Geology & Geophysics

	I.D. No.	Institution
Taylor, Fredrick	S-087	University of Texas
Wiens, Douglas	S-097	Washington University

Biology & Medicine

	I.D. No.	Institution
Quetin, Langdon	S-028	University of California, SB

R/V ROGER REVELLE

The R/V *Roger Revelle*, operated by the Scripps Institution of Oceanography, conducted four cruises (RR06 through RR09) in Antarctic waters on behalf of the U.S. JGOFS Antarctic Environment and Southern Ocean Process Study (AESOPS). Research was conducted on the physical, chemical, and biological influences affecting the phytoplankton bloom, the temporal variability of blooms, and the apparent paradox of high fluxes of biogenic material to the sea bed in a region of low mean annual primary production. Cruises, for the most part, took place along a section at 170°W, between October, 1997 and March, 1998.

RR06: AESOPS Spring Survey-I October 20, 1997 - November 24, 1997

Timothy J. Cowles, Oregon State University, Chief Scientist

The primary objective of the first cruise was to provide mesoscale resolution of the physical, chemical, and biological properties in and around the Antarctic Polar Front. Stations, moorings, drifters and SeaSoar surveys were combined with concurrent underway surface measurements to collect data on these properties and processes.

RR06 Scientific Personnel

SeaSoar Survey and Physical Oceanography

	I.D. No.	Institution
Timothy J. Cowles	S-242	Oregon State University
Jack Barth	S-242	Oregon State University
Linda Fayler	S-242	Oregon State University
Robert O'Malley	S-242	Oregon State University
Steven Pierce	S-242	Oregon State University
Marc Willis	S-242	Oregon State University
Christopher Wingard	S-242	Oregon State University

Bio-optical Moorings and Physical Oceanography

Mark Abbott	S-212	Oregon State University
James Richman	S-212	Oregon State University
Dennis Root	S-212	Oregon State University

Hydrography and Nutrients

Stacey Morgan	S-258	Scripps Institution of Oceanography
Robert Williams	S-258	Scripps Institution of Oceanography
Calvin Mordy	?	Seattle NOAA-PMEL
Mark Cook	S-210	North Carolina State University

Dissolved Organic Carbon

Catherine Goyet	S-213	Woods Hole Oceanographic Institution
Thomas Kirchlechner	S-213	University of Otago, Dunedin, N.Z.

Iron Biogeochemistry

Kenneth Coale	S-219	Moss Landing Marine Laboratory
R. Michael Gordon	S-219	Moss Landing Marine Laboratory
Sara Tanner	S-219	Moss Landing Marine Laboratory

Export Production using Th-234

Lary Ball	S-224	Woods Hole Oceanographic Institution
Glenn Crossin	S-224	Woods Hole Oceanographic Institution

Trace metal geochemistry

Sue Vink	S-225	University of Hawaii
Kendra McDonough	S-225?	University of Hawaii

Microzooplankton

Michael Landry	S-302	University of Hawaii
Susan Brown	S-249	University of Hawaii

Mesozooplankton

Alejandro Gonzalez	S-250	Scripps Institution of Oceanography
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Carbon Dioxide System

Elizabeth Degler	S-253	University of Miami
Xiaorong Zhu	S-253	University of Miami

Primary Production

Scott Polk	S-255	University of Tennessee
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Silicon biogeochemistry

Valerie Franck	S-234	University of California, Santa Barbara
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Nitrogen biogeochemistry & nitrogen stable isotopes

Sarah Stillman	S-236	University of Massachusetts, Dartmouth
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**RR07: AESOPS Process-Study I
November 30, 1997 - January 8, 1998**

Richard T. Barber, Duke University, Chief Scientist

The purpose of the Process-I cruise was to characterize the biogeochemical processes between 53°S and the edge of the pack ice, located at roughly 64°40'S. Twelve (12) long stations were completed along the U.S. JGOFS 170°W transect, as well as, an intensive six-station section across a subsurface temperature front at 60°50'S in the polar frontal zone. Station work began at 53°S, 174°W on Dec. 5th and proceeded southward toward the pack ice and arriving at the seventh station at 64°09'S, 169°30'W on Dec. 17th.

RR07 Scientific Personnel

Primary Production

Richard Barber, Chief Scientist	S-231	Duke University
Jonathan Borden	S-231	Duke University
Lisa Borden	S-231	Duke University
Elaine Barber	S-231	Duke University

Nutrients and Hydrography

Louis Codispoti	S-209	Old Dominion University
Steven Guarin	S-209	Old Dominion University
Erik Quiroz	S-209	Texas A&M University
Dennis Guffy	S-209	Texas A&M University
James Postel	S-210	University of Washington
Katherine Kroglund	S-209	University of Washington
Scott Hiller	S-258	Scripps Institution of Oceanography

Gross photosynthesis

Mary-Lynn Dickson	S-218	University of Rhode Island
Cara Sucher	S-218	University of Rhode Island

Mesozooplankton

Jay Peterson	S-220	Louisiana Universities Marine Consortium
Juanita Urban-Rich	S-220	Louisiana Universities Marine Consortium

Particles and aggregates

Ian Walsh	S-222	Texas A&M
Jan Gunderson	S-222	Texas A&M
Sarah Searson	S-222	Texas A&M

Dissolved organic carbon

Steve Bell	S-223	Bermuda Biological Station
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Export production by Th-234

Alan Fleer	S-224	Woods Hole Oceanographic Institution
Peter Landry	S-249	Woods Hole Oceanographic Institution

Trace metal geochemistry

Christopher Measures	S-225	University of Hawaii
Amy Elliott	?	University of Washington

Nitrogen biogeochemistry & new production

Raymond Sambrotto	S-226	Lamont-Doherty Earth Observatory
Bonnie Mace	S-226	Lamont-Doherty Earth Observatory

Silicon biogeochemistry

Mark Brzezinski	S-234	Oregon State University
Daniel Sigmon	S-234	Oregon State University

Bacterial processes

Helen Quinby	S-244	Virginia Institute of Marine Science
Laura Fandino	S-244	Scripps Institution of Oceanography

Microzooplankton

Colleen Allen	S-249?	University of Hawaii
Karen Selph	S-249	University of Hawaii
Albert Fabregat	S-249?	University of Hawaii

Carbon dioxide system

Jason Joliff	S-253	University of Miami
Denis Pierrot	S-253	University of Miami

**RR08: AESOPS Survey-II (Summer Survey)
January 8, 1998 - February 8, 1998**

Kenneth Coale, Moss Landing Marine Lab, Chief Scientist

Research objectives of the Survey-II cruise were much like those of Survey-I, although ice images that arrived Jan. 16th showed the edge of the sea ice at about 69°30'S along 170°W, so the ice would not restrict access to the AESOPS study area as it had during Survey-I. The R/V *Roger Revelle* steamed south from 57°S, towing the Oregon State University (OSU) SeaSoar and constructing real-time vertical cross-sections of temperature, salinity, density, large particle concentrations and a number of fluorescence parameters. In addition, underway surface water measurements of nutrients, the partial pressure of carbon dioxide (pCO₂), metals, oxygen, salinity, phytoplankton species and abundance, chlorophyll, silicate uptake, dissolved organic carbon, fluorescence, currents and the meteorological parameters complimented the acquisition of SeaSoar data.

RR08 Scientific Personnel

Iron biogeochemistry

Kenneth Coale, Chief Scientist	S-219	Moss Landing Marine Laboratory
R. Michael Gordon	S-219	Moss Landing Marine Laboratory
Steve Fitzwater	S-219	Moss Landing Marine Laboratory

Nutrients and hydrography

Jeff Kinder	S-210	North Carolina State University
Douglas Masten	S-258	Scripps Institution of Oceanography
Leonard Lopez	S-258	Scripps Institution of Oceanography
Susan Becker	S-258	Scripps Institution of Oceanography

Bio-optical moorings and physical oceanography

Ricardo Letelier	S-212	Oregon State University
Claudia Mengelt	S-212	Oregon State University

Dissolved organic carbon

Greg Eischeid	S-213	Woods Hole Oceanographic Institution
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Carbon dioxide system

Stephany Rubin	S-214	Lamont-Doherty Earth Observatory
Rebecca Esmay	S-214	Lamont-Doherty Earth Observatory

Export production by Th-234

Dave Hirschberg	S-241	State University of New York, Stony Brook
Huan Feng	S-241	State University of New York, Stony Brook

Trace metal biogeochemistry

Sue Vink	S-225	University of Hawaii
Kendra McDonough	S-225	University of Hawaii

Silicon biogeochemistry

Valerie Franck	S-234	University of California, Santa Barbara
William Golden	S-234	University of California, Santa Barbara

Nitrogen biogeochemistry and nitrogen stable isotopes

Mark Altabet	S-236	University of Massachusetts, Dartmouth
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SeaSoar Survey and physical oceanography

Chris Wingard	S-242	Oregon State University
Andrew Dale	S-242	Oregon State University
Robert Shearman	S-242	Oregon State University
Robert O'Malley	S-242	Oregon State University
Marc Willis	S-242	Oregon State University
Linda Fayler	S-242	Oregon State University

Microzooplankton

Michael Landry	S-249	University of Hawaii
Susan Brown	S-249	University of Hawaii

Mesozooplankton

Alejandro Gonzalez	S-250	Scripps Institution of Oceanography
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Dissolved Organic carbon

Sarah Goldthwaite	S-255	Bermuda Biological Station for Research
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Ocean optics

Berzas Bichnevicius	S-261	Scripps Institution of Oceanography
John Wieland	S-261	Scripps Institution of Oceanography

**RR09: AESOPS Process Study-II
February 13, 1998 - March 19, 1998**

Wilford D. Gardner, Texas A&M University, Chief Scientist

The final AESOPS Antarctic Polar Frontal Zone (APFZ) cruise left Lyttelton, New Zealand, on Feb. 13, 1998. The purposes of the cruise were to characterize fall biogeochemical processes from north to south of the APFZ along the 170°W transect, to determine whether the bloom had continued southward, and to compare pre-bloom, post-bloom and full bloom conditions, if possible.

RR09 Scientific Personnel

Particles and aggregates

Wilford Gardner, Chief Scientist	S-222	Texas A&M University
Jan Gunderson	S-222	Texas A&M University
Sarah Searson	S-222	Texas A&M University

Nutrients and Hydrography

Mark Cook	S-210	North Carolina State University
Dennis Guffy	S-209?	Texas A&M
Scott Hiller	S-258	Scripps Institution of Oceanography
Tammy Koonce	S-258	Scripps Institution of Oceanography
Kathy Kroglund	S-209	University of Washington
Robert Masserini	S-209	University of South Florida
Erik Quiroz	S-209	Texas A&M
Robert Williams	S-258	Scripps Institution of Oceanography

Carbon Dioxide System

Heather Anderson	S-214?	Lamont-Doherty Earth Observatory
Stephany Rubin	S-214	Lamont-Doherty Earth Observatory

Phytoplankton physiology

Robert Olson	S-215	Woods Hole Oceanographic Institution
Heidi Sosik	S-215	Woods Hole Oceanographic Institution

Gross Photosynthesis

Mary-Lynn Dickson	S-218	University of Rhode Island
Joe Orchardo	S-218	University of Rhode Island

Mesozooplankton

Jay Peterson	S-220	Louisiana Universities Marine Consortium
Juanita Urban-Rich	S-220	Louisiana Universities Marine Consortium

Export Production by Th-234

John Andrews	S-224	Woods Hole Oceanographic Institution
Glenn Crossin	S-224	Woods Hole Oceanographic Institution

Trace metal biogeochemistry

Christopher Measures	S-225	University of Hawaii
Paolo Rossini	?	Institute of Marine Geology, Italy

Nitrogen biogeochemistry & new production

Lois Breger	S-226?	Lamont-Doherty Earth Observatory
Bonnie Mace	S-226	Lamont-Doherty Earth Observatory

Primary Production

Mike Hiscock	S-255	Duke University
John Marra	?	Lamont-Doherty Earth Observatory
Ann-Maree White	S-255	University of Tennessee

Silicon biogeochemistry

David Nelson	S-235	Oregon State University
Julie Arrington	S-235	Oregon State University

Bacterial processes

Helen Quinby	S-244	Virginia Institute of Marine Sciences
Dawn Castle	S-244	University of Delaware

Microzooplankton

Hector Nolla	S-249?	University of Hawaii
Karen Selph	S-249	University of Hawaii

Ocean Optics

Rick Reynolds	S-261	Scripps Institution of Oceanography
John Weiland	S-261	Scripps Institution of Oceanography

R/V YUZHMOREGEOLOGIYA

The R/V *Yuzhmorgeologiya* was chartered by the National Oceanic Atmospheric Administration, National Marine Fisheries Service to support activities of the U.S. Antarctic Marine Living Resources (AMLR) field research program. Shipboard surveys were conducted on three legs in the AMLR study area between early January and early April 1998. A large-area survey was conducted on Leg I and again on Leg II, while Leg III was dedicated to a bottom trawl survey. Two major water zones were observed during the surveys on Legs I and II: "Drake Passage water" dominated the area north of Livingston island, which included new AMLR stations; "Bransfield Strait water" and transitional water were identified on the South Shetland continental slope and shelf.

1997/98 was the first full season of seabird research at Cape Shirreff and thus comparisons with prior years are not possible. However, based on mean breeding success from Admiralty Bay, approximately 140 kilometers (km) northeast on King George Island, the chinstrap penguin population had average and the gentoo penguin

population above average breeding success. Pinniped studies at Cape Shirreff revealed that the total number of Antarctic Fur seal pups born at the Cape and San Telmo Islands during the 1997/98 breeding season was 7,748, which is a 14.1% decrease in pup production from the 1996/97 count of 9,015. At Palmer Station, 4,412 breeding pairs of Adelie penguins were observed at 54 sample colonies during the peak egg-laying period (24-29 November 1997), which was essentially unchanged from the number of breeding pairs (4,445) censused in November 1996. Adelie penguins exhibited a slight increased breeding success in the 1997/98 season, creching 1.58 chicks per pair, or 0.11 chicks more than were creched per pair in the 1996/97 season.

AMLR Scientific Personnel

Cruise Leader

Roger P. Hewitt	Southwest Fisheries Science Center	Legs I, III
David A. Demer	Southwest Fisheries Science Center	Leg II

Physical Oceanography

Anthony F. Amos	University of Texas at Austing	Leg I
Charles Rowe	University of Texas at Austing	Legs I, II, III
Andrea Wickham-Rowe	University of Texas at Austing	Leg II

Phytoplankton

Osmund Holm-Hansen	Scripps Institution of Oceanography	Leg I
Maximo Frangopulos	Institute de Fomento Pesquero, Punta Arenas, Chile	Leg II
Christopher D. Hewes	Scripps Institution of Oceanography	Legs I, II
Jenny Maturana	Universidad Catolica de Valparaiso	Leg I
Milean Ruiz	University de Magallanes, Punta Arenas, Chile	Leg II

Bioacoustic Survey

Adam Jenkins	Wayward Sailor Maritime	Legs I, II
Jacqueline Popp	University of California, Santa Cruz	Legs, I, II, III

Krill and Zooplankton Sampling

Valerie Loeb	Moss Landing Marine Laboratories	Legs I, II
Wesley A. Armstrong	Southwest Fisheries Science Center	Legs I, II
Kimberly Dietrich		Leg II
Michael Force		Legs I, II
Rachel Johnson	California Academy of Sciences	Legs I, II
Elizabeth Linen	University of Washington	Legs I, II
Matthew M. Nelson	San Diego State University	Leg II
Charles F. Phleger	San Diego State University	Leg I
Volker Siegel	Sea Fisheries Research Institute	Leg I

Bottom Trawl Survey

Christopher D. Jones	Southwest Fisheries Science Center	Leg III
Kimberly Dietrich		Leg III
Peter Kappes	Biological Resource Division, USGS	Leg III
Karl-Hermann Kock	Sea Fisheries Research Institute	Leg III
Sunhild Wilhelms	Bundesamt fuer Seeschifffahrt und Hydrographie	Leg III

Cape Shirreff Personnel

William T. Cobb	Southwest Fisheries Science Center	28 Nov 97 - 27 Jan 98
Terence Carten		28 Nov 97 - 28 Feb 98
Daniel P. Costa	University of California, Santa Cruz	07 Feb 98 - 28 Feb 98

Michael E. Goebel	University of California, Santa Cruz	07 Feb 98 - 28 Feb 98
Rennie S. Holt	Southwest Fisheries Science Center	05 Jan 98 - 27 Jan 98; 07 Feb 98 - 28 Feb 98
Jeremy T. Sterling	University of California, Santa Cruz	28 Nov 97 - 28 Feb 98
Philip H. Thorson	SRS Technologies	21 Dec 97 - 27 Jan 98
Wayne Z. Trivelpiece	Southwest Fisheries Science Center	28 Nov 97 - 28 Feb 98

Sea Island Personnel

Rennie S. Holt	Southwest Fisheries Science Center	28 Jan 98 - 06 Feb 98
Wesley A. Armstrong	Southwest Fisheries Science Center	28 Jan 98 - 06 Feb 98
Adam Jenkins	Wayward Sailor Maritime	28 Jan 98 - 06 Feb 98
Jacqueline Popp	University of California, Santa Cruz	28 Jan 98 - 06 Feb 98

Palmer Station Personnel

William R. Fraser	Montana State University	15 Dec 97 - 06 Feb 98
Donna L. Patterson	Montana State University	15 Dec 97 - 04 Apr 98
Peter Duley	Montana State University	01 Oct 97 - 28 Feb 98
Matt Irinaga	Montana State University	01 Oct 97 - 28 Feb 98

Electronics Technician

Frank Gomes

Pacific Marine Center

Legs I, II

For more information on the U.S. Antarctic Marine Living Resources (AMLR) Program,
or a copy of the AMLR 1997/98 Field Season Report, please contact:

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National Oceanic & Atmospheric Administration
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XVI. Visiting Expeditions

Section XVI of the Modifications of the United States Antarctic Activities Planned for 1997-98 provides information on expeditions visiting U.S. stations during the 1997-98 austral summer.

McMurdo Station

<u>Date of Visit</u>	<u>Duration of Visit</u>	<u>Number of Visitors</u>	<u>Group Name or # of Vessel or Aircraft</u>	<u>Purpose of Visit</u>
02 Feb 98	8 hours	121	Kapitan Khlebnikov	Tourist Visit
10 Feb 98	5 days	2	Belgian Skiers	Private Expedition
25 Feb 98	7 hours	99	Kapitan Khlebnikov	Tourist Visit
25 Feb 98	10 hours	48	Akademik Shokalsky	Tourist Visit

Amundsen-Scott South Pole Station

<u>Date of Visit</u>	<u>Duration of Visit</u>	<u>Number of Visitors</u>	<u>Group Name or # of Vessel or Aircraft</u>	<u>Purpose of Visit</u>
07 Dec 97	5 hours	6	Adventure Network International	Tourist Visit

<u>Date of Visit</u>	<u>Duration of Visit</u>	<u>Number of Visitors</u>	<u>Group Name or # of Vessel or Aircraft</u>	<u>Purpose of Visit</u>
15 Dec 97	2 hours	2	Adventure Network International	Tourist Visit
17 Dec 97	2 hours	1	Adventure Network International	Tourist Visit
29 Dec 97	2 hours	5	Adventure Network International	Tourist Visit
01 Jan 98	3 days	3	Australian Skiers	Private Expedition
01 Jan 98	3 days	3	Icelandic Skiers	Private Expedition
04 Jan 98	3 days	2	Belgian Skiers	Private Expedition
16 Jan 98	2 hours	10	Adventure Network International	Tourist Visit

Palmer Station

<u>Date of Visit</u>	<u>Duration of Visit</u>	<u>Number of Visitors</u>	<u>Group Name or # of Vessel or Aircraft</u>	<u>Purpose of Visit</u>
13 Nov 97	5 hours	126	M/V World Discoverer	Tourist Visit, USAP cargo offload

<u>Date of Visit</u>	<u>Duration of Visit</u>	<u>Number of Visitors</u>	<u>Group Name or # of Vessel or Aircraft</u>	<u>Purpose of Visit</u>
24 Nov 97	5 hours	75	M/V World Discoverer	Tourist Visit, USAPcargo offload
08 Dec 97	4 hours	47	RRS James Clark Ross	Interprogram Visit
12 Dec 97	8 hours	87	M/V Explorer	Tourist Visit
18 Dec 97	3 hours	4	M/V Almirante Irizar	Interprogram Visit
23 Jan 98	3.5 hours	48	M/V Multanovskiy	Tourist Visit
30 Dec 97	6.5 hours	107	M/V Explorer	Tourist Visit
05 Jan 98	3.5 hours	10	S/Y Croix Saint Paul 2	Tourist Visit
08 Jan.98	5 hours	129	M/V World Discoverer	Tourist Visit
08 Jan 98	3 hours	105	M/V Explorer	Tourist Visit
19 Jan 98	5 hours	132	M/V World Discoverer	Tourist Visit
16 Jan 98	1.5 hours	5	S/Y Najat	Tourist Visit
19 Jan 98	6 hours	9	S/Y Sarah W. Vorwerk	Tourist Visit
20 Jan 98	2.5 hours	9	R/V Akademik Boris Petrov	Science Deployment
17 Jan 98	2 days	10	S/Y Pen Duick III	Engine Trouble

<u>Date of Visit</u>	<u>Duration of Visit</u>	<u>Number of Visitors</u>	<u>Group Name or # of Vessel or Aircraft</u>	<u>Purpose of Visit</u>
21 Jan 98	4 hours	55	M/V Akademik Shuleykin	Tourist Visit
02 Feb 98	4 hours	29	R/V Puerto Deseado	Interprogram Visit
04 Feb 98	4.5 hours	133	M/V World Discoverer	Tourist Visit
10 Feb 98	4 hours	68	M/V Multanovskiy	Tourist Visit
12 Feb 98	3.5 hours	93	M/V Explorer	Tourist Visit
17 Feb 98	3.5 hours	10	S/Y Croix Saint Paul II	Tourist Visit
23 Feb 98	3.5 hours	118	M/V Hanseatic	Tourist Visit
04 March 98	2.5 hours	94	M/V Explorer	Tourist Visit
05 March 98	6 hours	10	S/Y Sarah H. Vorwerk	Tourist Visit