

DF-96 TECHNICAL CRUISE REPORT
SEDIMENT TRAP RECOVERY/DEPLOYMENT CRUISE
ROSS SEA ANTARCTICA
M/N ITALICA (JAN. 10 - 27, 1996)

by

David A. Mucciarone

Cruise Participant: David A. Mucciarone (S-216), Leonardo Langone, and Lele Marozzi (IGM)

Logistics and Objectives:

I departed Houston IAH at 1740 on 1/10/96 and arrived in Christchurch, NZ (CHC) at 1230 on 1/12/96. After a 1 day stay in Christchurch, NZ, I arrived in McMurdo Station at 1855 on 1/14/96. I spent 4 days in McMurdo coordinating and preparing equipment for this seasons mooring operations. The objectives of the Ross Sea cruises this year were to recover two moorings, one in the southwestern Ross Sea and one in McMurdo Sound (Fig. 1). The SW Ross Sea moorings is a joint U.S./Italian mooring labeled Site A' which was deployed on 22 January 1995 from the M/N Italice and served as a transition between the RSFE and ROAVERRS programs. This is the second year a mooring has occupied Site A', and this years deployment will mark the beginning of the third year. The McMurdo Sound mooring was deployed through the ice on 15 December 1992 by S-004. Only the joint mooring at Site A' was scheduled to be redeployed this season as part of the beginning of the ROAVERRS program. Due to the lack of science support and sea ice conditions, the McMurdo Sound Mooring will remain deployed until the beginning of the ROAVERRS program in the Fall 1996.

History and Review of last season:

Attempt were made the past two years (1/94 & 1/95) to retrieve the Ross Sea Flux Experiment (RSFE) mooring located at the original Site A, but due to extensive pack ice cover over the past two years a recovery was not possible (Fig. 1). The RSFE mooring at Site A has been considered a loss and a recovery attempt will not be made this year. In 1995, Site A still had high pack ice cover, however, on 1/28/95 Site A was in open water according to Terra Scan images until 2/01/95. On average about 30% to 70% ice cover was over the mooring location since 1/25/95 and in January and February of 1994 the mooring site was 80 to 100% ice cover. It was for this reason Site A was relocated to Site A' in 1994. This is the second year a mooring has occupied Site A', its first deployment was on 31 January 1994 from the USCG Polar Sea and last season from the M/V Italice. Site A' will be occupied again this season for a third year. The last two seasons the McMurdo Sound mooring was scheduled for retrieval, but was abandoned in 1/94 due to lack of ship time and in 1/95 due to 100% ice cover, lack of ship time, and mechanical problems with the USCG Polar Star.

Late last year, 10 & 12 December 1994, IGM deployed 2 moorings in the western Ross Sea labeled as Site B and C (Appendix A). These moorings had a similar instrument and float configuration as Site A' (1/95), both using Seabird CTD units, AAnderaa current meters, and Billings floatation. The exceptions are McLane 21 cup sediment traps and EG&G acoustic releases instead of OSU 15 cup sediment traps and InterOcean releases. These moorings are scheduled for recovery in early 1/95 from the M/N Italice.

Summary of Field Operations:

At 1230 on 1/18/96 I joined the M/N Italice at the ice edge off of Cape Roberts. The group leader for the Italians was Dr. Leonardo Langone and Chief scientist was Dr. Antonino Cucinotta both with Programma Nazionale di Ricerche in Antartide, Istituto di Geologia Marina (IGM). My tour upon the M/N Italice lasted until 1230 on 1/20/96 with the recovery of Site A' mooring completed at 1216 on

1/19/96 and the deployment took place at 0108 on 1/20/96 (**See M/N Itatica, below for details**). The IGM moorings deployed late last year from M/N Itatica on 10 & 12 December 1994 by IGM were recovered in early January 1996 prior to my arrival.

I returned to McMurdo from M/N Itatica on the afternoon of 1/20/96 at 1230 by U.S.C.G. helo. I was transferred from the M/N Itatica by a small 10 m boat to the beach at Cape Byrd to meet the U.S.C.G. helo. While in McMurdo I returned all borrowed CSEC equipment, prepared samples for shipment to Houston, and prepared this report. Like last year, I sampled 10 ml of supernatant from each sediment trap cup from the Site A' for Jim McManus and Jack Dymond at Oregon State University. Sampling took place on 1/20/96 on board M/N Itatica just after the deployment. These samples were filtered through a 0.22 μ m syringe filter.

Bag drag was 0900 on 1/24/96 with check-in at 2100 on 1/24/96. The LC-130 departed McMurdo at 2330 and arrived in Christchurch, NZ at 0800 on 1/25/96. On 1/25/96, I departed CHCH at 1340 and arrived in DEN at 1610 to meet with Robert Dunbar in Boulder, I departed DEN for IAH at 1230 on 1/27/96 and arrived in Houston at 1550.

M/N Itatica Cruise:

Upon my arrival on the M/N Itatica, the Italian Antarctic group was performing a ship off load of coring equipment in conjunction with the New Zealand and U.S. Antarctic Program at Cape Roberts. On 1/18/96 at 1600 off load operations were complete and we began science operations. Time spent aboard the M/N Itatica prior to Site A' mooring recovery was used for mooring logistic meetings, mooring line preparations, sediment trap interface testing. A layout of mooring A' is illustrated in Figure 2. After the recovery, time was spent down loading data and serving the Seabird units, AAnderaa current meters, sediment trap interfaces, and acoustic releases. The 2-1 Kevlar line was spooled and hardware on floats and releases changed.

Mooring Operation:

The ship arrived at the location of the joint Rice/Italian mooring, Site A' at 0545 on 1/19/96 with no pack ice in the area (Fig 3). At 0930 we began recovery operations at Site A'. Attempts were made to release the mooring from the ship with limited success. I sent the enable command to the bottom release and acquired a slant range of 803 m. At 0945 I sent the release code, and received the release response from the acoustic release, however, the release did not part from the anchor. We then launched a Zodiac to triangulate and relocate the mooring. After acquiring a slant range of 797 m I confirmed the non release of the mooring. I rearmed the bottom release and sent the release command again with the same result, no release. At this point I sent the rearm command to the bottom release, enabled the top release, received a slant range of 800 m, then sent the release command to the top acoustic release at 1100. Within 4 minutes the top bouy was spotted approximately 50 m from the Zodiac. A tag line was attached to the top float and brought to the M/N Itatica. Shortly after the Zodiac and crew were hoisted on the deck and recovery operations began at 1125. An outline of the mooring recovery from the M/N Itatica is located below. Mooring preparations and data acquisition took place immediately after the recovery and were completed by 2300 on 1/19/96. The mooring modifications made last season worked well and will remain unchanged for deployment (Fig. 2).

The performance of the mooring was successful and as follows:

1. All floats in very good condition. 2 in 1 Kevlar line in good condition and reused.
2. Top sediment trap stopped at 1 cups. Failure due to trap interface.
3. Bottom Sediment trap performed well, 9 cups collected 13 cups expected. Failure due to lack of spring tension (traps would only wind up 2 turns last season).
4. Both top and bottom Seabird CTD units performed well all data collected, no failures

5. Both AAnderaa current meters performed without failure.
6. The two transmissometers had a battery failure after approximately 6 months, causing loss of data during second half of deployment.
7. The bottom acoustic release was lost, but appeared to work properly, the top acoustic release worked well and in very good condition. Top release "LUISA" was used to release the mooring.
8. Shackle hardware in very good condition, only one stainless steel shackle had signs of corrosion. All hardware was replaced.

The mooring deployment began at 2350 on 1/19/96 and took just over an hour to deploy finishing at 0108 on 1/20/96. Site location for this season is 76° 40.85'S 169° 04.13'E in 827 m of water. An outline of the mooring deployment schedule is listed below. At 0120 on 1/20/96, the M/N Itatica departed Site A' for a meeting with the U.S.C.G. helo in the area of Cape Byrd for my transport to McMurdo. With the assistance of the U.S.C.G. helo a location south of Cape Byrd was located. Using a small boat from the M/N Itatica, I was transported 1/2 miles to shore to meet with the U.S.C.G. helo. I returned to McMurdo at 1230 on 1/20/96.

MOORING A' RECOVERY STATISTICS: (January 19, 1996)

Information on the mooring equipment at Site A'. The mooring recovery was supervised by David Mucciarone and performed on the M/N Itatica (Fig. 2). Acquisition of data and samples was a joint effort between Rice and IGM.

<u>OPERATION</u>	<u>TIMING</u>
Launched small Zodiac boat @	1030 (1/19/96)
Sent release command to "LUISA" @	1100
Top float at surface @	1104
Tag line to M/N Itatica @	1120
Zodiac on board M/N Itatica @	1124
Top float on deck @	1130
Top trap on deck @	1137
Top instrument package on deck @	1141
Single float on deck @	1146
Quad package of floats on deck @	1200
Bottom trap on deck @	1210
Bottom instrument package on deck @	1214
Bottom float on deck @	1215
Releases on deck @	1216 (1/19/96)

Trap Recovery Performance: (TOP)

Trap Cups Expected/Recovered:	13/1 (Trap stopped at cup 1)
Recovery Filename:	RS96TREC.TXT (Appendix B)
TattleTale Interface Serial Number:	1319
Program Error:	Dead micro batteries (0.33 VDC)
Battery Condition:	0.33 VDC (3-Micro 9v alkaline)
	2.92 VDC (1-RAM 3v lithium)
	18.71 VDC (4-Motor 9v alkaline)
Sample cup preservative:	10% Na-borate formaline solution with filtered sea water.

Sediment Trap Sampling: 10 ml/cup of 0.22 µm filtered supernatant was sampled for Jim McManus and Jack Dymond at Oregon State University.

Trap History: None - dead interface

*** DATA RECOVERY ENTRY INFORMATION FROM TOP TATTLE TALE ***

CUP	EVENT	DATE	TIME	TURN	MOTOR	LOGIC	ROT	TEMP
1	0	2/01/95	00:00:01	-	18.23	9.21	-	-

Trap Recovery Performance: **(BOTTOM)**

Trap Cups Expected/Recovered: 13/9 (Trap stopped at cup 1)

Recovery Filename: RS96BREC.TXT (Appendix B)

TattleTale Interface Serial Number: 1320

Program Error: Dead micro batteries (0.33 VDC)

Battery Condition: 7.90 VDC (3-Micro 9v alkaline)
3.26 VDC (1-RAM 3v lithium)
17.09 VDC (4-Motor 9v alkaline)

Sample cup preservative: 10% Na-borate formaline solution with filtered sea water.

Sediment Trap Sampling: 10 ml/cup of 0.22 µm filtered supernatant was sampled for Jim McManus and Jack Dymond at Oregon State University.

Trap History: As follows

*** DATA RECOVERY ENTRY INFORMATION FROM BOTTOM TATTLE TALE ***

CUP	EVENT	DATE	TIME	TURN	MOTOR	LOGIC	ROT	TEMP
1	0	1/22/95	14:49:29	-	18.23	9.21	-	-
2	1	1/31/95	23:57:07	14.8	17.55	7.00	36	6552.1
3	2	2/14/95	23:53:06	27.8	18.55	7.00	79	6551.8
4	3	2/28/95	23:57:50	27.7	18.60	7.00	158	6551.8
5	4	3/31/95	23:56:09	28.7	18.65	7.00	216	6551.8
6	5	5/31/95	23:58:45	29.9	18.50	7.00	284	6551.8
7	6	8/01/95	00:01:23	29.9	18.25	7.00	86	6551.8
8	7	9/30/95	23:55:29	30.1	18.10	6.90	169	6551.8
9	8	11/06/95	23:58:07	30.5	18.35	6.90	230	6551.8
10	9	11/30/95	23:58:37	161.5	18.15	6.90	291	6551.8
11	10	12/15/95	23:58:05	161.5	14.45	6.90	18	6551.8
12	11	12/31/95	23:59:41	161.5	13.95	6.90	18	6551.8
13	12	1/16/96	00:07:41	8.3	18.05	7.30	237	7.1
14	13	10/27/94	11:14:36	4.3	19.00	12.20	262	21.6
15	14	10/27/94	11:15:13	44.0	18.95	12.20	262	21.6

Site A' Estimated Accumulation Rate/Cup:

CUP	EVENT	DAYS	DATE	TIME	TOP TRAP(CM)	BOTTOM TRAP(CM)
Recovery on			1/19/96	12:10:00		
15	14	-	3/01/96	12:26:44	-	-

14	13	-	2/01/96	12:16:31	-	-
13	12	-	1/16/96	12:06:18	-	-
12	11	-	1/01/96	12:06:45	-	-
11	10	-	12/16/95	12:00:48	-	-
10	9	-	12/01/95	11:56:59	-	Cone
9	8	89.5	11/07/95	11:57:26	-	2.75
8	7	37	10/01/95	11:56:54	-	3.50
7	6	61	8/01/95	11:56:22	-	5.50
6	5	61	6/01/95	11:57:59	-	12.00
5	4	61	4/01/95	11:59:37	-	31.00
4	3	31	3/01/95	11:57:00	-	37.25
3	2	14	2/15/95	11:56:31	-	17.00
2	1	14	2/01/95	11:56:03	Cone	32.75
1	0	387.5/10	1/22/95	13:00:00	38.50	28.00

Acoustic Releases: Luisa-2 pk 7.18 VDC; 4 pk 7.24 VDC

Robyn-LOST

Battery Type: Electrochem 3.7v D-cell lithium

Previous Deployment Coordinates: 76° 41.96'S 169° 00.90'E

Previous Water Depth: 810 meters

MOORING A' DEPLOYMENT STATISTICS: (January 20, 1996)

Information on the mooring equipment at Site A'. The mooring deployment was supervised by David Mucciarone (S-216) and performed on the M/N Itatica (Fig. 3). Preparation of all equipment was a joint effort between Rice and IGM. A detailed deployment is outlined below.

Launched 10 m boat @	0002 (1/20/96)
Top float in water @	0010
Top trap/instrument package in water @	0018
Single float in water @	0025
Quad float package @	0039
Bottom sediment trap/instrument package @	0057
Single float in water @	0101
Two acoustic releases in water @	0103
Anchor released @	0108 (1/20/96)

Trap Deployment Statistics: (TOP)

Trap Cups Deployed:	15
Deployment Filename:	RS96ATOP.TXT (Appendix C)
TattlTale Interface Serial Number:	1329
Battery Condition:	9.30 VDC (3-Micro 9v alkaline) 3.22 VDC (1-RAM 3v lithium) 18.92 VDC (4-Motor 9v alkaline)
Tests performed:	Motor - OK; Interface - OK
Sample cup preservative:	10% Na-borate formaline solution with filtered sea water.
Trap History:	Same as Bottom trap, see below

Trap Deployment Statistics: (BOTTOM)

Trap Cups Programmed: 15
 Recovery Filename: RS96ABOT.TXT (Appendix C)
 TattlTale Interface Serial Number: 1320
 Battery Condition: 9.30 VDC (3-Micro 9v alkaline)
 3.20 VDC (1-RAM 3v lithium)
 18.85 VDC (4-Motor 9v alkaline)
 Tests performed: Motor - OK; Interface - OK
 Sample cup preservative: 10% Na-borate formaline solution with filtered sea water.
 Trap History: Same as Top and as follows

Mooring Site A' Top and Bottom Sediment Trap Deployment date- 20 January 1996 and Programming:

12 days at Position 1 for Site a' deployment beginning on 22 January 96 at 0108.

12 Days	Position 1	20 January	1996	@ 0108	Cup 1
14 Days	Position 2	01 February	1996	Event 1	Cup 2
15 Days	Position 3	15 February	1996	Event 2	Cup 3
14 Days	Position 4	01 March	1996	Event 3	Cup 4
17 Days	Position 5	15 March	1996	Event 4	Cup 5
30 Days	Position 6	01 April	1996	Event 5	Cup 6
31 Days	Position 7	01 May	1996	Event 6	Cup 7
61 Days	Position 8	01 June	1996	Event 7	Cup 8
61 Days	Position 9	01 August	1996	Event 8	Cup 9
37 Days	Position 10	01 October	1996	Event 9	Cup 10
24 Days	Position 11	07 November	1996	Event 10	Cup 11
15 Days	Position 12	01 December	1996	Event 11	Cup 12
16 Days	Position 13	16 December	1996	Event 12	Cup 13
15 Days	Position 14	01 January	1997	Event 13	Cup 14
?	Position 15	16 January	1997	Event 14	Cup 15

Site A' Mooring Statistics:

Top 30" steel float (+369 lbs.)	=	0.3 m
Top 30" steel float to top trap=	=	10 m
Top trap w/ pendant (-20 lbs.)	=	25 m
Bottom of top trap to top CTD	=	5 m
Top CTD meter (-32 lbs.)	=	0.85 m
Top CTD meter to top current meter	=	5 m
Top current meter/transmissometer (-40 lbs.)	=	0.45 m
Bottom of top current meter to single 3 pack float	=	60 m
Single 3 pack float (+66 lbs.) =	=	0.5 m
Single 3 pack float to quad 3 pack floats	=	350 m
Quad 3 pack floats (+264 lbs.)	=	2.0 m
Quad 3 pack floats to bottom trap	=	100 m
Bottom trap w/ pendant (-20 lbs.)	=	25 m
Bottom of bottom trap to bottom CT	=	5 m
Bottom CT meter (-32 lbs.)	=	0.9 m
Bottom CT meter to bottom current meter	=	5 m
Bottom current meter/transmissometer (-40 lbs.)	=	0.45 m
Bottom of bottom current meter to single 3 pack float	=	10 m

Single 3 pack float (+66 lbs.) =	0.5 m
Single 3 pack float to top release	= 10 m
Top release (-20 lbs.) (CINDY)	= 0.6 m
Top release to bottom release (1" & 9/16" SS shackle)	= 0.1 m
Bottom release (-20 lbs.) (LUISA)	= 0.6 m
Bottom release to 1400 lb. anchor (1/2" gal. chain)	= 4 m

All rope is: 560- Meters 1/2" 2-1 Nylon and Kevlar w/ 1/2" nylon thimbles

Hardware:

- 12- 1/2" galvanized chain shackles (floats)
- 02- 1/2" stainless steel trap shackles
- 04- 1/2" stainless steel anchor shackles
- 01- 1/2" stainless steel swivel
- 02- 1/2" galvanized anchor shackles (chain to anchor)
- 04- 3/8" stainless steel chain shackles (CTD meters)
- 01- 1" stainless steel chain shackle
- 01- 1" galvanized chain shackle
- 01- 1/2" galvanized chain, 4 meters long
- 01- Steel 30" float (+369 lbs.) by Billings Industries
- 06- Single 3 packs of floats (+66 lbs./each) by Billings Industries.
- 02- CTD meters by Seabird Seacat model SBE-16
- 02- Current meters by AAnderaa model RCM-8
- 02- Transmissometers by Sea Tech w/ WS Ocean Systems interface kit.
- 02- Sediment traps w/ 15 cups each by Oregon St. Univ.
- 02- Acoustic releases by InterOcean model 1090ED (S/N: 0652600/05986 Top and 08280007/02847 bottom both from ASA/NSF)

Acoustic Releases: Cindy-2 pk 7.78 VDC (TOP)
Luisa-2 pk 7.76 VDC; 4 pk 7.63 VDC (BOTTOM)

Battery Type: Electrochem 3.7 VDC D-cell lithium

Release Command Codes	Cindy	Luisa
	Enable=CDE	Enable=DEF
	Release=ABEG	Release=BEFH
	Rearm=CDEH	Rearm=DEFH

New Mooring Location: 76° 40.85'S 169° 04.13'E
Water Depth: 827 meters

Notes on the McMurdo Sound Mooring:

The McMurdo Sound mooring will remain deployed for another year. A recovery was not possible due to ice cover and lack of ship support. Normally this area is in open water, but due to ice breaker problems again limited ice breaking was performed during my deployment. The mooring was deployed on 15 December 1992 by S-004 through the sea ice. The location is 77° 47.45'S 166° 02.33'E in 575 meters of water. The InterOcean acoustic release 1090ED (S/N: 0850001) is located at approximately 165 m and is attached to an InterOcean spool system. There is one single cup Rice sediment trap and two InterOcean S-4 current meters (S/N: 08291861 & 07801690) on this mooring array (Fig. 4). Command codes for the release are: **ENABLE = CDE, RELEASE = ABCD, REARM = CDEG.**

APPENDIX A

Group leader for the Italians was Dr. Leonardo Langone and Dr. Mariangela Ravaioli with Programma Nazionale di Ricerche in Antartide, Istituto di Geologia Marina (IGM). Deployed two moorings in the Ross Sea on 12/10/94 and 12/12/94. The following are the cup timing for the traps at Site B and C. There are 22 days at Position 1 for Site C deployment beginning on 10 December 94 and 20 days at Position 1 for Site B deployment beginning on 12 December 94. These traps were recovered from the M/N Itatica in early January 1996.

Mooring Site C Top and Bottom Sediment Trap Deployment date- 10 December 1994, Mooring Site B Top and Bottom Sediment Trap Deployment date- 12 December 1994, and Programming:

22 Days	Position 1	=	10 December 94	Begin Site C
20 Days	Position 1	=	12 December 94	Begin Site B
15 Days	Position 2	=	01 January 95	
16 Days	Position 3	=	16 January 95	
14 Days	Position 4	=	01 February 95	
14 Days	Position 5	=	15 February 95	
31 Days	Position 6	=	01 March 95	
61 Days	Position 7	=	01 April 95	
61 Days	Position 8	=	01 June 95	
61 Days	Position 9	=	01 August 95	
37 Days	Position 10	=	01 October 95	
21 Days	Position 11	=	07 November 95	
15 Days	Position 12	=	01 December 95	
16 Days	Position 13	=	16 December 95	
15 Days	Position 14	=	01 January 96	
16 Days	Position 15	=	16 January 96	
14 Days	Position 16	=	01 February 96	
15 Days	Position 17	=	15 February 96	
122 Day	Position 18	=	01 March 96	
123 Days	Position 19	=	01 July 96	
61 Days	Position 20	=	01 November 96	
?	Position 21	=	01 January 97	

APPENDIX B

Mooring Recovery Data for Site A' from M/N Itatica

Top Trap at Site A' 1995/96 Recovery

**** RECOVERY DATA HISTORY ****

Please Choose A Menu Selection

Type "1" to INITIATE A DEPLOYMENT ROUTINE

Type "2" to LIST A HISTORICAL DATA RECOVERY

Type "3" to MANUALLY SEQUENCE MOTOR AND TEST TRAP

Type "4" to ABORT AND EXIT THE PROGRAM

Please Enter Your Selection : 2

*** HISTORICAL DATA RECOVERY ENTRY POINT ***

FILE HEADER

Tracer Sediment Trap S/N 1319

Date : 01/21/95 Time : 05:08:00

Location : ROSS SEA ANTARCTICA

Header : SITE A' TOP TRAP

EVENT	DATE	TIME	TURN TIME (Secs)	MOTOR VOLTAGE	LOGIC VOLTAGE	CAROUSEL POSITION "Degrees"	TEMP °C
1	10/28/94	15:33:09	4.4	18.35	8.60	259	22.2
2	10/28/94	15:35:06	1.3	18.25	8.60	259	22.2
3	10/28/94	15:35:16	5.8	18.35	8.60	259	22.2
4	10/28/94	15:37:22	2.6	18.35	8.60	259	22.2
5	10/28/94	15:40:29	10.4	18.35	8.60	259	22.2
6	10/28/94	15:41:36	5.1	18.20	8.60	259	22.2
7	10/28/94	15:42:46	5.4	18.25	8.60	259	22.2
8	10/28/94	15:43:48	3.4	18.30	8.60	259	22.2
9	10/28/94	15:44:56	6.3	18.35	8.60	259	22.2
10	10/28/94	15:45:59	12.6	18.20	8.60	259	22.2
11	10/28/94	15:47:16	1.4	18.15	8.60	259	22.2
12	10/28/94	15:48:14	1.5	18.20	8.60	259	22.2
13	10/28/94	15:49:20	7.3	18.30	8.60	259	22.2
14	10/28/94	15:50:24	7.2	18.30	8.60	259	22.2

YOUR WISH IS MY COMMAND!

*** Press Carriage Return "<CR>" For TRACER MENU SELECTIONS ***

*** Press Any Other Key To EXIT Program ***

Value Out Of Range - Please Try Again

Please Choose A Menu Selection

Type "1" to INITIATE A DEPLOYMENT ROUTINE
Type "2" to LIST A HISTORICAL DATA RECOVERY
Type "3" to MANUALLY SEQUENCE MOTOR AND TEST TRAP
Type "4" to ABORT AND EXIT THE PROGRAM

Please Enter Your Selection : 3

*** SUBROUTINE FOR MANUAL MOTOR JOG AND TRAP STATUS ***

** Press Carriage Return "<CR>" To Manually Jog Motor **

** Press Any Other Key To Abort **

TURN TIME (Secs)	EMPIRICAL MOTOR VOLTAGE	EMPIRICAL LOGIC VOLTAGE	CAROUSEL POSITION "Degrees"	***** TEMP C	DIAGNOSTICS CHAN(0) MOTOR	***** CHAN(2) LOGIC	***** CHAN(1) POSN
23.65	18.71	0.33	187	17.4	480	910	488

** CONTROL - C RECOVERY **
YOUR WISH IS MY COMMAND!

*** Press Carriage Return "<CR>" For TRACER MENU SELECTIONS ***

*** Press Any Other Key To EXIT Program ***

Please Choose A Menu Selection

Type "1" to INITIATE A DEPLOYMENT ROUTINE
Type "2" to LIST A HISTORICAL DATA RECOVERY
Type "3" to MANUALLY SEQUENCE MOTOR AND TEST TRAP
Type "4" to ABORT AND EXIT THE PROGRAM

Please Enter Your Selection : 4

** CONTROL - C RECOVERY **
YOUR WISH IS MY COMMAND!

*** Press Carriage Return "<CR>" For TRACER MENU SELECTIONS ***

*** Press Any Other Key To EXIT Program ***

Are You Sure You Want To EXIT The Program ? (Y/N) YES

OK

Bottom Trap at Site A' 1995/96 Recovery

**** RECOVERY DATA HISTORY ****

FILE HEADER

Tracer Sediment Trap S/N 1320
Date : 01/21/95 Time : 05:36:00
Location : ROSS SEA ANTARCTICA Header : SITE A' BOTTOM TRAP

EVENT	DATE	TIME	TURN TIME (Secs)	MOTOR VOLTAGE	LOGIC VOLTAGE	CAROUSEL POSITION "Degrees"	TEMP °C
1	10/28/94	15:33:09	4.4	18.35	8.60	259	22.2
1	1/31/95	23:57:07	14.8	17.55	7.00	36	6552.1
2	2/14/95	23:53:06	27.8	18.55	7.00	79	6551.8
3	2/28/95	23:57:50	27.7	18.60	7.00	158	6551.8
4	3/31/95	23:56:09	28.7	18.65	7.00	216	6551.8
5	5/31/95	23:58:45	29.9	18.50	7.00	284	6551.8
6	8/01/95	00:01:23	29.9	18.25	7.00	86	6551.8
7	9/30/95	23:55:29	30.1	18.10	6.90	169	6551.8
8	11/06/95	23:58:07	30.5	18.35	6.90	230	6551.8
9	11/30/95	23:58:37	161.5	18.15	6.90	291	6551.8
10	12/15/95	23:58:05	161.5	14.45	6.90	18	6551.8
11	12/31/95	23:59:41	161.5	13.95	6.90	18	6551.8
12	1/16/96	00:07:41	8.3	18.05	7.30	237	7.1
13	10/27/94	11:14:36	4.3	19.00	12.20	262	21.6
14	10/27/94	11:15:13	44.0	18.95	12.20	262	21.6

YOUR WISH IS MY COMMAND!

*** Press Carriage Return "<CR>" For TRACER MENU SELECTIONS ***

*** Press Any Other Key To EXIT Program ***

Please Choose A Menu Selection

Type "1" to INITIATE A DEPLOYMENT ROUTINE

Type "2" to LIST A HISTORICAL DATA RECOVERY

Type "3" to MANUALLY SEQUENCE MOTOR AND TEST TRAP

Type "4" to ABORT AND EXIT THE PROGRAM

Please Enter Your Selection : 3

*** SUBROUTINE FOR MANUAL MOTOR JOG AND TRAP STATUS ***

** Press Carriage Return "<CR>" To Manually Jog Motor **

** Press Any Other Key To Abort **

TURN TIME (Secs)	EMPIRICAL MOTOR VOLTAGE	EMPIRICAL LOGIC VOLTAGE	CAROUSEL POSITION "Degrees"	***** TEMP C	DIAGNOSTICS CHAN(0) MOTOR	CHAN(2) LOGIC	***** CHAN(1) POSN
23.65	17.80	8.30	187	17.4	486	913	490

** CONTROL - C RECOVERY **
YOUR WISH IS MY COMMAND!

*** Press Carriage Return "<CR>" For TRACER MENU SELECTIONS ***

*** Press Any Other Key To EXIT Program ***

Please Choose A Menu Selection

Type "1" to INITIATE A DEPLOYMENT ROUTINE

Type "2" to LIST A HISTORICAL DATA RECOVERY

Type "3" to MANUALLY SEQUENCE MOTOR AND TEST TRAP

Type "4" to ABORT AND EXIT THE PROGRAM

Please Enter Your Selection : 4

** CONTROL - C RECOVERY **

YOUR WISH IS MY COMMAND!

*** Press Carriage Return "<CR>" For TRACER MENU SELECTIONS

*** Press Any Other Key To EXIT Program ***

Are You Sure You Want To EXIT The Program ? (Y/N) YES

OK

APPENDIX C

Mooring Deployment Data Entry for Site A' from M/N Italice

Top Trap at Site A' 1996/97 Deployment

**** DEPLOYMENT DATA ENTRY ****

**** Welcome To The TTRUN TRACER SEDIMENT TRAP Program ****

Please Enter FILE HEADER Information

Serial Number / Date / Time / Location / Header

Tracer Trap Serial Number : S/N 1329
Date : 19 JANUARY 1996
Time : 18:51:00
Location : ROSS SEA
Header (<40 Characters) : SITE A' TOP ON M/N ITALICA

Is This Information Correct ? (Y/N) YES

Please Choose A Menu Selection

Type "1" to INITIATE A DEPLOYMENT ROUTINE
Type "2" to LIST A HISTORICAL DATA RECOVERY
Type "3" to MANUALLY SEQUENCE MOTOR AND TEST TRAP
Type "4" to ABORT AND EXIT THE PROGRAM

Please Enter Your Selection : 3

*** SUBROUTINE FOR MANUAL MOTOR JOG AND TRAP STATUS ***

** Press Carriage Return "<CR>" To Manually Jog Motor **

** Press Any Other Key To Abort **

TURN TIME (Secs)	EMPIRICAL MOTOR VOLTAGE	EMPIRICAL LOGIC VOLTAGE	CAROUSEL POSITION "Degrees"	***** TEMP C	***** DIAGNOSTICS CHAN(0) MOTOR	***** CHAN(2) LOGIC	***** CHAN(1) POSN
20.95	37.20	4.20	180	19.5	874	872	464

** CONTROL - C RECOVERY **
YOUR WISH IS MY COMMAND!

*** Press Carriage Return "<CR>" For TRACER MENU SELECTIONS ***

*** Press Any Other Key To EXIT Program ***

Please Choose A Menu Selection

Type "1" to INITIATE A DEPLOYMENT ROUTINE
Type "2" to LIST A HISTORICAL DATA RECOVERY
Type "3" to MANUALLY SEQUENCE MOTOR AND TEST TRAP
Type "4" to ABORT AND EXIT THE PROGRAM

Please Enter Your Selection : 1

**** DEPLOYMENT DATA ENTRY ****

FILE HEADER INFORMATION

Tracer Sediment Trap S/N S/N 1329
Date : 19 JANUARY 1996 Time : 18:51:00
Location : ROSS SEA
Header : SITE A' TOP ON M/N ITALICA

IF The Sediment Trap Is Starting AND Stopping On An Open Hole
The Number of Events (T) = 15

IF The Sediment Trap Is Starting OR Stopping On An Open Hole
The Number of Events (T) = Number Of Samples To Be Collected
(i.e. 14 Samples = 14 Events)

IF All Fifteen Sample Cups Are to Be Used
The Number of Events (T) IS ONE LESS THAN Number Of Samples
(i.e. 15 Samples = 14 Events)

Enter Number of Events (1 - 15) : 14

* NOTE *

On the TattleTale Interface Board There Are Seven
Jumper-Selectable Clock Periods Starting from Top to Bottom :
8secs - 16secs - 32secs - 64secs - 128secs - 256secs or 512secs

Enter Clock Period in Seconds : 512

You Have Three Choices

Type "1" to Enter Each Event Date Separately
Type "2" to Enter First and Last Event Dates Only
Type "3" to Enter First Event Date and Sampling Interval in Days

Please Enter Your Selection : 1

* NOTE *

JUST TYPE A CARRIAGE RETURN <CR> AFTER EACH MM DD YY and HH MM SS
ENTRY

THE COMPUTER WILL FILL IN THE APPROPRIATE " / " and " : " MARKS
BLANK ENTRIES ARE INTERPRETED AS ZERO

INDIVIDUAL EVENT DATE ENTRY

Please Enter Event Dates in Chronological Order - First To Last

EVENT #XX occurs on Date MM / DD / YY at Time HH : MM : SS

EVENT # 1 occurs on Date 02 / 01 / 96 at Time 00 : 00 : 01

EVENT # 2 occurs on Date 02 / 15 / 96 at Time 00 : 00 : 01

EVENT # 3 occurs on Date 03 / 01 / 96 at Time 00 : 00 : 01

EVENT # 4 occurs on Date 03 / 15 / 96 at Time 00 : 00 : 01

EVENT # 5 occurs on Date 04 / 01 / 96 at Time 00 : 00 : 01

EVENT # 6 occurs on Date 05 / 01 / 96 at Time 00 : 00 : 01

EVENT # 7 occurs on Date 06 / 01 / 96 at Time 00 : 00 : 01

EVENT # 8 occurs on Date 08 / 01 / 96 at Time 00 : 00 : 01

EVENT # 9 occurs on Date 10 / 01 / 96 at Time 00 : 00 : 01

EVENT # 10 occurs on Date 11 / 07 / 96 at Time 00 : 00 : 01

EVENT # 11 occurs on Date 12 / 01 / 96 at Time 00 : 00 : 01

EVENT # 12 occurs on Date 12 / 16 / 96 at Time 00 : 00 : 01

EVENT # 13 occurs on Date 01 / 01 / 97 at Time 00 : 00 : 01

EVENT # 14 occurs on Date 01 / 16 / 97 at Time 00 : 00 : 01

Please Enter The Current Date and Time

The Current Date is MM / DD / YY at Time HH : MM : SS

The Current Date is 01 / 19 / 96 at Time 18 : 56 : 15

**** TRACER 15 DEPLOYMENT DATA SUMMARY ****

EVENT	DATE	TIME	PERIODS	ELAPSED DAYS
1	2/01/96	0:00:01	2060	12.21
2	2/15/96	0:00:01	4423	26.21
3	3/01/96	0:00:01	6954	41.21
4	3/15/96	0:00:01	9316	55.21
5	4/01/96	0:00:01	12185	72.21
6	5/01/96	0:00:01	17248	102.21
7	6/01/96	0:00:01	22479	133.21
8	8/01/96	0:00:01	32773	194.21
9	10/01/96	0:00:01	43066	255.21
10	11/07/96	0:00:01	49310	292.21
11	12/01/96	0:00:01	53360	316.21
12	12/16/96	0:00:01	55891	331.21
13	1/01/97	0:00:01	58591	347.21
14	1/16/97	0:00:01	61123	362.21

EVENT DATES ARE IN CHRONOLOGICAL ORDER

The Entered Value for Clock Period (W) is 512 Seconds

The Current Time and Date is 18:56:15 on 1/19/96

*** PRESS CARRIAGE RETURN "<CR>" TO DEPLOY ***
*** PRESS ANY OTHER KEY TO ABORT ***

YOU ARE DONE DEPLOYING TRACER-15 SEDIMENT TRAP SERIAL # S/N 1329

Please Disconnect The Computer Cable From The Pressure Case and Reconnect The Carousel Position Cable Securely

Then Type "<ALT-F1>" To Close Your Current PROCOMM LOG FILE

***** TO DEPLOY ANOTHER TRACER-15 SEDIMENT TRAP *****

Reconnect The Computer Cable To The Next Pressure Case
Type "<ALT-F1>" To Open and Name Your Next PROCOMM LOG FILE
Type "<ALT-PGUP>" and then "7" To Load The TRACER15.TRP PROGRAM

Once Loading Is Completed And You Get the "OK>" Prompt

%%
% PLEASE TYPE "GOTO 18000" TO START THE TRACER TRAP PROGRAM %
%%

OK
>

Bottom Trap at Site A' 1996/97 Deployment

**** DEPLOYMENT DATA ENTRY ****

**** Welcome To The TTRUN TRACER SEDIMENT TRAP Program ****

Please Enter FILE HEADER Information

Serial Number / Date / Time / Location / Header

Tracer Trap Serial Number : S/N 1320
Date : 19 JANUARY 1996
Time : 18:10:00
Location : ROSS SEA
Header (<40 Characters) : SITE A' BOTTOM FROM M/N ITALICA

Is This Information Correct ? (Y/N) YES

Please Choose A Menu Selection

Type "1" to INITIATE A DEPLOYMENT ROUTINE
Type "2" to LIST A HISTORICAL DATA RECOVERY
Type "3" to MANUALLY SEQUENCE MOTOR AND TEST TRAP
Type "4" to ABORT AND EXIT THE PROGRAM

Please Enter Your Selection : 3

*** SUBROUTINE FOR MANUAL MOTOR JOG AND TRAP STATUS ***

** Press Carriage Return "<CR>" To Manually Jog Motor **

** Press Any Other Key To Abort **

TURN TIME (Secs)	EMPIRICAL MOTOR VOLTAGE	EMPIRICAL LOGIC VOLTAGE	CAROUSEL POSITION "Degrees"	***** TEMP C	DIAGNOSTICS CHAN(0) MOTOR	***** CHAN(2) LOGIC	***** CHAN(1) POSN
20.56	19.60	9.80	158	18.2	522	928	510

** CONTROL - C RECOVERY **
YOUR WISH IS MY COMMAND!

*** Press Carriage Return "<CR>" For TRACER MENU SELECTIONS ***

*** Press Any Other Key To EXIT Program ***

Please Choose A Menu Selection

Type "1" to INITIATE A DEPLOYMENT ROUTINE

Type "2" to LIST A HISTORICAL DATA RECOVERY

Type "3" to MANUALLY SEQUENCE MOTOR AND TEST TRAP

Type "4" to ABORT AND EXIT THE PROGRAM

Please Enter Your Selection : 1

**** DEPLOYMENT DATA ENTRY ****

FILE HEADER INFORMATION

Tracer Sediment Trap S/N S/N 1320
Date : 19 JANUARY 1996 Time : 18:10:00
Location : ROSS SEA
Header : SITE A' BOTTOM FROM M/N ITALICA

IF The Sediment Trap Is Starting AND Stopping On An Open Hole
The Number of Events (T) = 15

IF The Sediment Trap Is Starting OR Stopping On An Open Hole
The Number of Events (T) = Number Of Samples To Be Collected
(i.e. 14 Samples = 14 Events)

IF All Fifteen Sample Cups Are to Be Used
The Number of Events (T) IS ONE LESS THAN Number Of Samples
(i.e. 15 Samples = 14 Events)

Enter Number of Events (1 - 15) : 14

* NOTE *

On the TattleTale Interface Board There Are Seven
Jumper-Selectable Clock Periods Starting from Top to Bottom :
8secs - 16secs - 32secs - 64secs - 128secs - 256secs or 512secs

Enter Clock Period in Seconds : 512

You Have Three Choices

Type "1" to Enter Each Event Date Separately
Type "2" to Enter First and Last Event Dates Only
Type "3" to Enter First Event Date and Sampling Interval in Days

Please Enter Your Selection : 1

* NOTE *

JUST TYPE A CARRIAGE RETURN <CR> AFTER EACH MM DD YY and HH MM SS
ENTRY
THE COMPUTER WILL FILL IN THE APPROPRIATE " / " and " : " MARKS
BLANK ENTRIES ARE INTERPRETED AS ZERO

INDIVIDUAL EVENT DATE ENTRY

Please Enter Event Dates in Chronological Order - First To Last

EVENT #XX occurs on Date MM / DD / YY at Time HH : MM : SS

EVENT # 1 occurs on Date 02 / 01 / 96 at Time 00 : 00 : 01

EVENT # 2 occurs on Date 02 / 15 / 96 at Time 00 : 00 : 01

EVENT # 3 occurs on Date 03 / 01 / 96 at Time 00 : 00 : 01

EVENT # 4 occurs on Date 03 / 15 / 96 at Time 00 : 00 : 01

EVENT # 5 occurs on Date 04 / 01 / 96 at Time 00 : 00 : 01

EVENT # 6 occurs on Date 05 / 01 / 96 at Time 00 : 00 : 01

EVENT # 7 occurs on Date 06 / 01 / 96 at Time 00 : 00 : 01

EVENT # 8 occurs on Date 08 / 01 / 96 at Time 00 : 00 : 01

EVENT # 9 occurs on Date 10 / 01 / 96 at Time 00 : 00 : 01

EVENT # 10 occurs on Date 11 / 07 / 96 at Time 00 : 00 : 01

EVENT # 11 occurs on Date 12 / 01 / 96 at Time 00 : 00 : 01

EVENT # 12 occurs on Date 12 / 16 / 96 at Time 00 : 00 : 01

EVENT # 13 occurs on Date 01 / 01 / 97 at Time 00 : 00 : 01

EVENT # 14 occurs on Date 01 / 16 / 97 at Time 00 : 00 : 01

Please Enter The Current Date and Time

The Current Date is MM / DD / YY at Time HH : MM : SS

The Current Date is 01 / 19 / 96 at Time 18 : 16 : 30

**** TRACER 15 DEPLOYMENT DATA SUMMARY ****

EVENT	DATE	TIME	PERIODS	ELAPSED DAYS
1	2/01/96	0:00:01	2065	12.23

2	2/15/96	0:00:01	4427	26.23
3	3/01/96	0:00:01	6959	41.23
4	3/15/96	0:00:01	9321	55.23
5	4/01/96	0:00:01	12190	72.23
6	5/01/96	0:00:01	17252	102.23
7	6/01/96	0:00:01	22484	133.23
8	8/01/96	0:00:01	32777	194.23
9	10/01/96	0:00:01	43071	255.23
10	11/07/96	0:00:01	49315	292.23
11	12/01/96	0:00:01	53365	316.23
12	12/16/96	0:00:01	55896	331.23
13	1/01/97	0:00:01	58596	347.23
14	1/16/97	0:00:01	61127	362.23

EVENT DATES ARE IN CHRONOLOGICAL ORDER

The Entered Value for Clock Period (W) is 512 Seconds

The Current Time and Date is 18:16:30 on 1/19/96

*** PRESS CARRIAGE RETURN "<CR>" TO DEPLOY ***
 *** PRESS ANY OTHER KEY TO ABORT ***

YOU ARE DONE DEPLOYING TRACER-15 SEDIMENT TRAP SERIAL # S/N 1320

Please Disconnect The Computer Cable From The Pressure Case and Reconnect The Carousel Position Cable Securely

Then Type "<ALT-F1>" To Close Your Current PROCOMM LOG FILE

***** TO DEPLOY ANOTHER TRACER-15 SEDIMENT TRAP *****

Reconnect The Computer Cable To The Next Pressure Case
 Type "<ALT-F1>" To Open and Name Your Next PROCOMM LOG FILE
 Type "<ALT-PGUP>" and then "7" To Load The TRACER15.TRP PROGRAM

Once Loading Is Completed And You Get the "OK>" Prompt

```

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% PLEASE TYPE "GOTO 18000" TO START THE TRACER TRAP PROGRAM %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

OK
>