92-6

CRN

9202 COCC
9206 Ocean Physics
18EN9202/1 WOCE

DAILY LOG
INSTITUTE OF OCEAN SCIENCES
OCEAN PHYSICS

DATE: MARCH 26, 1992 - 13 April

VESSEL: ENDEAVOR

PROJECT: COCC CLIMATE CHANGE
WOCE REPEAT HYDROGRAPHY

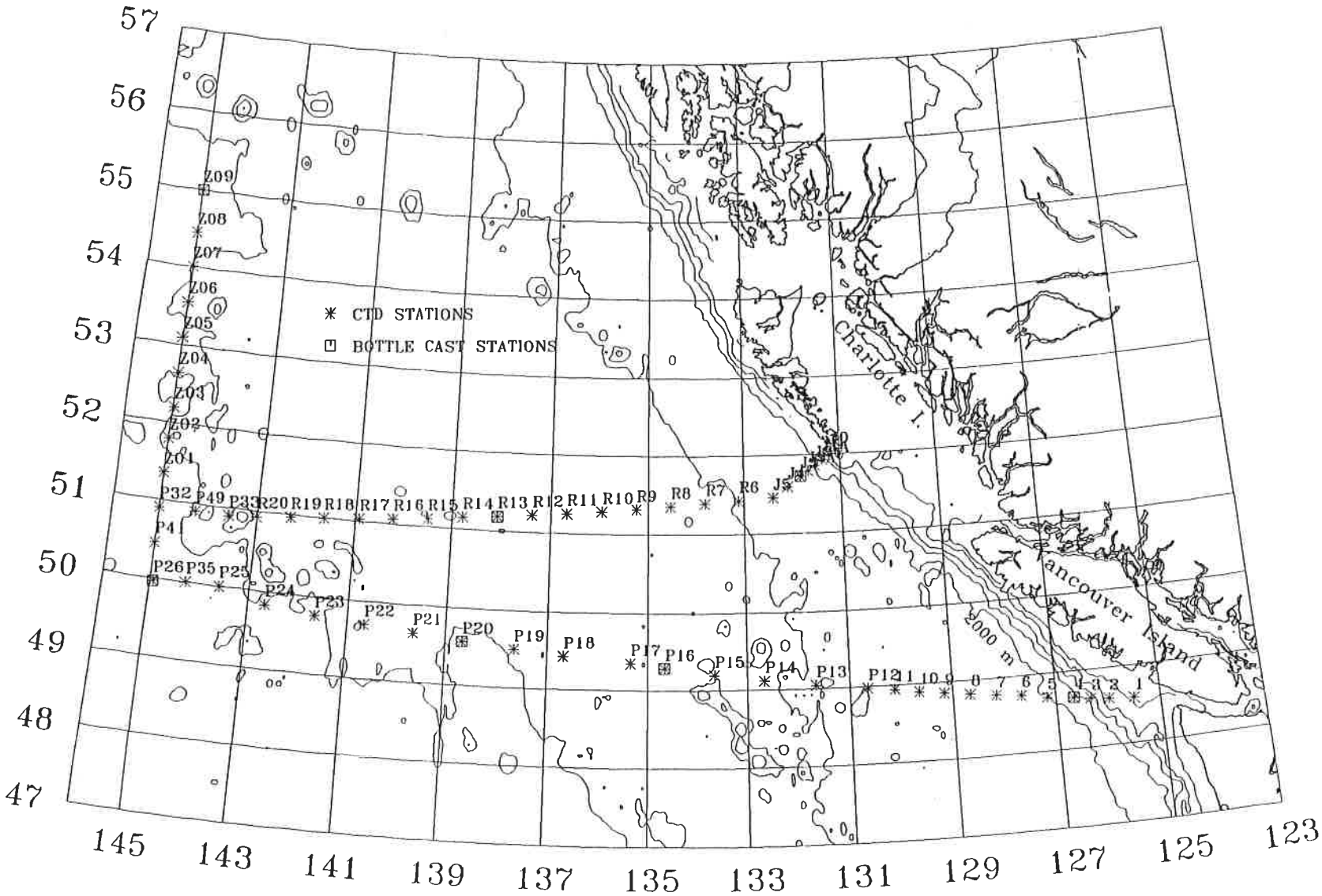

Fig. 1. Cruise 92-06 stations (18EN9202/1).

CTD HEADER INFO.

	STN	LAT	LONG	LAT	LONG	DATE	TIME
1	P03	48 37.52 N	126 20.00 W	48.6253	-126.3333	'03-27-1992'	'13:46:3
2	P04	48 38.80 N	126 39.49 W	48.6467	-126.6582	'03-27-1992'	'18:13:4
3	P05	48 41.50 N	127 10.00 W	48.6917	-127.1667	'03-27-1992'	'23:14:3
4	P06	48 44.60 N	127 40.00 W	48.7433	-127.6667	'03-28-1992'	'02:17:3
5	P07	48 46.55 N	128 09.56 W	48.7758	-128.1593	'03-28-1992'	'06:02:5
6	P08	48 48.80 N	128 39.40 W	48.8133	-128.6567	'03-28-1992'	'09:06:3
7	P09	48 51.23 N	129 09.29 W	48.8538	-129.1548	'03-28-1992'	'12:09:2
8	P10	48 53.79 N	129 39.64 W	48.8965	-129.6607	'03-28-1992'	'14:56:0
9	P11	48 55.82 N	130 09.20 W	48.9303	-130.1533	'03-28-1992'	'17:40:3
10	P12	48 59.94 N	130 39.60 W	48.9990	-130.6600	'03-28-1992'	'21:52:2
11	P13	49 02.40 N	131 39.33 W	49.0400	-131.6555	'03-29-1992'	'04:52:2
12	P15	49 11.73 N	133 39.76 W	49.1955	-133.6627	'03-29-1992'	'12:53:1
13	P16	49 16.55 N	134 39.25 W	49.2758	-134.6542	'03-29-1992'	'18:48:5
14	P16	49 16.63 N	134 38.77 W	49.2772	-134.6462	'03-29-1992'	'19:18:1
15	P17	49 20.53 N	135 39.93 W	49.3422	-135.6655	'03-30-1992'	'01:35:0
16	P18	49 25.52 N	136 39.83 W	49.4253	-136.6638	'03-30-1992'	'06:15:3
17	P19	49 29.40 N	137 39.80 W	49.4900	-137.6633	'03-30-1992'	'11:04:3
18	P20	49 33.48 N	138 39.73 W	49.5580	-138.6622	'03-30-1992'	'17:17:1
19	P21	49 37.50 N	139 39.56 W	49.6250	-139.6593	'03-31-1992'	'00:56:2
20	P22	49 37.78 N	139 39.03 W	49.6297	-139.6505	'03-31-1992'	'01:54:0
21	P22	49 41.31 N	140 39.75 W	49.6885	-140.6625	'03-31-1992'	'05:32:3
22	P23	49 45.34 N	141 40.00 W	49.7557	-141.6667	'03-31-1992'	'10:06:4
23	P24	49 49.27 N	142 40.90 W	49.8212	-142.6817	'03-31-1992'	'14:33:5
24	P25	49 58.99 N	143 37.22 W	49.9832	-143.6203	'03-31-1992'	'18:51:1
25	P25	49 58.56 N	143 37.23 W	49.9760	-143.6205	'03-31-1992'	'19:23:3
26	P35	49 59.10 N	144 19.00 W	49.9850	-144.3167	'03-31-1992'	'22:32:3
27	P26	50 00.23 N	144 59.43 W	50.0038	-144.9905	'04-01-1992'	'03:00:4
28	P26	49 59.95 N	145 00.01 W	49.9992	-145.0002	'04-01-1992'	'04:42:0
29	P26	50 00.00 N	145 00.00 W	50.0000	-145.0000	'04-01-1992'	'11:22:2
30	P41	50 26.91 N	145 00.00 W	50.4485	-145.0000	'04-02-1992'	'07:06:3
31	P32	50 54.00 N	145 00.00 W	50.9000	-145.0000	'04-02-1992'	'10:24:1
32	Z01	51 21.01 N	144 59.68 W	51.3502	-144.9947	'04-02-1992'	'13:37:4
33	Z02	51 47.46 N	145 00.21 W	51.7910	-145.0035	'04-02-1992'	'16:54:3
34	Z03	52 12.00 N	145 00.00 W	52.2000	-145.0000	'04-02-1992'	'19:53:0
35	Z04	52 39.20 N	145 00.00 W	52.6533	-145.0000	'04-02-1992'	'23:07:2
36	Z05	53 05.98 N	144 59.94 W	53.0997	-144.9990	'04-04-1992'	'15:11:2
37	Z06	53 33.04 N	145 00.04 W	53.5507	-145.0007	'04-04-1992'	'18:38:3
38	Z07	54 00.00 N	145 00.00 W	54.0000	-145.0000	'04-04-1992'	'22:00:1
39	Z08	54 27.04 N	145 00.01 W	54.4507	-145.0002	'04-05-1992'	'02:09:0
40	Z09	55 00.12 N	144 59.78 W	55.0020	-144.9963	'04-05-1992'	'07:38:1
42	P26	49 58.91 N	145 00.98 W	49.9818	-145.0163	'04-07-1992'	'03:38:2
43	P49	50 54.00 N	144 17.20 W	50.9000	-144.2867	'04-08-1992'	'01:41:5
44	P26	49 58.54 N	145 01.54 W	49.9757	-145.0257	'04-07-1992'	'04:47:1
45	P26	50 00.04 N	145 00.13 W	50.0007	-145.0022	'04-07-1992'	'08:45:4
46	P26	50 .00 N	145 .00 W	50.0000	-145.0000	'04-07-1992'	'10:09:2
47	P33	50 54.89 N	143 34.51 W	50.9148	-143.5752	'04-08-1992'	'05:03:1
48	R20	50 56.61 N	143 00.91 W	50.9435	-143.0152	'04-08-1992'	'08:14:4
50	R19	50 58.84 N	142 19.94 W	50.9807	-142.3323	'04-08-1992'	'11:40:5
51	R18	51 00.89 N	141 38.96 W	51.0148	-141.6493	'04-08-1992'	'15:03:2
52	R17	51 02.00 N	140 56.00 W	51.0333	-140.9333	'04-08-1992'	'18:25:5
53	R16	51 03.93 N	140 12.72 W	51.0655	-140.2120	'04-08-1992'	'21:48:5
54	R15	51 05.85 N	139 29.15 W	51.0975	-139.4858	'04-09-1992'	'01:15:1
55	R14	51 9.00 N	138 47.50 W	51.1500	-138.7917	'04-09-1992'	'04:42:0
56	R13	51 11.00 N	138 6.00 W	51.1833	-138.1000	'04-09-1992'	'08:24:1
57	R12	51 13.00 N	137 23.00 W	51.2167	-137.3833	'04-09-1992'	'17:31:3
58	R11	51 15.00 N	136 40.30 W	51.2500	-136.6717	'04-09-1992'	'21:07:2
60	R10	51 17.00 N	135 57.60 W	51.2833	-135.9600	'04-10-1992'	'00:34:5
61	R09	51 19.00 N	135 15.00 W	51.3167	-135.2500	'04-10-1992'	'04:01:0
62	R08	51 21.20 N	134 32.70 W	51.3533	-134.5450	'04-10-1992'	'08:19:3
63	R07	51 23.50 N	133 49.60 W	51.3917	-133.8267	'04-10-1992'	'11:50:5

[illegible]	R06	51	25.50	N	133	6.60	W	51.4250	-133.1100	'04-10-1992' '15:17:5
65	J05	51	27.50	N	132	24.00	W	51.4583	-132.4000	'04-10-1992' '20:03:0
66	J04	51	35.60	N	132	6.50	W	51.5933	-132.1083	'04-10-1992' '22:46:5
67	J03	51	43.50	N	131	50.00	W	51.7250	-131.8333	'04-11-1992' '02:33:1
68	J2A	51	47.50	N	131	40.70	W	51.7917	-131.6783	'04-11-1992' '06:37:3
69	J02	51	51.60	N	131	32.00	W	51.8600	-131.5333	'04-11-1992' '09:24:1
70	J1A	51	55.70	N	131	22.70	W	51.9283	-131.3783	'04-11-1992' '11:42:1
71	J01	52	.00	N	131	14.00	W	52.0000	-131.2333	'04-11-1992' '13:17:4
72	J00	52	2.00	N	131	10.30	W	52.0333	-131.1717	'04-11-1992' '14:11:1

C.N.A.V. ENDEAVOUR. 92-06

Captain: W. McMUNAGLE First Officer: A. (TONY) STEWARD (4-8)

Second Officer: B (BARRY) HAGEN (12-4) Third Officer: G. (GUY) CHAMPAGNE (8-12)
BOATSWAIN: TOM JINCOFF.

Cruise Participants/Agencies: IOS: OCEAN PHYSICS, OCEAN CHEMISTRY; U.B.C.

Scientific Personnel: Party Chief: RON PERKIN (CABIN 01-01) 8-12

Name	Watch	Cabin	Name	Watch	Cabin
BERNARD MINKLEY	1200-1600	01-09			
REG BIGHAM	12-4	2-16			
RON BELLEGAY	8-12	2-18			
JIN PING WU	0000-0400	2-20			
LES SPEARING	4-8	2-17			
TIM SOUTAR	4-8	2-15			

Second leg of cruise: Party Chief:

Third leg of cruise: Party Chief:

Data logging system: Unit number: 2 Program version: 1.20

CTD deck unit make: GUILDLINE model: 87107 serial no.: 58995

Computer make: HEWLETT PACKARD model: D1430A serial no.: 2938A05390

Monitor make: NEC model: MULTISYNC2A serial no.:

Printer make: STAR model: RADIX-10 PLUS serial no.: CL5004000266

1st CTD make: GUILDLINE model: 8715 serial no.: 53,501

Temperature sensor model: 87401 serial no.: 53,237

coefficients: slope: offset:

Conductivity sensor model: 87410 serial no.: 52,474

coefficients: slope: offset:

Pressure sensor range: 3000 ~~3200~~ psiA serial no.: 47,710 (model no. 87422)

coefficients: FSP: 2000 dB offset:

Transmissometer model: serial no.:

coefficients: slope: offset:

Comments:

2nd CTD make: GUILDLINE model: 8715 serial no.: 58,483
Temperature sensor model: 87401 serial no.: 57,915
coefficients: slope: offset:
Conductivity sensor model: 87410 serial no.: 58,814
coefficients: slope: offset:
Pressure sensor range: ~~3000~~ psi serial no.:
coefficients: FSP: 3000 dB offset:
Transmissometer model: serial no.:
coefficients: slope: serial no.:

WINCHES:

CTD	make: SWANN	model: 329	serial no.: 1482 w 3 cond. cable
counter	make: REVLIS	model: 8750	~~EDR~~ no.: 8763A
HYDRO	make: SWANN	model: 410	serial no.: 1434
counter	make: REVLIS	model: 8750	~~EDR~~ no.: 9296A
Spooling	make: SWANN	model: 455	serial no.: 1451
Drag	make:	model:	serial no.:
PICKER UP	make: HARRISON + ROBBINS	model: 589	serial no.: 515
Salinometer	make: GUILDLINE	model: 8410	serial no.: 58,879

SAIL System:
Program version: Time zone:
Sampling interval: sec.
CTF module no.: serial no.:
Remote temperature model: serial no.:
Flow sensor model: serial no.:
Other sensors: (special for this cruise)
Name: module I.D.: serial no.:
Name: module I.D.: serial no.:

Comments: ENDEAVOUR DOES NOT HAVE SAIL OR A SEA WATER LOOP

ADCP Setup:
Program version: number of depth bins:
Time zone: bin length (2^x):
Sampling interval: sec. pulse length:
Blank beyond transmit: pings per ensemble:
Pulse cycle time:
Percent pings good threshold:

Comments: O.P. GPS unit on bridge: Trimble Navigation NAVTRAC GPS
PN: 14400-61 SN: 3150L07258

SNAGS: - O-rings on CTD probe pressure fit.
- Revlis counter transformer spare.
- CTD program: displays extra char - see 92/4/2.

MARCH 26, 1992

DEPART ESQUIMALT 12:57 HRS PST = ~~1857~~ 2057 Z

165 48.3

125 -13.1

3 11

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR 92	MONTH 03	TIME ZONE UTC	SHIP ENDEAVOUR	CRUISE 92-06	PAGE / OF

DAY UTC	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC #	STD TIME	HYDRO CONSEC #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	CTD SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #		NOTES
26	JF1		2300	48 16								1		BUCKET SAMPLE: S, Chl, 2 nut. plastic S.P.O.M.
				123 30 5										
27	JF2		0055	48 18.2								2		BUCKET SAMPLE OIL SLICK
				124 00.9										
27	JF3		0245	48 26.65								3		BUCKET SAMPLE
				124 30.00										
27	JF4		0447	48 32								4		" 40 knot winds too rough for PO1, PO2
				125 00										
27	MP03		1255	48 37.5	1	1346		1424			10.627	5		CTD to 772 m.
			1428	126 20							32.177			10 l bottle @ 5 m. for loops.
27	MP04		1630	48 38.99			1a	1731						Sounding @ 1463 m / S. was 1305 m
			~~1731~~	126 39.92										Bottle cast to ~~800~~ 500
				Messenger loop										
27	MP04			48 38 86		1813					16.366			START CTD 92060002
				126 39.66	002	1838					32.392			MAX DEPTH: 1324.5 BY CTD & PINGER
27	MP04			48 38.71			1b		1	2023				2nd cast ~~600~~ – 1300
			2046	126 39.31					20	2049				
27	MP05		2214	48 41.37	3	2314					10.312	6		Depth = 2000 m @ 1463
			0013	127 09.64							32.333			
28	MP06		0213	48 44.6	4	0217		0403			9.656	7		2505 m @ 1463
			0406	127 40							32.280			0352: 200 m plankton haul 5 l bottle @ 5 m for loops
28	MP07		0557	48 46.55	5	0602		0710			10.052	8		Winch speed up @ 200 m 10 l loop sample for PCO_2
			0715	128 09.56		0635					32.086			
28	MP08		0857	48 48.8	6	0908		0905			9.268	009		5 l bottle @ 5 m loops
			1010	129 39.4							32.282			

92/3/26 PST

1640 - stopped for bucket sample at JF2 but station is in middle of an patch of oil being monitored by CG. DC-3.
1655 - stopped just west of oil patch for surface sample.

92/3/27 PST

0455 - Arr MP03.
- took some time to get winch going and hook up probe + pinger.
- CTD #1 to 772 m. bottom.
- Loop samples taken from 10 l. Niskin tripped at 5m: pCO_2, TCO_2, [illegible], Alk, Chl, Sal, Nut (2 plastic).
- air samples C29, C30.

1730 - Reset computer time. It was 2 minutes slow

MP04
0 - 800 m bottle cast. no messenger on 500 m bottle
CTD to 1324. Wrong header info on file.
600 to 1300 m bottle cast

1454 - Stopped on Stn MP05

5 litre bottle for pinger sample of sal, nutrient, TCO_2, Alkalinity, ^{13}C.
CTD to 1505 db.

1813 Stn MP06.
Problem with hydro winch - at first motor would not turn, later response lags somewhat.

92/03/28 P.S.T

0105 5 litre bottle sample @ 5 m. S‰, Nut., TCO_2, alk., C_{13}

0108 CTD # 006 to 1500 m

0210 Proceed to MP09

Stn MP10 CTD surface salinity shows low salinity, not shown on upcast.

92/03/29 Sunday

0115 – Stopped on Stn MP14 – After some deliberation the Captain cancelled Stn. Winds gusting 35-40+, seas rough. Continue to next Stn. (MP15)

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR 92	MONTH 03	TIME ZONE UTC	SHIP ENDEAVOUR	CRUISE 92-06	PAGE 2 OF

DAY UTC	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC. #	STD TIME	HYDRO CONSEC. #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	NOTES
28	MP09		1200 1312	48 51.23 129 09.29	007	1209		1309			9.408 32.310	010	Loops from 5 l Niskin @ 5 m: Alk, ^{13}C, TCO_2, S, Chl, 2 pl. nuts.
28	MP10		1451 1559	48 53.79 129 39.64	8	1455		1556			9.297 32.222	11	Air samples C27, C28. Loops from 10 l Niskin @ 5 m: pCO_2, Alk, ^{13}C, TCO_2, S, Chl, 2 pl. nut
28	MP11		1733 1845	48 55.82 130 09.20	9	1740 1810					9.290 32.326	12	Used high winch speed. Cell was brushed. Sounding was 2500 m
28	MP12		2030	48 58.15 130 39.2			2a 2b	2116 2352	21 44	1045 1079		13	Bottle Cast to 800 m Bottle Cast to 3200 m
"	"		0123	48 57.9 130 39.5	10	2150 2248		2352			9.232 32.290		CTD
29	MP13		0449 0554	49 02.40 131 39.33	11	0452 0520					9.268 32.321	14	CTD 92060011 PCO_2 sample taken
29	MP15		1247 1354	49 11.73 133 39.76	12	1253		1351			8.100 32.282	15	Loops from 5 l Niskin @ 5 m: Alk, ^{13}C, TCO_2, S, Chl, 2 pl. nuts.
29	MP16		1730	49 16.57 134 39 54			3a 3b	1817 2049	45 68	1003 1042		16	800 m bottle cast CTD 92060013 (logged the up cast)
"	"			49 16.55 134 39 25	13 14	1848 1918					8.088	32.358	UP CAST IS 92060014 1000 – 3600 m bottle cast
30	MP17		0132 0242	49 20.53 135 39.93	15	0134		0237			8.441 32.373	17	Loops from 5 l Niskin @ 5 m: Alk, ^{13}C, TCO_2, S, Chl, 2 pl. nuts
30	MP18		0610 0717	49 25.52 136 39.83	16	0613 0643					8.238 32.481	18	Loop + PCO_2 sample
30	MP19		1053 1204	49 29.5 137 39.8	017	1104		1103			7.625 32.402	19	5 m bottle for loops CTD to 1503 m.

17
13

2	13 months
3	1
4	~~////~~ ///
5	1
6	//
7	//
8	////
9	////
10	//
11	∅
12	∅

0	1085	10.6
10	1086	10.2
50	1087	10.2
75	1088	9.0
100	1090	8.8
150	1092	~~9.0~~ 8.8
200	1095	8.8
300	1096	8.2
400	1097	7.4
500	2000	6.8
600	2001	6.6
800	2002	6.2
1000	2004	4.4
1200	2005	4.0
1500	2006	3.6
2500	2007	2.6
3200	2008	2.4

P12 duplicate O_2

92/3/28 PST

1659 – Sm 5 l Niskin for Loop samples: S, TCO, 13C, Alk.
1713 – 200 m plankton haul.

92/3/29 PST

– see Reg's note at 0115 on previous page for MP14.

0500 – Stn MP15
– wind 10 kt NW, light rain.
– Tim eliminated jerky motion of winch on lower half of downcast by having winch operator ease off slightly on control lever. Speed is same but jerkiness stops.
– at very end of upcast, program stopped with "Device I/O error in line 0 of module CTD at address 0716:76B3. Hit any key to return to system".

Stn MP16 bottle cast #3 0-800m

CTD # 13

30 March 1992 P.S.T.

0253 Stop on Stn MP19

0303 5 litre bottle @ 5 m for loops
S‰, Alk, C13, TCO2, Chlor, Nutr. (2)

0304 CTD #17 to 1503 m

0746 Arr Stn MP20

0-800 m bottle cast

1305 - completed Stn MP20 incl. 200m plankton Vht.

- Ship commence to test engines - delay.
- 3 black-footed albatros around ship.

REG CHANGED COUNTER ON HYDRO WINCH
FROM REVLIS FDR 9296 TO
REVLIS FDR 9284 AFTER 9296
WENT DEAD.

Unit 9296 repaired - open in power supply
transformer primary.

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR 1992	MONTH 03/04	TIME ZONE UTC	SHIP ENDEAVOUR	CRUISE 92-06	PAGE 3 OF

DAY UTC	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC #	STD TIME	HYDRO CONSEC #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	CTD SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	NOTES
30	MP 20		1546	49 33.44	18	1719	4a	1645	69	2023	7.372	20	800 m bottle cast (1636) MESS 1645
			2115	138 39.73			4b	1920	93	2055	32.425		3900m bottle cast (1910)
31	MP21		0053	49 37.5	19	0056		0151			7.220	21	Loops from 5l Niskin @ 5m: Alk, 13C, TCO2, S, Chl, 2 pl. nut.
			0153	139 39.56							32.416		CTD to 1503.7 m
31	MP22		0522	49 41.31	~~20~~	0533					7.117	22	OVERFLOW ON LINE ERROR – RESTARTED CAST. LOGGED AS 92060021.CTD
				140 39.75	21	0532					32.417		92060020 was a false start
31	MP23		0958	49 45.3	022	1007		1005			6.521	23	5 meter loops taken
			1108	141 40.0							32.448		CTD 022 to 1500 m.
31	MP24		1431	49 49.27	23	1433		1530			6.542	24	Loops from 5l Niskin @ 5m: Alk, 13C, TCO2, S, Chl, 2 pl. nuts.
			1532	142 40.90							32.448		
31	MP25		1844	49 58.99	24	1851		1953			6.528	25	PCO_2 taken @ 5m
			1955	143 37.22		1924					32.424		
31	MP35		2207	49 59.1	026	2233					6.381		COMPUTER STOPPED SEE LOG.
			2326	144 19.0	~~25~~	~~2217~~		2213			32.372	26	CTD #26 to 1504.5 m
1	MP26		0152	50 00.15	~~27~~	0300	5A	0231	94	2023		27	0-250 1300 – 1000, 1200 – 4200
				144 59.56					105	2054			#27 bad pressure data
1	MP26			49 59.95	28	0441					6.224		
				145 00.01							32.462		
1	MP26			50 00.25			5B	0620	106	2055			300 – 1000 Bottle Cast IMMERSED 0611 RETRIEVED 0630
				144 59.81					111	1095			
1	MP26			5000.0			5C	0945	112	1096			1200m – 4200m Bottle Cast
				144 59.9					120	2018			5m bottle (10 l)
1	MP26			50 00.0							6.194		CTD to 1502 m.
				145 00.0	029	1122					32.471		

March ~~31~~ 30: CTD cast 20 was a false start. Error was "Overflow on line Ø".

31 March 1992 P.S.T.

0158 Stop on Stn MP23

0205 5 L, 5 m loop sample - Sal Nut TCO_2 C_{13} alk chl.

0207 CTD # 22 to 1500 m.

0308 Proceed to MP24.

1413 - 5 litre sample taken @ 5 meters.

1417 - CTD #025 Computer bombed - message on screen - "Overflow in line 0 of Module CTD at adress 0716:99CØ"

1433 - CTD #026 - there is an extra number in the pressure display ie - at 100 m it reads 100.0.4
- CTD OK to 1504.5 m.
- loop samples taken -

✓Alk., TCO_2, C_{13}, Nut., Chlor., 5‰,

1526 - Finished on Stn.

1900 - MP26 CTD #27 -
PRESSURE OFFSET IS -9 m -

1907 - PRESSURE STOPPED INCREASING AT 115 m.

1913 - PROBE ON DECK. PRESSURE SENSOR RUBBER SOCK FEELS FLAT - it is squished flat.
Opened bottom end of probe. Pressure sensor 47,710 is bent about 7° off vertical
- Straightened sensor; oil in sock looks dry - topped up sock with light machine oil. SOCK-O-RINGS PERISHED.

92/3/31 PST

2041 - MP26 CTD # 28. after probe repair.

Rosus	CTD
100 m	106 db.
150	159
200	208
500	504
1000	1007
1400	1405
1500	1507

} near zero wire angle.

92/4/1 PST

0145 1200 - 4200 m cast (Messenger time)
- Salmon swimming in lights, 22-24"
- squid seen - 2 or 3, 6" long
- shark with remora or 2' fish with funny growth under chin.

0322 - CTD # 29 to 1502 m.

0435 - 200 m plankton haul.

0530 - new POC cast: 50, 150, 200, 300, 400, 500 m.

0552 - new UBC P. Harrison 10, 5 m
0559 - same again
0606 - same again.

0625 - new productivity: 0, 2, 5, 10, 20, 30, 50, 70, 100 m

0705 - prim prod. drifter launched. (CH. 69)

saw numerous large jellyfish with long brown tentacles (10'+) during 4-8 watch.

Morning spent with O. Chem. trying to communicate with sed trap release, commanding release, listening for radio beacon.

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR 1992	MONTH 04	TIME ZONE UTC	SHIP ENDEAVOUR	CRUISE 9206 ~~9202~~	PAGE 4 OF

DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC #	STD TIME	HYDRO CONSEC #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	NOTES
2	MP41		0700	50 26.91	30	0708				6.404	28		Many medusa jellyfish | 5m TCO_2 + Loop 5l bottle
			0805	145 00.0		0734		0802		32.485			
			1018	50 54.0						5.777			5m, 5l loops ✓
2	MP32		1122	145 00.0	031	1024		1022		32.784	29		CTD to 1500 m.
2	MZ01		1336	51 21.01						5.760			5m loops w. 5l Niskin:
			1442	144 59.68	32	1337		1440		32.545	30		S, Chl, TCO_2, 2 pl. nuts.
2	MZ02		1650	51 47.46	33	1655				5.557	31		5m Loop w. 5l Niskin
			1752	145 00.21		1720		1750		32.530			TCO_2 + Chl + Nut. + S
2	MZ03		1951	52 12.0	34	1954				5.391	32		CTD to 1502 m
			2056	145 00.0		2020		2054		32.523			
			2300	52 39.2		2307				4.948			5m loop samples ✓
2	MZ04		0008	145 00.0	35			2306		32.537	33		CTD to 1500 m.
4	MZ05		1508	53 05.98	36	1511		1605		4.527			5m loops w. 5l Niskin:
			1610	144 59.94						32.564	34		S, Chl, TCO_2, 2 plastic nut.
4	MZ06		1835	53 33.04	37	1838		1938		4.657	35		5m loop w 5l Niskin
			1936	145 00.04		1905				32.566			S, Chl, TCO_2, nut
			2152	54 00.0		2200				4.812			5m loops ✓ S, $\delta^{18}O$, chl,
4	MZ07		~2340	145 00.0	38	2228		2159		32.549	36		TCO_2 & ② nuts.
			0206	54 27.04						4.663			WIND: 15 kt NW.
5	MZ08		0309	145 00.01	39	0209		0307		32.602	37		5m loops: S, Chl, TCO_2, 2 nut
5	MZ09		0610	55 00.01			6A	0703	121	1086			Shallow bottle cast (0653)
				144 59.98					137	2025		38	to 800m
5	MZ09			55 00.12	40	0738					4.331		CTD to 1510 m.
				144 59.78		0810					32.660		

[redacted]

[redacted]

P 1052.0,9
T 2.75408
S 34.40252

P 1301.3,3
T 2.455
S 34.47352

92/4/1 PST

1405 - prim. prod drifter recovered.

1605 - FDSTAR deployed: CH. 72, CH. 69.

1800 - 2030 - Visual and radio search for sed trap mooring (single large square pattern).

92/4/2 PST

0005 Finish MP 41, depart Stn.

0218 Stop on Stn MP 32

0222 5 l loop - samples taken S‰, Nut, TCO2 & Chlor.

0224 CTD # 031 to 1500 m.
S‰ inversion @ 85 - 90 m. - (0.3-0.4‰)

0322 Proceed to Stn. MZ01

0540 - MZ01 - note on CTD display: occasionally the pressure value in upper right is incorrectly momentarily displayed as something 2 characters longer than usual. I saw this flash by - one character is a % sign at the hundreds digit position. When pressure is updated, the previous last 2 characters all to the right of the normal screen position, so they stay there for ever →

(See log MP2A)

← see example.

P 371.2.3
real value stuck

This happened 4 times in one station (7×4) →

Temp. value also flashes crap when the strange characters appear in the P line. Occasionally, S does same → 2 chars left on screen to right of temp value
- major changes in 370-300 m upcast of temp and sal. look real.

2 April 92 PST

1003 ~~removed protected thermometer 13038, failed twice, does not work.~~

1145 Stopping on Stn. MZ03

1154 CTD # 034 to 1502 m.
extra number in pressure display during part of upcast

1256 Depart Stn - set course for Stn ?

1500 Stopping on Stn MZ04
CTD #035 to 1500 m
5 m loop 5‰, Nuts., TCO_2, chlor.

1608 Proceed to Stn P ?

92/4/3 PST

0947 - stn P sediment trap mooring released.
1039 - buoys on surface.
1050 - begin recovery.
1106 - trap on board
1116 - recovery complete.

92/4/4 PST

- snow on deck during 0000-0400 watch.

0711 - CTD # 36 at STN MZ05 at full winch speed ↓.
+ 5m 5 l NISKIN loop samples.
wind 20 kt NNW, (snow gone).

oxygen flask 1085 broken.

92/04/04 P.S.T. (Cont)

1352 - Arrive Stn MZ07.
1359 - 5 m, 5 L loop sample, samples taken ✓.
1400 - CTD # 03 to 1500 m.
problem with seal on A Frame; they will try to fix it (between stations) after CTD finished.
1428 - CTD on way up.

→ Programme (Alt N) bombed on way up. 1031 m.
Display
Device I/O error in line 0 of module CTD at adress 0718:76B3

→ Bombed second time - same message

1806 Stopped on Stn MZ08
1809 - CTD # 39 to 1500.

2210 Stopped on Stn MZ09
2303 Mess for shallow cast.
2338 CTD # 40 to 1500 m.
92/04/05 0150 Mess for deep cast.
0330 Plankton haul to 200 m.

92/04/05 P.S.T.

0621: Mess: Prim. prod. cast: 0, 2, 5, 10, 20, 30, 50, 70, 100 m.
0634: mess: surface PCO_2 bottle
0700: PRIMARY PRODUCTIVITY DRIFTING ARRAY launched (CH. 73 beacon)
0704: AIR SAMPLE

UTC: 1610 - AG mooring released (0810 PST)
UTC: 1720 - Trap recovered (0920 PST)
- It had sampled only to bottle #8

≈ 1400 - picked up primary prod. drifter.

1450 - Start deployment of Sediment Trap Mooring
1525 - AG4 Mooring deployed.
1535 - Underway for Stn P.

Position of AG4 mooring

Lat.: 54° 59.359' N

Long.: 145° 04.391 W

0042 - PCO_2 sample taken (air)
0046 - Stopped on Stn MZ 5
0050 - hoop sample taken (2 l.)

92/4/6 PST

1559 - glass balls supporting FDSTAR (deployed was P26 92/4/1) disturbed.
1635 - FDSTAR on board.

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR 92	MONTH 4	TIME ZONE UTC	SHIP	CRUISE 92-6	PAGE 5 OF

DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC #	STD TIME	HYDRO CONSEC #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	NOTES
5	MZ09			55 00.04			6B	0950	138	2027			Bottle Cast (1000 - 4200m) down at 10949
				145 00.0					145	2043			Haul back at 10:16
5	MZ09			55 00 0				1130					Plankton net haul
				144 59.3									from 200 m.
7	MP26		0215	47 59.15			7A	0257	146	1045			
				145 00.84					162	1064			
7	MP26			49 58.91	42	0338					6.226		CTD CAST 41 HAD A
				145 00.98		0405					32.485		LEAKY CONDUCTIVITY
7	MP26			49 59.91			7B	0706	163	1065			CONNECTOR - EASY TO PULL OUT
				145 00.62					172	1084			DO 42 using CTD 53501
7	MP26			49 58.54	44	0447					6.167		Position is SW of Stn. P
				145 01.54		0517					32.486		#43 was skipped till later
7	MP26		0837	50 00.04							6.183		Using CTD 58483
				145 00.13	45	0846					32.476		upcast separates at 700m
7	MP26			50 00.10							5.186		and rejoins at 400m
			2000	145 00.03	46	1009					32.482		CTD USING CTD #53501
8	MP49		0139	50 54.01	43	0141		0237				40	Back to Stn
			0239	144 17.24									(46) see note in log. (5m loops)
8	MP33			50 54.89	47	0504					6.357	41	
				143 34.51		0530					32.438		
8	MR20		0803	50 56.61		0814					6.133		5L, 5m loop sampled
			0915	143 00.91	48	0845		0814			32.471	42	CTD to 1510 m
8	MR19		1136	50 58.84		1141					6.702		49 Bombed.
			1248	142 19.95	50			1140			32.469	43	loops taken ✓

P.S.T.

UR 10158 broken when Niskin bottle dragged on deck.

Back on Stn P26.

Niscan cast 0 - 800 m

CTD #42

Approx. 1 Hosp. water removed from REVELLE EDR 87/63 on CTD winch.

Niscan cast 1000 - 4200

CTD #44

92/04/07
0046 CTD #45

0209 CTD #46. Entered CTD serial No 53501 in header information. When CTD reached 1510 m winch readout read 1087 with 20-25° wire angle (abt 1000 m) Checked 5‰ and temp at 1510 m and it looks more like 1000 m.
Also checked average speed comming up, on display it was 50% faster than on winch.

0313 Plankton haul from 200 m.

04/07/92

STN. P MOORING

1701 UTC - BALLS & BEACON IN WATER
- LINE CAME TOO CLOSE TO SHIP
- 1st SED. TRAP IN WATER
- BEACON TETHER WAS APPARENTLY CUT BY THE BOW THRUSTER

1731 UTC - RECOVERING MOORING TO RE-ATTACH THE BEACON.

1758 " - REDEPLOYED BEACON, BALLS & FIRST TRAP

1828 " - BAKER TRAP IN WATER.

1927 " - SECOND HONJO TRAP IN THE WATER

1915 " - DEPTH SOUNDING: 4265 m

1940 - whales on my!

1955 - changed CTD block to correct orientation.

2031 UTC - BEACON ON Ch. 71 STOPPED SENDING.

92/4/7 PST

1739 - Arr. Stn. MP49
- secured re-installed CTD probe 53, 501.

⇒ 1741 - logging into file 92060043.

1837 - 5 & 5 m loop from Niskin: S, Chl, 2 pl. net.

92/4/8 PST

0003 Arrive on Stn MR20

0014 5 m loop sample - S‰, Chl, ② net.

0015 Start CTD # 48

0115 Depart Stn.

92/4/8 P.S.T. cont.

0336 Stop on Stn MR19
0340 5 meter loop sample
0341 Start CTD # 50 (49 bombed as soon as it was started)
0448 leave MR 19
Computer clock is about 1 minute slow.

0725 saw a seal near ship during CTD upcast.

1341 - Stop on Stn MR 16
1348 - 5m loop sample, samples drawn
1349 - Start CTD 53
Computer "chime" sounded at 825 m on way up?
1443 - Depart Stn

1723 - at stn MR 15:
wind 10 kt NE, large swell from SE.
- a large amount of "small structure" in CTD profile to 600 m.
- fine structure from 650 m up repeated steady on upcast.
- considerable change in thermo/halo-cline area between up + down cast.

92/4/09 PST

1215 - Stopped on Stn MR13 - Bottle winch would not start. Electrician called out.
1225 - CTD started first instead, put A frame right out - gravity.
1250 - Pierre finished with winch - switch problem? He says hold switch down until you hear click. 4-6 seconds

DAILY LOG

OCEAN PHYSICS

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YEAR 1992	MONTH 04	TIME ZONE U.T.C.	SHIP ENDEAVOUR	CRUISE 92-06	PAGE 6 OF

DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC #	STD TIME	HYDRO CONSEC #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	NOTES
8	MR18		1500	51 00.89	51	1503				6.921	44		
				141 38.96						32.591			
8	MR17		1820	51 02.0	52	1826				7.006	45		
				140 56.0						32.412			
8	MR16		2141	51 03.83	53	2148	2148			6.944	46		loop samples ✓
			2243	140 12.71		2218				32.411			CTD to 1510 m.
9	MR15		0105	51 05.85	54	0115	0212			6.981	47		loops from 5m using 5l Niskin
			0215	139 29.15						32.443			→ S, Chl, 2 pl. nut. tubes.
9	MR14		0438	51 08.82	55	0442	0540			7.069	48		loop sample
			0541	138 46.30		0510				32.389			
9	MR13		0815	51 10.87	56	0825				7.227			* CTD done first - a problem with bottle winch - see log.
				138 04.83		0858				32.401			
9	MR13		0947	51 10.88		8A	1027	173	1003		49		5m loop sample
				138 04.76				189	1028				0-800 bottle cast.
9	MR13		1459	51 10.45		8B	1347	190	1029				
				138 05.40				197	1036				1000-3600 bottle cast.
9	MR12		1728	51 12.85	57	1732	1826			7.414	50		CTD
			1828	137 21.94		1758				32.381			Loop
9	MR11		2100	51 14.70	58	2108	2107			7.227	51		loop @ 5m, samples
			2205	136 39.50		2136				32.366			taken ✓
10	MR10		0032	51 16.61	60	0034	0132			7.468	52		WIND 15 KT N.
			0134	135 58.84						32.353			5m 1.7l loops: S, Chl, 2 nut.
10	MR9		0359	51 18.66	61	0401				7.642	53		WIND 17 KT N
			0459	135 15.11		0428				32.346			CTD + LOOP
													180 sample

92/04/09 PST cont.

At one point the pinion gear and shaft of the winch would turn when out of gear, but there wasn't enough "power" to budge the A Frame. The A Frame then started to operate normally, after 20-30 attempts. The problem will likely show up again?

The chime on the computer can be "rung" by using radio, also adds extra digits to P-T-S display. The ship also has some serious RF problems. Trans. on 8 mega will kill control board in ER.

0220
to 0252 0-800 m cast
0254 5 m bottle. Loop samples taken.

1300 - Arrive MR 11
1307 loop messenger
1308 CTD # 58 to 1510 m., Loop samples taken.
1405 Proceed to next Stn.

1209 Arrive MR08
1219 loop mess.
1220 CTD # 62 to 1510. Loop samples taken.
- Cool, mostly clear. Winds 20K N/NW, dark.
- fixed 5L surface bottle.

0344 Arrive MR07
0349 5 m. loop messenger.
0350 CTD # 63 to 1500 m. Loop samples taken.
interesting surface 5‰. Decreased dramatically since Stn MR08.

1155 Arrive on Stn MJ05
1202 Loop @ 5'm
1203 CTD # MJ05, loop samples drawn.
calm, sunny, wind 10.
1257 Depart Stn.

1442 Arrive on Stn MJ04
1445 loop @ 5 m
1446 CTD # 66, loop samples drawn
calm sunny, wind 6
Some whales sighted between Stns. ? Kind.
1542 Depart Stn at reduced speed

92/04/11 Pacific Standard Time

0120 - Arrive @ Stn MJ02.
0123 - 5 m loop sample
0124 - CTD # 069, loop samples drawn.
Calm, clear & cold. wind 14 knts N/NW.

92/04/13 P.D.T.

0930 - cleared customs after arrivals in ESQUIMALT.

DAILY LOG

OCEAN PHYSICS

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YEAR 1992	MONTH 04	TIME ZONE UTC	SHIP ENDEAVOUR	CRUISE 92-06	PAGE 7 OF

DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC #	STD TIME	HYDRO CONSEC #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #	NOTES
10	MR08		0809 0915	5120.67 13433.07	062	0820 0845		0819			8.146 32.307	054	wind 20K, North by Northwest 5m loops taken ✓
10	MR07		1144 1246	5122.96 13350.19	063	1150 1218		1149			8.878 31.976	055	wind 20K - North. 5m loops taken ✓
10	MR06		1515 1641	5125.04 133 06.88	64	1517					8.784 31.927	56	wind 11 kt N. 5m Niskin samples: S, Chl, 2 plastic nutrients
10	MJ05		1955 2057	5127.05 13224.32	65	2003		2002			8.944 31.970	57	10 knts - calm, sunny 5m loops taken ✓
10	MJ04		2242 2342	5135.15 132 06.66	66	2246 2316		2245			9.184 31.950	58	6 knts, calm, sunny loop samples taken ✓
11	MJ03		0121	5142.92 13150.32			9A	0203	198 214	1003 1028			0 - 800 m hydro
11	MJ03	2273		5142.48 13150.25	67	0233		0203			8.665 32.280	59	5m sample included in shallow cast: S, Chl, 2 nut.
11	MJ03			5142.57 13150.26			9B	0405	215 219	1029 1033			1000 - 2200 m hydro
11	MJ2A		0635 0807	5146.9 13140.98	68	0637 0716		0806			8.815 31.983	60	CTD to 2000 m to correct the cable lay on the winch. LOOP SAMPLE
* 11	MJ02		0920 1021	5150.08 13132.36	69	0924 0953		0923			9.129 31.545	61	5m. loops taken ✓ CTD to 1510 m.
11	MJ1A	1825	1140 1238	5155.4 13122.96	70	1142		1237			8.755 31.357	62	5m loops: S, Chl, 2 Nuts. CTD to 1545
11	MJ01	554	1315 1344	5159.65 13114.5	71	1317		1341			8.815 31.382	63	5m loops: S, Chl, 2 Nuts. CTD to 580

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR 1992	MONTH 04	TIME ZONE UTC	SHIP ENDEAVOUR	CRUISE 92-06	PAGE 8 OF

DAY	STATION IDENTIFICATION	DEPTH SOUNDING (m)	SHIP STOP/START TIME	LATITUDE/ LONGITUDE	STD CONSEC #	STD TIME	HYDRO CONSEC #	MESSENGER TIME	HYDRO SALINITY #	OXYGEN #	SURFACE TEMPERATURE/ SALINITY	LOOP SALINITY #		NOTES
11	MJ00	106	1408 1418	5201.85 131 10.67	72	1411		1425			8.740 31.424	64		5m loops: S, Chl, 2 nut. CTD # 122
12	MP02	111	2130 2141		73	2132		2139				65		5m loops: S, Chl, 2 nut.
12	MP01	110	2329 2340		74	2330		2338				66		5m loops: S, Chl, 2 nut.