CRUISE NUMBER 9402

DAILY LOG
INSTITUTE OF OCEAN SCIENCES
OCEAN PHYSICS

DATE 10 - 27 MAY 1994

VESSEL JOHN P. TULLY

PROJECT WOCE TRAINING

LINE P

Captain: John Anderson First Officer: Al Combs

Second Officer: _____ Third Officer: _____

Cruise Participants / Agencies: DFO / UBC

Scientific Personnel: Party Chief: Frank Whitney

Name	Watch	Cabin	Name	Watch	Cabin
Ron Perkin			Rhiannon Johnson		
John Garrett			Wendy Richardson		
Howard Freeland			Carl Stewart		
Robin Brown			Tracy Feeney		
Bernard Minkley			Bob Wilson		
Neil Sutherland			Sarah Thornton		
Dennis Sinnott			LINDA WHITE		
Terry Sowden			BILL GREEN		
Marie Bethe Bérubé			Tom Juhasz		
Taimi Mulder					

Second leg of cruise: Party Chief: Frank Whitney

Name	Watch	Cabin	Name	Watch	Cabin
John Love			Keith Johnson		
Bernard Minkley			Marty Davelaar		
Marie Robert			Philip Boyd		
Reg Bicham			Diana Varela		
Ron Belleau			Jim Powlik		
Tim Soutar					
Mark Wen					
Sean Doherty					
Hugh Mackelm					
Wendy Richardson					

Data logging system: Unit no.: _____

Program Name: _____ Program version: _____

CTD deck unit make: _____ model: _____ serial no.: _____

Computer make: _____ model: _____ serial no.: _____

1st CTD make: Guildline model: 8737 serial no.: _____

Temperature sensor model: _____ serial no.: _____

coefficients: slope: _____ offset: _____

Conductivity sensor model: _____ serial no.: _____

coefficients: slope: _____ offset: _____

Pressure sensor range: _____ psi serial no.: _____

coefficients: FSP: _____ dB offset: _____

Transmissometer model: _____ serial no.: _____

coefficients: slope: _____ offset: _____

Comments: _____

PDT for LOG

10 MAY 0840 Depart IOS dock for SHOI, head of Saanich Inlet. Beginning of WOCE training leg with 15 trainees onboard.

Transmissometer in air 92.9%.

George Chase 363-4308

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DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE N	LONGITUDE W	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS
10	SH01	ROS	1727	BE	001	48 31.459	123 32.499	GPS	~~142~~ 180	162	1-17	17		Ann wrote 17:22
			1732	BO		48 31.5	123 32.36							Data is logging to GTD3\LOCAL
			1753	EN		48 31.48	12332.475							
10	SH02	ROS	1926	BE	002	48 33.42	123 31.25	11						The Rosette hit the mud
			1932	BO		48 33.38	12331.34							
			1954	EN		48 33. 3	123 31.68		218	213	1-13	13		
10	SH04	ROS	2106	BE	003	48 39.33	123.29.91	GPS	175	165	25-35	11		
			2110	BO		48 39.26	123 29.90	-11-						
			2128	EN		48 39.21	123 30.01	-11-						
10	SH07	ROS	2256	BE	004	48 44.28	123 17.68	-11-	169	160	36-46			Rosette hit bottom
			2300	BO		48 44.23	123 17.58							
			2316	EN		48 44.20	123 17.93							
11	SH08	ROS	0046	BE	005	48 40.72	123 15.38	-11-	124	—	NO EROSONS			
			0056	BO		48 40.68	123 15.32							
			0125	EN		48 41.08	123 15.44							
11	SH09	ROS	0339	BE	6	4837.27	12314.61		225	220	63-76			
			0344	BO		4837.23	123 14.55							
			0408	EN		4836.90	12313.82							

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POSITION CODE - RAD - RADAR; GPS - GLOBAL; LOR - LORAN

11 May

~1030: Finish SH4, last station on Saanich-Haro line.

1300: Arr. in Esq. to load Lantec winch

May 11th

15:30 Sail Loop Salinity temp Sensor installed and operational

MP02 wrong station in header MP02 not accepted. Copied PLACE CTD from Physics computer and loaded into C:\CTD3\CTD ACQ directory.

0800 phone call to Damon to see if "Witness Buoy" messages. Report of 3 buoys at 48 22, 125 53. Tom phoned back to say no Witness buoy alerts, but what was seen are 3 glass balls with release, restrains of mooring EO3.

0900 ship steaming to MP03

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DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS
11	SH10	ROS	0542	BE	7	4834.16	12313.66		284	275	77-90			hit bottom wrong Sta
			0548	BO		4834.12	12313.72							in header
			0607	EN		4833.87	12313.97							
11	SH11	ROS	0726	BE	8	4829.66	12311.546		224	224	91-104			
			0733	BO		4829.60	12311.32							
			0750	EN		4829.67	123 11.54							
11	SH12	ROS	0936	BE	9	48 26 77	123 09 49		115	105	105-114			
			0940	BO		48 26 80	123 09 41							
			0955	EN		48 26 92	123 09 19							
11	SH13	ROS	1526	BE	10	48°19.15	123°13.55		109	105	115-122			CTD call left dry.
			1529	BO		48° 19.11	123° 13.67							
			1542	EN		48° 18.94	123 13.89							
11	SH14	ROS	1739	BE	11	48° 15.95	123° 25.16		154	148	123-132			Cable left dry, scrubbed.
			1744	BO		48 15.86	123 25.20							
			1758	EN		48 15.64	123 25.64							
12	JF1	Loop	0210			48 16.0	123 30.0		150	Loop				
12	JF2	Loop	0415			48 18.0	124.00.00		189	Loop				
12	JF3	Loop	0623			48 27.0	124.30.0		231	Loop				

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MAY 12 PDT

Note File CTD 94020015 missing. Cruise number set to 15 when CTD probes were changed CTD 6 to Woce. Should have been set to the last cruise used in log.

1745 Release sed. trap mooring near P04. 48 38.705 126 36.337W.
1815 Trap onboard, samples 12+13 missing, bottles broken off. Complete notation.

2026 Finished deploying sed trap ~~#~~ LA 12.

20 30 GO FLO CASTS TO 0, 2, 6, 15, 25, 45 + 3×10m

2255 TUCKER TRAWL TO 100m (1 NET TEST CAST @ 2 KNOTS)
- DIDN'T WORK - ROLLED OVER FOR SOME REASON - ALL RECOVERED O.K.

2330 NET TOWS 3 × 100m

MP04 CTD .ACQ file for 94020016 too small

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DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS
12	JF4	LOOP	0830			48° 32.50'	125° 04.00'	GPS	81	LOOP				
12	MP01	CTD	1104	BE	12	4833.97	125 30.54		131					loop samples
			1106	BO		48 33.97	125 30.59							
			1113	EN		48 3386	125 30.58							
12	P2		1318	BE	13	4835.96	126 00.06		116	100				wrong station in header.
			1320	BO		4835.93	126 00.09							CTD reads 12 lb at surface
			1322	EN		4835.72	126 00.10							loop samples
	depart line 8 search for Physics mooring on surface @ 4822 125 53.													
12	MP03	CTD	1825	BE	14	48°37.396	126°19.887		821	800				
			1837	BO	"	48°37.573	126°19.831							
			1848	EN	"	48°37.698	126°19.915							
	1850:	GO	TO	MOORING		SITE		NO	FILE	15	see note.			
12	MP04	ROS	2116	BE	16	48 39 58	126 39 78		1318					2104h Loop Samples
		"	2145	BO	16	48 39 97	126 39 64			1304				Probe powered down
		"	2232	EN	16	48 40.58	126 39.39		1325		133-153			restart cast cond
13	MP04	MOR	0115	RE		48 38.757	126 36.227		1270					erase file 16
13	MP04	MOR	0307	DE		48 38.670	126 36.166 W	GPS	1266					Start Sed. trap deployment
		MOR	0325	DE		48 38.471	126 36.373		1280					Finished " " "

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MAT 14/94

0430 3 NET TOWS TO 100m

0730 LIGHT METER CAST

0830 GO FLO'S TO 0, 3, 10, 30, 50, 60 + 3×10m

10:30 TUCKER TRAWL TEST

4:30 } ROSSETTE CAST
7:30 }

Station MP10: System crashed 4 times. Goes down to about 30 m, then crashes. John says to bring the CTD back on board. Problem with the pressure sensor. Transfer to CTD 58483

Lots of copepods in the loop water. No way to get rid of them
Transmissometer channel "on" even if we don't need it. John realised too late.
Transmissometer turned off for MP11

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13	MP05	CTD	1002	BE	17	48 41 40	127 09 78		2117	2112	Loop		JL	All loops OK
			1050	BO		48 41 06	127 10 61							
			1125	EN		48 40 73	127 11 37							
13	MP06	CTD	1333	BE	18	48°44.5	127°40.23		2574				BM	loop samples taken
			1417	BO		48°44.02	127°41.51			2576				CTD & 2576 db 20 m
			1446	EN		48°43.725	127°41.586		2573					above bottom
13	P7	CTD	1658	BE	19	48°46.620	128°10.522		2508		Loop		MR	Problem to start the software Lose its config file
			1728	BO		48°46.673	128°11.199			2540db				All loops ok
			1755	EN		48°46.712	128°12.009							
13	MP08	CTD	1956	BE	20	48 49 01	128 39 68		2522					All loops ok.
			2042	EN		48 49 34	128 40 08			2542				≈ 20m off bottom
13	MP09	CTD	2333	BE	21	48 51 19	129 09 89		2358	2411				loop sample taken
			0012	EN		48 50 70	129 09 46		& 2450					15m above bottom
14	MP10	CTD	0353	BE	22	48°53.868	129°40.447		2649		Loop taken			CTD 58483
			0435	BO		48°54.207	129°40.947			2653				Trans channel OFF
			0513	EN		48° 54 449	129° 41.798							Leave stn. @ 2220 PST
						Next Page								

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0355 [illegible] stn P12. Vertical net tows.

0616 Computer locked up. Screen not updating, just "logging" flashing, buffer showing 0
last probe power, restarted program task #25

program crashed, hit any key & return & system.
restarted program # 26.

0830 GO FLOS TO 0, 3, 10, 30, 50, 60 + 3 x 10m
10:30 TUCKER TRAWL TEST (SUCCESSFUL)

0208 hot [illegible] Velella on surface. 94/05/15

Bernard Please don't leave the Bernoulli in drive after data transfer. It crashes the system and some of the other operators don't know why !!

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14	MP11	CTD	0722	BE	23	48 56 06	130 10 15	GPS	2757	2787				Loops OK.
			0812	BO		48 56 12	130 10 98	GPS						Not logging up.
			0851	EN		48 56 15	130 11 75	GPS		Upcast	not logged.			
14	MP12	ROS	1208	BE	24	4858.42	13040.72			3213	154-176	23		loop samples taken
			1308	BO		4858.63	13041.00		3258		Niskin 1-3			last probe power @ 3083 db
			1317	EN		4858.68	13040.99							
14	MP12	ROS	1319	BE	25	4858.68	13041.00				Niskin 4-17			cast restarted @ 3040 db.
			1433	EN		4858.72	13041.46							program crashed at 3/9.9 db
	MP12	ROS	1435	BE	26	4858.72	13041.50				Niskin 18-23			restarted @ 316.3 db
			1449	EN		4858.69	130 41.66							
14	MP13	CTD	21:59	BE	27	4902.62	13139 92		2823					Loops taken
			22:42	BO		4902 98	1313895		2915	3002				
			2320	EN		4902.92	13137.83							
15	MP14	CTD	0400	BE	28	49°07 306	132°40.845	GPS	33.31		Loop taken		MR	PLEASE: DON'T LEAVE THE BOTTOM
			0446	BO		49°07 347	132° 41 747	"	3334	3002				IN !
			0514	EN		49°07.208	132° 42.546		3325					Spooling problems on the way up.
15	MP15	CTD	0904	BE	29	4912 15	133 40 56		3455	3002				
			0948	BO		4912 55	13341 49							

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MP16 program crashed twice. Deleted files, rebooted computer after deleting antivirus program from config.sys.

lots of pressure/temperature spikes in down cast.

@ Lantec pressure setting of 1500, the winch could not winch in. Changed setting to 1750 pounds.

1000 Vallela in large numbers on surface.

~ 1100 Gotfo sampling for UBC.

2130 – leave Stn 16 for Stn 17. Tucker Trawl flew OK, nets didn't trip. Vallela still abundant.

MP17 Lantec wire greased.
bottom shows 3690
CTD reads 4.5 lb on deck.

MP18 Note: File 94020033 is labeled MP17 it is MP18

I had a computer crash and after reboot the config was still at MP17.

P20: Software worked the first time! But the pinger was off so took the Rosette back on board, erase cast # 35 and re-do the whole thing. Worked the first time again!!

Speed going down ≈ 1.45 m/s

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15	MP16	ROS	1447	BE	30.	49°17.16	134°40.25		3640		177-199	23		loops taken.
			1547	BO		49°17.08	134°39.98			3676				20 m above bottom.
			1737	EN		49°16.863	134°39.412							no ctd # 31.
16	MP17	CTD	0136	BE	32.	4920.78	13539.87		3680	2982				loop taken.
			0217	BO		4920.38	13540.15							
	*		0251	EN		4917.87	13540.07							
16	MP18	CTD	0714	BE	33	4926.04	136 40.16		3841	3006				*Labeled MP17 see Note
			0750	BO		4926.02	136 40.90							loops taken.
			0825	EN		49 25.96	136 40.00							
16	MP19	CTD	1233	BE	34	49 30.09	137 40.05		3936.	3002.			BM	loops taken.
			1317	BO		4929.76	13739.88							CTD sensor offset 5.4 db
				EN										
16	MP20	ROS	1812	BE	35	49°33.98	138° 39.92		3973	4025	200-222	23		Loops taken
			1858	BO		49 3390	138 39 80							.ACQ file size too small
			2036	EN		49 33 89	138 40 52							
16	MP20	MOR	2231	RE		49 34.23	138 37.70							

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Recovery of rosette which would not come in at 1500 setting
Changed to 1750 start OK.
4.7 on meter with 90° wire angle. 4000 metre depth

At 3000 metre rosette would not come in at 1750 setting
moved up to 2000, worked OK
When winch is coming in at 1 m/s Tension on meter 4.0 90° angle
hydraulic pressure read 1500 lbs.

At 3000 metre winch switched back to 1750 3.8 on Tension meter 90° ∠
winch start OK Leave on 1750 for remainder of cast. Hydrolic pressure at
1500 on winch readout.

Recovery at 1.2 m/s 3.8 on meter. depth 2800

1410 - Stopped on position QEP-1 (H)

Ranged on 6977
" 8884 -
" 7617
1417. " 4098
" N/A
" N/A
Ranged on B529 Rec + Ex 1549
6707
2340
3665
2363
9824
5495

Thrusthaulers
2
3
1
1
1
1

1439 over side transducer
B529 5435
6977 7738
pulse 4573
5843

1450 transmitted 6978 on over side 'ducer' got rec + Executed but no range -

1513 - on surface channel 68

P 20 MAY 16/94

4:30 - LIGHT METER CAST

5:50 UBC GoFLO's To 0, 3, 10, 35, 50, 70 + 4×10m

8:20 TUCKER TRAWL To 500m

MP24 #39 Start cast, test probe power, deleted cast and started again.
Tried to lower Rosette at 1.3 m/s but had to slow down to 1.0 m/s. Bungee system was underdoing.
Haul in pressure 1400 to 1500 lbs.
CTD stopped 25m above bottom.
Bungee cord broke at 3600 lb. Captain ordered bungee removed completely.

Bottle Niskin # 9, Cons # 237, @ 2401 m: took 3 times to trigger the bottle.
" # 10 " # 236, @ 2200 m: " 2 " " " " "
940260039.ACQ file size only 11,964., should be at least 5,000,000.

MP25 Program crash if any other disk is left in drive other than the logging disks C, D.

When program starts it crashes as you cursor up To Cons # when you do a restart file is a 58483 file with project called junk and all zeros in data slope offset.

After removing disk out of A drive program functioned OK. SL

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17	MP21	CTD	0858	BE	36	49 37 94	139 40 17	GPS	3966	3000				
			0939	BO		4938 24	13940.46							No Problems.
			10:09	EN		49 38 53	139 40.69							
17	MP22	CTD	1420	BE	37	49°41.89	140°40.00		3893					had to reboot system
			1455	BO		49°41.949	140°39.214			3005.8				loop samples taken
			1521	EN		49°42.107	140°38.760		3824					
17	MP23	CTD	1941	BE	38	49 45 68	141 39 90		4040	3001				
			2031	BO		4945 187	141 39 221							No Problems.
			2110	EN		49 44 533	141 38 805							
18	MP24	ROS	0140	BE	39	49°49.97	142°39.79		3978	4040	223-245	23		lost deck unit power.
			0238	BO		49°49.39	142°38.93			(3968 m)				loop samples taken.
			0415	EN		49°48.88	142°38.70							
18	MP25	CTD	0858	BE	40	49 59 919	143 36 081							Loop samples taken.
			09:36	BO		49 59 381	143 35 253							See note about program
			10:10	EN		50 00 042	143 33 706							No Problems with cast
18	MP35	CTD	1342	BE	41	50 00,03	144 18.18		4139	3003				CTD pressure at deck = 4.2 db.
			1423	BO		4959.72	14417.92							loops taken

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18 May 94

Ran CHKDSK /F on drive C seven files created. C:\FILE0000.CHK might be missing data from 94020039.ACQ.
D: drive has 4 files created with CHKDSK /F
File0000.CHK 688128 = lost data from 94020010.ACQ
01. 2531328 = lost data from 94020016.ACQ
02. 1318912 lost data from 94020021.ACQ
03. 4743168 = lost data from 94020035.ACQ
04. 5057232 = lost data from 94020039.ACQ

MP35 Lantec keypad control not left in stop position after station MA25
Rad CTD data at 890 lb. Temp/salinity shifted.
" " " 1050 lb.
CTD 58483 Temperature sensor has shifted as down and up cast. Data not the same.
Temperature sensor rotten tubing separated from sensor housing, allowing seawater to enter.

94/5/18 1040 FOCSTAR DEPLOYMENT CH 12 LONG PULSE CH 69 SHORT PULSE

1430 Released 3800 m trap at P26. Recovered all samples.

1800- Recovered 2 traps near P26 (200+1000m traps).

TUCKER TRAWL complete

Rig Shallow Rosette.

Only logging to drive > This seems to correct the disk problem so

7:16 ; Lowed winch hydraulic motor leaking. Good news is drive chain gets automatically oiled

Salinity shift between down and up cast.

19 MAY 1300 Start deployment of PA23 Sediment Trap mooring. TRAPS at 200, 1000 + 3800m on single mooring.

1510 Mooring released 18 mi West of P26.

1625 TUCKER TRAWL START

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DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS
	MP35	CTD	1426	BE	42	4959.72	14417.90		4139.					upcast of #41.
			1458	EN		4959.56	14417.76							
18	MP26	MOR	1933	DE		50 01.628N	144 43.333W	GPS	4189	1000 m				FD☆in 10mi from P26
	MP26	MOR	2225	RE		50 04.57 N	144 59.91 W	GPS	4214					3800m SEQ. TRAP at surface
19	MP26	MOR	0120	RE		50 03.006	145 03.747	GPS	4242					200+1000m SEQ. TRAPS
19	MP26		0810	BE	TOW	50 00 001	145 00586	GPS	4238					
			0827	RE		49 59763	145 01374	GPS	4237			START		NET TRAPS
			0851	EN		4959470	145 02387							
19	MP26	ROS	10:04	BE	A3	50 00 181	144 59832	GPS	4238		246-257			Seg. note - drifted over bossing to D.
			1037	BO		50 00 10	145 00.02			2000				T451 1.971 shallow cast
			1127	EN		49°59.79	145°00.30							P 2099 1994.5
19	MP26	ROS	1237	BE	44	50°00.661	144°59 28		4238m		258-280			Deep Rosette Cast
			1350	BO		50°00.20	144°59.19			4304 db (4224 m)				25m above bottom.
			1532	EN		49°59.63	144°59 26							
19	MP26	MOR	2114	DE		50 00.105N	145 08.305W		4238m					3 SEQ. TRAPS DEPLOYED near P26
20	MP26	ROS	0759	BE	45	49°59 615	144°59.111	GPS	4237m					Shallow Rosette cast
			0828	BO		49°59.219	144°59.342			1501				for POC (Frank)
			0907	EN		49°58.512	145°00.049		4176					

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POSITION CODE - RAD - RADAR; GPS - GLOBAL; LOR - LORAN

POC cast for Frank

CTD # 45

$58.483

CTD Probe

Pressure Sensor	Thermometer	Pressure	Temp
P 2099	T451		
14980 Dbar	2.354	1500.3	2.353
	=2.359		

1445 recovered productivity drifter @ 5003.09 14455.64

Removed digital thermometer from shallow Rosette and mounted them on deep Rosette on bottle 14.

Wind speed 30 to 34 knots, seas increasing.

21 May 0800-1100 Go-Flo casts to 150m at P26 for Prod + DOC work.

1307-1350 Deployed 6 drifters in a 0.5nmi box, 3 deep + 3 shallows

1550-1630 Recovered FD drifting trap mooring.

1645 Switched CTD from locking Lanier on to 329 winch

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DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m)	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS
21	MP26	DRF	1405	BE		50 01.054	145 00.658		4238	100m		9	JO	CH74 pulse 73 cont. Prod drifter
		DRF	2145	EN		50 03.09	144.55.64							
21	MP26	DRF	2007	BE		49 45.498	145 00.046	GPS	4238	Shallow				Drogue # 22211
	|	DRF	2031	BE		49 59.495	145 00.356	|	|	Deep				" 5112
		DRF	2038	BE		49 59.476	145 00.801			Shallow				" 22216
		DRF	2046	BE		50 00.120	145 00.790			Deep				" 5113
		DRF	2049	BE		50 00.005	145 00.465			Shallow				Drogue 22208
	V	DRF	2053	BE		49 59.994	144 59.990	V	V	Deep				" 5114
21	MP26	DRF		EN										
21			2249	RE		5004.34	144 35.48							FD STAR recovery
	And WOCE Probe.				Conductivity	cell cleaned with Hcl 10% & DI H2O.								Probe 58483 also
22	R16	CTD	21:24	BE	46	51 03 07	140 14 03	GPS	3762	2999				
			22:00	BO		51 03 25	140 13 82							Dam cast only
			2228	EN		51 02 830	140 13 779					1		Loop Salinity
23	MR12	CTD	1007	BE	47	51 12 912	137 23 110	GPS	3637	3000		1		Loop Salinity
			1043	BO		51 12 244	137 22 672							
			1115	EN		51 11.50	137 23.57							

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MR08 program lost probe power three times. When program started two files (.ACQ) were not written properly on D: drive.

CHKDSK /F found lost clusters

FILE0005.CHK	819,200	94/6/23	23:25:11.52
FILE0006.CHK	52,344	94/5/23	00:01:17.44

Rosette Bottle 23 lanyard did not release

Bottle 12 trip mechanism did not operate

DAILY LOG

OCEAN PHYSICS

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DAY (UTC)	STATION ID	CAST TYPE	TIME (UTC)	TIME CODE	STD/HYDRO CONSEC #	LATITUDE	LONGITUDE	POSITION CODE	BOTTOM DEPTH (m)	MAX SAMPLING DEPTH (m) Db	CONSEC SAMPLE #	# OF BOTTLES	INIT	COMMENTS
23	MR08	R05	2230	BE	48	51 21.13	134 32.89	GPS		0-352	281-303	23		
				EN										
23	MR08		2244	BE	49	5120.95	13433.05		3346	408-200				start @ 412 Db.
			2317	BO		5120.32	13433.44							lost probe power
23	MR08		2335	BE	50	5120.03	13433.56		3346	1681-168				start @ 1680
24			0001	EN		51 19.53	13433.70							lost probe power
24			0001	BE	51	5119.51	13433.70			154-63				51 start @ 147 Db.
			00	EN										lost probe power.
			0004	BE	52	5119.47	13433.77			46-10				
			0005	EN		5119.43	13433.74							

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