

CRN

91-03

DAILY LOG

INSTITUTE OF OCEAN SCIENCES
OCEAN PHYSICS

DATE 19 Feb - 11 March, 91

VESSEL Tully

PROJECT Papa

L 52 C 1 IA 477k c:\newctd\ctdclib.txt
3.000

Probe Serial # 53,501

Temperature Sensor #53,237	Installed	89/08/03
Temperature coefficients.		
OFFSET	SLOPE	DATE
-.364759D-02	1.00039	89/08/14
-.71875D-04	1.00010	91/01/30

Conductivity sensor #52,474		
Conductivity coefficients for Ratio fit		
OFFSET	SLOPE	DATE
.620108D-03	0.99979	89/8/03
-.54222D-03	1.00040	91/01/30

Pressure coefficients.

3200 psi sensor installed

Enter slope value of 2000 ie for 2000 Dbar range.

OFFSET	SLOPE	DATE
0.0000	2000	89/6/10

9000 psi sensor installed Sn. 53,390

new CTD Temp 0 1
 cond 0 1
 press 3000.

91-03

Captain: _____
 Second Officer: _____

First Officer: _____
 Third Officer: _____

Cruise Participants/Agencies: Climate Chemistry, Ocean Physics

Scientific Personnel: Party Chief: Ron Bellegay G

name	watch	cabin	name	watch	cabin
Bernard Minkley	8-12	F			
Jin Ping Wu	8-12	D	U.B.C.		
Darren Thelle	12-4	E			
Tim Sontar	12-4	H			
Reg Bigham	4-8	A			
Gilles Desmeules	4-8	C	UNIV. OF QUEBEC		

 second leg of cruise: Party Chief: Rimouski

third leg of cruise: Party Chief: _____

DATA LOGGING SYSTEM:

Unit number: 2program ver. 1.1

CTD deck unit make: <u>Guil</u>	model: <u>87107</u>	serial no.: <u>57160</u>
Computer make: <u>HPV</u>	model: <u>Vertra</u>	serial no.: <u>2738A05390</u>
monitor make: <u>NFC</u>	model: <u>2A</u>	serial no.: _____
printer make: <u>Star</u>	model: <u>radix-10</u>	serial no.: _____

1st CTD make: GuilLine model: 8715 serial no.: 53501
 temperature sensor model: 87401 serial no.: 53237
 coefficients: slope: _____ offset: _____
 conductivity sensor model: 87410 serial no.: 52474
 coefficients: slope: _____ offset: _____
 pressure sensor range: _____ psi serial no.: _____
 coefficients: FSP: 2000 dB offset: _____
 transmissometer model: n/a serial no.: _____
 coefficients: slope: _____ offset: _____
 Comments: used for all CTDs on cruise

2nd CTD make: _____ model: _____ 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: _____

WINCHES:

CTD make: Swann model: 310 serial no.: 1082
 counter make: Rev'l's model: _____ serial no.: _____
 HYDRO make: Swann model: 305 serial no.: 1084
 counter make: Rev'l's model: _____ serial no.: _____
 Spooling make: Swann model: 455 serial no.: 1451
 Drag make: _____ model: _____ serial no.: _____
 other make: "Coastal" model: 250 serial no.: 351
Harrison + Robinson
 Salinometer make: Guildline model: 8400 serial no.: 40364

SAIL System:

program version: CSAIL time zone: UTC
 sampling interval: 120 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: _____

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: _____

19 Feb. 91 P.S.T.

1600 Depart I.O.S.

Tested CTD and hydro winches

1800 Safety equipment of ship shown to scientific party.

2059 Stn JF01 loop samples, SAIL temperature reads 18.56 when real temp close to 8.0°C

2257 Stn JF02 loop samples

0610 Stn MP01 loop samples, 5% mist & clear.

20 February PST

0820 SAIL position data is after missing.

When doing CTD's make sure D drive is in its
root directory (ie D:\)

1014 Standardized oxygen reagents. 10ml digital pipette broke.
Stn MPO3

1145 arrive at Sediment Trap position

1245 start hauling trap on board.

1307 Sediment trap on board. release onboard

1320 Left station

1809 Arr. MPO5 CTD 007 to 1498 m.

1847 Depart Stn all loops taken
Saunders U/S

2105 CTD at Stn MPO6 to 2000 db. deep samples
bottle cast ~~0-800~~, ~~1000-2500~~. 0-2500.

2155 completed CTD,
hydra winch surging

CTD DW file ext. of .DER

\CTD\VS\VScon.DEF

3 4 <NV
DEL

YEAR	1991	MONTH	2	TIME ZONE	UTC	SHIP	Tully	CRUISE	91-03	PAGE	1	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
19	Dock		4839.21 12327.12	1	2242							14A	Dockside Test
20	JF01	0459	4816.0 12330.5								1		natural + TCO2
20	JF02	0657	4818.5 12400.42								2		
20	JF03	0910	4826.55 12430.78								3		Loop, not, chlor
20	JF04	1125	4832.84 12500.18								4		
20	MP01	1349 1350	4834.5 1419 12529.73	02	1356 1401						5		loop - not chlor taken 50/100
20	MP01		4834.40 1420 12529.89	03	1410					8.443 31.353	5		First cast taken with TEST position
20	MP02	1637	4836.00 1648 12600.00	4	1639					8.339 32.282	6		
20	MP03	1814	4837.47 1840 12620.11	5	1819					8.415 32.231	7		CTD ↓ 827m
20	MP04	2145	4838.94 12639.84	6	2159	6	2332	1- 1001 19 1028	8.189 32.325				CTD HYDRO TO 1200m
21	MP05	0209	4841.45 0247 12709.84	07	0214					7.936 32.343	8		loops taken - filler to 1428 m.
21	MP06	0452	4844.48 0747 12737.84	8	0504	8	0656	20 1029 41 1052	7.845 32.305		9		

FEB 21 / 91

Local Time

2100 - Read thermometers

0955 - On station MP07
- Leave station

surf temp -
surf sal -

2000 db 10:20

0445 - P.S.T. CTD MP08 Consec #10 to 1500 m
loop taken 5700 m. Chlor & TCO

0735 Stop on Stn MP09

0737 - Start CTD down Consec #11
large wire angle of $40-50^\circ$ astern, during cast.
- analyzed oxygen samples from cast 6 and 8.

1322 - MP 11 CTD to 2000 db rain, wind 10 kn
Leave station

1612 - Arrive Stn MP12

1614 - Start CTD No. 14 to 1500 m.

Pump repaired from CTD, iron weight
now used.

(0945 UTC)

0145 - Arrive MP 14 Cast 1500 db

(1031)
Leave station

0231

1147 arrive Stn MP16 - CTD - 2000 db
bottle casts - 0-800/1000 - 3500

0105 - Arrive MP 18 - Vectra won't allow input or changes
this cast MP 17 2/23/91 0905 UTC
Wind too severe for hydro cast.

YEAR 91		MONTH 2		TIME ZONE UTC		SHIP TULLY		CRUISE 91-03		PAGE 2 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
21	MP07	2540	0955 48 46.30 1039 28 09.66	9	0958	/	/			7.616 32.343	10	✓	CTD TO 1998 db Chloro, Sal, nutrients, CO ₂
21	MP08	—	1245 48 48.85 1337 28 39.64	10	1251	/	/			7.471 32.373	11	✓	all loops taken ✓ CTD to 1499.8 m
21	MP09	—	1535 48 51.17 1635 29 09.39	11	1537	/	/			7.359 32.445	12	✓	
21	MP10		1837 48 53.40 1917 29 39.73	12	1839	/	/			7.668 32.470	13	✓	all loops taken, wind 19 @ 32° CTD to 1507
21	MP11	/	2126 48 55.77 2210 30 09.31	13	2129	/	/			7.850 32.485	14	✓	CTD TO 2000 db all loops taken, rain
22	MP12	/	0012 48 57.96 0055 30 39.15	14	0014	/	/			7.855 32.476	15	✓	CTD to 1500 m loop samples ✓
22	MP13	/	0458 49 02.37 0537 31 39.53	15	0503	/	/			7.984 32.486	16	✓	CTD to 1500 db
22	MP14	/	0947 49 07.07 1030 32 39.59	16	0952	/	/			7.655 32.496	17	✓	CTD TO 1500 db all loops DIED ✓
22	MP15	—	1450 49 11.62 1530 33 39.68	17	1453	/	/			7.011 32.520	18		CTD to 1500 db all loops taken
22	MP16	/	1947 49 16.53 0015 34 39.93	18	2010	18	2143	42 1082 65 2009	7.197 32.512	19	✓	CTD TO 2000 db all loops Done	
23	MP17		0420 49 20.52 0457 35 40.05	19	0423	/	/			7.473 32.505	20	✓	1509 m CTD
23	MP18	/	0905 49 25.68 1304 40.00	20	0908	Hydro not done				7.105 32.520	21	✓	Comp log will show cast as mp 17-CTD 2000 db loops done

22 Feb 97 PST

2200 Transmitted KKXX message CTD #19.

Changed 4 protected thermometers (differences greater than .05)

23 Feb

0645 - Arrive Stn MP19.

0653 - Start CTD #22 to 1500

- loops taken

0730 - depart Stn.

0200 Hydro cast at MP18 was not done. Wind too severe. Payed out 2460m of CTD line for 2000 db cast. During bottle cast, 200m wire out, angle $\pm 60^\circ$ captain called it off!

1025 Transmitted KKXX from CTD #20 and 21 using IMARSAT system.

oxygen sample from MP18 analyzed and plotted.

1222 depart MP20 for sediment trap position.

1235 on location, release activated.

1850 - Arrive Stn MP21.

med. chop, light rain.

1856 - CTD No. 23 to 1501.7 m.

Loop samples taken - $\checkmark$

1935 - Depart Stn.

2340 Stn MP22. Computer turns in 2 min. slow.
Wind 24 knots.
CTD to 1517.

0010 LV Stn

0407

arrive Stn MP23

0411

CTD No. 25 to 1502 m

loops $\checkmark$

0448

depart Stn.

24 Feb. PST

0800 reset computer clock.

0852 Str MP24 CTD #26

Large swell, wind 27 knots ship rolling around a lot. Rubbin mat at A-frame slippery! then deck.

1000 Transmitted KKX message of CTD for MP20, MP22 and MP24.

1317 Arrive MP25 Wind gusty 30-35 kn / 19 swells
1400 Lu " "

1648 - Arr. Str MP35

loops taken

1659 - CTD # 28 to 1500 ft.

Headlines for MZ line as weather is too rough to do better casts at Papa.

2132 Str MP41 CTD to 1600, loop samples.
Wind 29 knots.

Port A-frame hydraulic line leaks, making centre A-frame deck very slippery.

2250 Transmitted KKX message of CTD # 27 and 29, Strs MP25 and MP41.

0045 - Arrive MP32

0130 - Lu MP32 going ZOI

0424 Arr. MZO1

loops.

Winds 35 knots, seas getting very choppy!

0429 CTD # 31 to 1510 m.

0522 leave Str.

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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
23	MP19	-	1445 49 29.51	21 1453						7.017	22	✓	loops taken. ✓ CTD to 1501.7
23	MP20	/	1530 137 39.55	22 1945						32.541	23	✓	loops taken ✓ CTD to 1500
24	MP21	/	1943 49 33.69							6.803			
			2022 138 40.15	23 0259						32.543	24	✓	Loops taken ✓ CTD - 1501 db.
24	MP22	/	0254 49 37.32	24 0736						6.902	25	✓	Loops ✓ CTD 1500
			0336 139 39.81							32.545			
24	MP23	-	0735 49 41.35	25 1211						6.634	26	✓	Loops ✓ CTD to 1502.6
			0815 140 39.38	26 1656						32.555	27	✓	Loops ✓ CTD to 1502.6
24	MP24	-	1203 49 45.00	27 2124						6.325	28	✓	Loops ✓ CTD to 1502.6
			1248 141 39.58							32.544			
24	MP25	/	1652 49 48.95	28 0059						6.527	29	✓	Loops ✓ CTD - 1500
			1732 142 40.55	29 0532						32.545	30	✓	Loops ✓ CTD - 1500
25	MP35	/	2117 49 58.99	30 0840						6.058	31	✓	Loops ✓ CTD - 1500
			2200 143 36.36							32.562			
25	MP41	/	0048 49 59.24	31 1229						6.290	32	✓	Loops ✓ CTD - 1500
			0136 144 18.47							32.554			
25	MP32	/	0527 50 28.29	32 1610						5.944	33	✓	Loops ✓ CTD - 1500
			0610 144 59.82							32.593			
25	M701	/	0843 50 54.86							6.035			
			0929 144 59.26							32.558			
25	M702	/	1224 51 21.76							5.818			
			1322 144 59.52							32.613			
25	M702	/	1604 51 48.77							5.686			
			1658 144 57.71							32.621			

25 Feb.

0804 Stn M202 Wind 30 knts, large swell.
CTD to 1400m wire jumped off ~~hook~~ wheel and rimmed. Used ~~16~~ ¹⁰ lbs
tension off wire. Cable not damaged.

0945 Transmitted KKXX of CTD# 32 Stn M202.

CTD SHELL screen routings of derived quantities
and mapping routines need a user friendly
interface written. I am unable to make any
sense of instructions.

1145 M203 CTD Loops

245 arrive M204 CTD Loops
1520 LV M204 WIND 22 Kn

1806 arrive M205
1807 loops taken
1812 CTD to Sm.
wind 22 knts @ 130° T.
1856 depart Stn.

2230 Compaq Computer failed. Power supply module
burnt out?

2300 Transmitted KKXX of CTD# 36, Stn M206.

26 Feb 1991

0851 M207

0424 Stop in M208
loops ✓

0427 CTD No 38 to
wind 20 knts @ 090° T.
depart Stn.

VSCOM, PRN

VS PLOT, PLT

26 Feb.

0800 Rebooted SAIL computer. Was not updating screen, probably since yesterday afternoon.

Reset CTD computer's time

Computer crashed after ALTS was pressed to stop logging. It gave pressure reading of 444 when probe was at 1500.

0854 completed CTD

0930 Transmitted KKXX of CTD# 39, M209

0942 engine sediment trap location 54 59.77 145 04.67
release robe sent.

1140 Sediment trap on board
Sediment trap deployed
start 0-800m bottle cast
1000 to 4000m bottle cast

1842 CTD# 40 to 1300
CTD# 41 is upcast of 40. Unusual temperature profile at 125m.

2020 Transmitted KKXX of CTD# 40.

27 Feb.

0800 CSAIL Program had locked up during the night when A drive disk became full. To restart the program I had to make a directory on new disk before program would start.

0900 analyzed oxygen samples from cast #40.

1300 analyzed salinity, temp samples gathered to late and samples from cast #40

D:\91030100.DER

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25	MZ03	✓	1911 52 12.70 1958 144 59.71	33	1915	✓	✓			5.366 32.637	34	✓	CTD 1500 LOOPS ✓ Wind 28 kn SE
25	MZ04	✓	2244 52 39.84 2320 144 59.23	34	2245	✓	✓			5.058 32.644	35	✓	CTD 1500 LOOPS ✓ Wind
26	MZ05	✓	0206 53 06.45 0256 144 59.46	35	0212	✓	✓			5.035 32.655	36	✓	CTD to 1501.3 m. loops ✓ Wind 22 @ 130°
26	MZ06	✓	0540 53 33.57 0618 144 59.51	36	0543	✓	✓			4.891 32.673	37	✓	1508 db
26	MZ07	✓	0856 54 00.62 0937 145 00.99	37	0900	✓	✓			4.969 32.653	38	✓	1500 db LOOPS ✓ Wind 20 SE
26	MZ08	✓	1224 54 27.63 1306 144 59.63	38	1227	✓	✓			4.891 32.666	39	✓	CTD to 1500 m. loops ✓ Wind 20 @ 090°
26	MZ09	✓	1610 54 54.74 144 59.42	39	1618	✓	✓			4.209 32.740	40	✓	1506.
27	MZ09		0242 55 00.51 144 59.74	40	0249	40	2356 66 2014 0127 90 2042			4.034 32.741		✓	CTD done after bottle cast
27	MZ09		0327 55 02.54 144 58.82	41	0308							✓	repeat of 40. 55 00.53 144 58.13
28	MP26	✓	0318 50 01.49 145 00.33	42	0347 0325					6.272 32.568	41	✓	CTD to 2002.9 db.
02 mar	MP26	✓	1940 50 01.46 2035 144 59.69	43	1945	✓	✓			6.164. 32.575	-	✓	LOOP
03/03	MP26		1635 50 01.262 144 59.565	44	1643	44	1303 91 1001 1454 118 1038			6.071 32.580		✓	CTD to 2003.9 db.

27 Feb.

1500 fire and boat drill
reversing thermometers read by Reg and Bales.

28 Feb.

0955 DEPLOYED FDSTAR NEAR STN PAPA (10 MILES).
deployed new trap test mooring
recover Sta Papa #17 sediment mooring.

2000 CTD time incorrect. Fast by 23 min.
2011 finish CTD. Wrong time in CTD header
for CTD #42

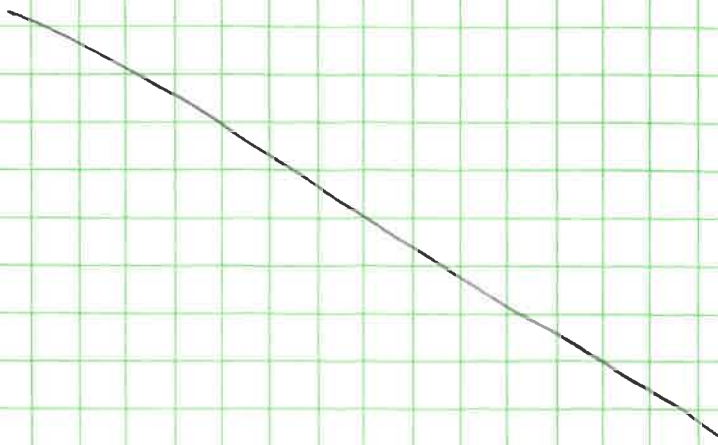
2030 Plankton haul to 100 m
Bottle cast cancelled due to 30 knot winds.

Transmitted KKKX of CTD #42.

1 March 91

0821 Wind 30-35 knots. No bottle cast work possible.

2 March

- 0010 Seawater pump not working, pump failure.
Engineer's hope to have it working by this afternoon.
- 0700 productivity cast to 100 m for Ocean Chemistry
Computer time wrong, gave 1525 when correct
time was 1623.
- 0830 - deploy productivity sample incubator
50 03.96 144 58.60
- Seawater loop working again, but with reduced pressure.
 - Put new lanyards on 10 new bottle messengers
purchased from Wildco.
 - Retrieved test mooring of sediment trap
- 1145 CTD #43 to 2000 m. Wind 25-30 knots
large swells. Bad data at record 13237
- 1330 attempted to send KXX message but unable
to lock onto Satellite, probably because of heavy rolling
- 1345 located drifting incubator.
- 1415 incubator on board.
- 1430 Bottle cast cancelled due to weather.
- 1641 Transmitted KXX of CTD #43.
- 

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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
3	MP26		5000 14500	\		45	1955	119 146	1082 2013				bottle cast 0-800, 1000-4200
3			5000 14500	\			2330	147 154	\				Tridium cast 0-800
4	MP26	0329	5001.27 14500.03	45	0330	\				6.089 32.578		✓	CTD - 2000 m cal bottle 2 m above data starts at 45 db.
4	MP26			46	0405	\		42 34.570	1.904 34.599			—	Calibration file only depth of CTD 2028.8
5	MP49	0123 0210	50°54'89 144°16'79	48	0145	\	\			5.710 32.596	43	✓	#47 scratch loop taken depth CTD 1500 db
5	MP33	0455 0534	5055.02 14334.52	49	0501	\	\			5.933 32.574	44	✓	1514 db.
5	R20	0738 0812	5056.54 14301.08	50	0741	\	\	\	\	6.032 32.577	45	✓	CTD
5	R19	1056 1130	5058.75 14219.61	51	1057	\	\	\	\	5.915 32.583	46	✓	CTD 1500 db Loops - S ₂ , TC ₀₂ Nut, chl.
5	MR18	1407 1445	50°59.65 141°38.14	53	1410	\	\	\	\	6.231 32.546	47	✓	loop taken 1503.4 db #52 is garbage
5	MR17	1731 1814	5101.68 14055.27	54	1737	\	\	\	\	6.175 32.533	48	✓	
5	MR16	2055 2136	5103.60 14012.59	55	2057	\	\	\	\	6.065 32.557	49	✓	All loops CTD 1498 db
6	MR15	0020 0054	5105.51 13924.48	56	0015 0023	\	\	\	\	6.140 32.529	50	✓	loop taken Depth CTD 1503.9 db

3 March 1991

- 04 - Start 4200 m bottle cast, 0-800 m.
- Start 1000-4200
08 - finished cast. O₂, TCO, S‰ & nutrients taken.
- thermos read.
0843 - CTD consec #44 to 2000 m. - Stn P
- sunny, calm.

1000 Ocean chem bottle cast to 500 m.
large volume samples -

1222 - Start 4200 m bottle cast.

1450 - finish 4200 m cast. O₂ and S‰ is taken.

1500 - 3 rushing to 800 m. - Tritium samples & T₀

1600 - - finish Tritium cast.

1929 - MP26 ON station - CTD to 2028 db

CTD Cal bottle $\approx$ 2m above CTD

mess. sent 7:55 Cal file started 8:07:53
est. impact

CTD #45 data does not start until 45 db.

Blame Rex. It's his cast.

Plot program can only process one CTD correctly at a time. When asked to plot two, the second plot was not positioned correctly and gave continuous line feed command to printer after second plot completed.

Problem with plot program?

2126 Transmitted KKXX of CTD #44.

6554 11.2 20.15 5957 12.5 2.12

11.2 20.15 127 2.12

4 March PST

Recover FOSTAR

0945 depart for str 49

1000 Seawater pump shut off to allow engineers to install repaired regulating valve.

1050 Seawater loop back on.

1723 - Stopped on MP 32

Power was off on deck unit - delay

1745 - CTD Consec #48 * to 1500 m, loops taken.
* consec #47?

1810 - depart str.

2057 Sh MP 33

5 March

0610 Sh MK 18 CTD #52 - no data - discard

0933 sh MR 17 CTD turn slow by 3 min.
CTD march hydraulics not working properly. Engineer
switched pumps & OK.
Wind speed 25 knots.

1100 Transmitted KKXX of CTD #54.

1937 STD consecutive number is 58 RATHER THAN 57

2332 completed CTD #59
hydro cont to 3650.

D:\SIERRA

D:\

CTD

YEAR	91	MONTH	3	TIME ZONE	UTC	SHIP	Tully	CRUISE	91-03	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
6	MR14	~	03h39 51°08.80 04h19 138°46.88	58	03h40	/	/	/	6.371 32.521	51	✓	14A	ALL LOOPS TAKEN CTD TO 1502.7 db
6	MR13		0656 51°10.84 1040 138°05.21	59	0701	59	0805	155 1003 179 1038	6.471 32.534	52	✓		1512 on manual counts - 1510 on CTD - Hydro 3500
6	MR12	~ 3600	1328 51°12.88 1404 137°22.01	60	13h30	/	/	/	6.485 32.552	53	✓		ALL LOOPS TAKEN CTD TO 1501.6 db
6	MR11		1640 51°14.82 1717 136°39.74	61	1644	/	/	/	6.275 32.585	54	✓		
6	MR10	/	1942 51°16.68 2020 135°57.66	62	1947	/	/	/	6.319 32.567	55	✓		computer time OK 1502 db CTD
6/7	MR09	/	2308 51°18.51 0230 135°14.82	63	2309	63	0017 180 0129 203	1042 1067	6.168 32.545	56	✓		Hydro 3500 1501.1 CTD
7	MR8		0507 51°20.74 0543 134°33.25	64	0511	/	/	/	6.534 32.524	57	✓		
7	MR7	/	0816 51°22.90 133°50.38	66	0818	/	#65 deleted	/	6.390 32.438	58	✓		CTD 1501.4 Loops / wind 25 220°
7	MR6	/	1135 51°25.14 1213 133°06	67	1138	/	/	/	6.516 32.323	59	✓		CTD 1500.4 db Loops
7	MJ05	/	1509 51°26.94 1541 132°24.91	68	1508	/	/	/	7.055 31.930	60	✗		Loops TAKEN CTD TO 1504.2
7	MJ04		1721 51°34.97 1811 132°07.27	69	1725	/	/	/	6.759 32.318	61	✓		
7	MJ03	2320	1939 51°42.87 2204 131°50.73	70	1943	70	2119	204 225	6.611 32.285	62	✓		1503.2 CTD Hydro

March 6/91, PST.

- 0528 - Stop on Stn MR 12
0530 - CTD # 60 to ^{5m}
- loops taken, S₁₀₀, Nut, Chlor, ✓
0604 - Depart Stn.
* 0611 - Switched fluorometer from X10 to 3.16
0836 - ETA Stn MR 11
0900 CSAIL program locked-up. Disk on A: drive full, program did not transfer to drive B. Made directory tree on 3 1/2 high density disk, rebooted computer.
0938 Transmitted KKXX of CTD # 61, Stn MR 11.
Stn MR 07 cond number 65 deleted?
2125 Stn MR 08 CTD time 0556 current time 0525
31 min. fast.
2215 Sent KKXX of CTD # 64.

7 March

- 0707 - arrive Stn MJ05*.
0708 - Start CTD No. 68
CTD to 1508 m.
loops taken. ✓
* Surface water structure (250m) entirely different. Strong currents.
0741 - depart Stn.

7 March

0906 Transmitted KKXX of CTD# 68, str M505

1000 put cable ties and vulcanizing tape on CTD cable termination wires to help keep them from separating when wire pulled too close to block.

1143 Str M503 CTD# 70
Wind 20-25 knots.

1620 digital barometer shift separated. Obtained 5 min. repair from engineers to make repair.

2029 Transmitted KKXX of CTD# 73, str MJ1A.

2300 Seawater loop pressure low.

8 March

0539- Stop on MH05
0545- CTD No. 79 to 1501 cm.

loops taken.

- showers, wind 20/25 knots, dark.

0620 - Depart Sta.

Note: The position in the answer file for M605 does not correspond with cruise plan list.

0912 Switched seawater sampling pump to lower pump, sufficient flow in lab now.

1112 Transmitted KKXX of CTD# 80

2150 Transmitted KKXX of CTD# 83

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7	J2A	/	2302	51°46.94	71	2304	/	/	/	6.526	63	✓	S% only loop J2A
			2340	131°41.32			/	/	/	32.258			CTD 1501.0 db
8	MJ02	/	0020	51°50.94	72	0024	/	/	/	6.606	64	✓	LOOP TAKEN
			0055	131°32.46			/	/	/	32.307			CTD 1504.9 db
✓ 8	MJ1A	/	0141	51°55.80	73	0145	/	/	/	6.861	65	✗	LOOP TAKEN
			0214	131°33.34			/	/	/	32.300			CTD 1502.9 db
8	MJ01	475	0258	52°00.06	74	0300	/	/	/	6.865	66	✓	Loop S% taken
		480	0316	131°14.35			/	/	/	32.202			CTD 474.1 meter
8	MJ00	145	0334	52°02.04	75	0337	/	/	/	6.791	67	✓	Loop S% taken
			0344	131°10.68			/	/	/	32.365			CTD 138.9 db
8	M088		0552	51°41.14	76	0554	/	/	/	6.833	68	✓	
			0627	131°13.98			/	/	/	32.318			
8	MI03	/	0823	51°22.44	77	0825	/	/	/	7.118	69	✓	CTD 1500.3
			0858	131°14.05			/	/	/	31.737			Loop - S%
8	M089	/	1106	51°02.73	78	1108	/	/	/	6.751	70	-	CTD 1501 db
				131°11.21			/	/	/	32.439			Loop - S%
8	MH05	/	1339	50°42.82	79	1345	/	/	/	6.955	71	✓	Loop S%
			1420	131°08.17			/	/	/	32.504			CTD 1501.4 db
8	MG05	/	1704	50°24.33	80	1707	/	/	/	6.704	72	✗	CTD 1506
				130°37.24			/	/	/	32.404			
8	MF05	/	2054	50°05.81	81	2057	/	/	/	7.388	73	✓	1501.2 db
			2126	130°06.03			/	/	/	32.506			Loop S%
9	ME05	/	0020	49°47.88	82	0022	/	/	/	7.1312	74	✓	Loop S% taken
			0054	129°35.51			/	/	/	32.455			CTD 1503.5 db

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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
9	MD06	2448	0433 49°16.09 0509 129°08.47	83	0437					7.242 32.389	75	✓	CTD 150.6
9	P8*	2253	827 48°48.82 902 128°39.44	84	0832					7.382 32.412	76	✓	CTD 1501.4 (*originally labelled MEOS - check data record)
9	MB07		1229 48°21.61 1304 128°08.91	85	1232					7.552 32.442	77	✓	CTD 1502.26 S% Loop
9	MB06	2560	1420 48°31.47 1456 127°55.92	86	1426					7.597 32.439	78	✓	CTD 1501.4 db S% Loop
9	MB05		1613 48°41.60 1716 127°42.13	87	1618					7.638 32.470	79	X	#87 Bad data.
9	MB04		1831 48°51.70 1907 127°28.61	89	1834					7.463 32.412	80	✓	CTD 150.9.
9	MB3A		1950 48°56.69 127°21.63	90	1951					7.532 32.360	81	✓	
9	MB03		2111 49°02.18 2310 127°15.02	91	2113	91	2232	226 1042 245 1066	7.507 32.362	82	✓	HYDRO CTD 1510.4	
9	MB2A	1170	2350 49°06.92 0017 127°08.384	92	2353					8.031 32.356	83	✓	S% Loop taken CTD 1161.0 db
10	MB02	2026	0056 49°11.99 0104 127°01.51	93	0051					8.022 31.984	84	✓	S% Loop CTD 205.9 db
10	MB1A	172.5	0145 49°16.79 0153 126°54.72	94	0146					7.993 31.890	85	✓	CTD 151.5 db S% Loop
10	MB01	✓	0236 49°21.78 0245 126°49.16	95	0240					7.618 30.787	86	✓	CTD 98.8 db S% Loop

9 MARCH . P.S. Time

49 16.0 / 129 09.0

Position of MDOB different in Str answer file compared to Cruise plan list.

0429 Arrive Str B07

Noticed that the previous Str was labelled wrongly in the log. - Changed to P8 from MEDS - Should check data record.

0432 - CTD No. 85 to 5m.

- loops taken
- calm, raining

0815

CSAIL found latched. Power failure? Program does not test if Junks are in A & B drives.

0813

Str MB05 CTD# 88

Test "Coastal" man with 7 and, run on it.

Wire on winch - 675 m.; last 40/50m quite rusty, the remainder appears in good shape.

Payout speed 1.9/2.0m/sec for full length of wire.
Recovery speed 1.9m/sec for full length of wire.

There is a periodic hammer of one of the hydraulic valves, has the 10 year old hydraulic fluid and/or filter been changed? There is probable condensate in the oil. It surged at slow speed going out. There are a few mechanical noises which seem to be rubbing and scraping. The winch has not been greased recently (10 years?).

Approx. dimensions of drum.

18" x 27 1/2" - 28", depth of flange 3 5/16"

Les Spearling probably still has his original drawings which will be exact.

9 March cont. P.S.T.

0951 Transmitted KXX of CTD #88

Pinger put on below CTD for CTD's # 93 - end

2341 Transmitted KXX of CTD #92

10 March

0903 Weather sunny with cloudy periods, rain squalls.
Transmitted KXX of CTD #106

Who changed salinometer temperature bath setting?
GOOD QUESTION BERNARD.

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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	MB00	36	0348 0358	49°29.84 126°36.59	96	0350	/	/	/	/	7.556 29.589	87	✓	CTD 40db % Loop
10	M0AB	106	0605 0613	49°11.12 126°29.87	97	0608					7.586 31.113	88	✓	CTD 6 102
10	MA00	✓	0822	49°07.75 126°00.40	98	0825					7.536 29.921	89	✓	CTD 40 Loop ✓ S ₂₀₀
10	MA0B	58	0902 0912	49°03.91 126°05.72	99	0906					7.735 31.287	90	✓	CTD 55 Loop S ₂₀₀
10	MA01	83.6	0950 0956	49°00.66 126°11.55	100	0951					7.926 31.624	91	✓	CTD 83.6 Loop S ₂₀₀
10	MA1B	138	1036 1042	48°55.30 126°17.89	101	1038					7.811 31.780	92	✓	CTD Loop S ₂₀₀
10	MA02	180	1133 1141	48°50.29 126°25.06	102	1133					7.878 31.905	93	✓	CTD 173.1 db Loop - S ₂₀₀
10	MA2B	459	1224 1237	48°45.24 126°31.80	103	1226	/	/	/	/	7.847 31.939	94	✓	CTD 450 db Loop - S ₂₀₀
10	MA03	✓	1318 1341	48°40.26 126°38.52	104	1331	/	/	/	/	7.982 32.212	95	✓	CTD 1253.1 Loop S ₂₀₀
10	MA3B	1485	1425 1455	48°36.32 126°43.96	105	1426	/	/	/	/	7.924 32.253	96	✓	CTD 1460.6 db Loop Cation
10	MA04	2165	1545 1623	48°30.23 126°52.24	106	1550					7.964 32.150	97	X	CTD 1508
10	MA05	2627	1742 1817	48°20.22 127°05.74	107	1745					8.103 32.394	98	✓	CTD 1509

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10	MP03	823	2135 2156	48 37.45 126 19 85	108	2140	/	/	/	8.081 31.001	99		CTD 812.9 db Loop S‰
10	MP02	120	2320 2346	48 35.84 126 00.13	109	2340	/	/	/	8.358 29.652	100		114 db CTD Loop S‰ Fine & Boat Drills
11	MP01	1259	0320 0328	48 34.46 125 30.62	110	0322	/	/	/	8.120 30.538	101		CTD to 124.3 loop for S‰.
11	JF4\$												Loop
11	JF3\$					0726					102		Loop S‰
	JF2\$												Loop
11	JF1\$	1115									103		Loop S‰
									</				