

DAILY LOG

CRUISE
NUMBER

2000-24

INSTITUTE OF OCEAN SCIENCES

OCEAN SCIENCES AND PRODUCTIVITY DIVISION

DATE

24 JULY 2000

VESSEL

JOHN P. TULLY

PROJECT

ENDEAVOUR RIDGE - MPA
EFFINGHAM INLET - NSERC

July 24/2000

2000-24 con file 0550FLUR.COM primary

Labels Dart-5
con file

1800 PDT: Depart IOS Jetty. CALM, CLEAR, WARM

1900 " TEST CTD STATION IN SAATCH INLET / 83m in water depth 90m.

July 25 @0000 Deploy GPS ramfile 20305. Wind ~25kts from west
Proceed to MAIN VENT FIELD. Fog Horn Sounded ALL NIGHT.

0845 PDT July 25 ER2024 01 ER2024 02 ER2024 03 are the T/S data files so far.

ER202401 - start evening July 24 display not advancing min set at 207.5 J
(app. 2030) ✓ max at 208 J
- data stopped at 207.2445 J

ER202402 - started up 0830 July 25 - very short file used to learn how to set up display.

ER202403 - started up app. 0840 - displaying correctly
- set better display parameters

WATER SAMPLING

ALICE
LAURA

RUBEN
CHRIS
JEN

MOVING

TOM DAVE DAVE
Rick Steve

2. 1m 1. 1m 1

ACOUSTICS

Rick Steve

July 25/2000

WATCHES

0800 - 1200
1200 - 0400
0400 - 0800

TOM / DAVE R
DAVE S / CHRIS / JEN
Rick / Steve / Laura

} ALICE
+ RUBEN

ACOUSTICS:

- ① Get depth from time ($Z(t)$ from CTD)
Also, in-water time, max depth (WASP will see bottom) and surface.
- ② Need DAY/NIGHT CASTS AT MAIN VENT FIELD
Sample @ 0.5m/s descent rate

③ # OF CASTS
with WASP

ER01 = 2
ER02A,B = 2
ER03 = 1
ER04(?) = 1

WASP MOORING SITE = 1

TOTAL (MINIMUM) CASTS = 7

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OCEAN SCIENCES AND PRODUCTIVITY DIVISION																INSTITUTE OF OCEAN SCIENCES															
Year		2000				Month		JULY		Ship		TULLY				Cruise I.D.				2024											
Day	Station I.D.	Cast Type	Time (UTC)	Time Code	Consec. Number	Latitude	Longitude	Position Code	Bottom Depth	Max Depth	Consec Sample #	# of Bottles	initials	Comments																	
24					1.	AT 109	100 CLK							air cal of flux.																	
4	SIØ1	CTD	1900 PDT		2	48°41'	123°29'		90m					TEST STATION/ SARINICH INLET																	
25	JF B3	DRFT	0728 UTC			48°13.788	123°34.999							METOCEN 2030 S																	
26	ERØ1	CTD WASP	0702 UTC		4	47°57.565	129°05.586		2170m		1-23	102	UTC	and 09:02																	
ALICE ORTMANN & Ruben Keefind draw samples (23 bottles). Bottle #19 did not fire.																															
26	ERØ2B	CTD WASP	1012 BE		5	47°54.537	129°12.001		2315	2414	1-24																				
26	ERØ3B	ROS WASP	1348:40 BE		6	47°50.023	129°22.008		2496	2514	1-18																				
26	ERØ4B	CTD WASP	18:05.23 BE		7	47°42.505	129°38.973		2705	2732																					
26	ERØ1	ROS WASP	23:04:00 BE		8	47°57.598	129°5.561		2168	2196	1	1		2m above bottom!																	
			2400100											Bottle For Ruben																	
26	ERØ2A	ROS WASP	01:36 BE		9	47°57.44	129°13.044		2370	2372				Winch Hydraulics problems.																	
			03:42 EN		9	47°57.513	129°13.023																								
27	ERØ1 UW	MOOR	17245			47°56.281	129°05.884		2174																						
27	WASP2	CTD WASP	20:5351 BE		10	48°25.669	128°54.163		2224	2256	1-18		R.T	did HIT BOTTOM!																	

Cast type:

BOT = otter cast
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NET = net haul
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Proposed: 47°56.300 129°05.850
MOORING SITE

1 red
2 blue
3 green
4 brown

July 25/2000

WASP 8 Setup parameters.

PING WIDTH: $500 \mu s$

PING INTERVAL: 1 SEC

Lockout: $\emptyset$ m

Number of bins: 250

Approx. Range 500 m

of $50 \mu s$ samples/bin = 55

of pings to integrate = 001

1130 PDT July 25. Arrived at Station (main vent) to find T.A. Thompson (Peter Rona)

on site with JASON. Mapping/Imaging. Discussion concerning Clocuella.
Negotiated with Peter. Paul Frost talked with Captain. Five then 1/2 mile.

July 26: MIDNIGHT. LIGHT RAIN. WIND $\approx$ 20-25 kts.

0000 START CAST ERD 1. To NE of PROPOSED site. Thompson with Peter Rona on station.

Top of plume: $\sim$ 1820 m (1st hint of plume).

1860 m. Refracts plume.

1915 m. enter main plume

2010 m. main core

2070 bottom peak

2110 large spike near bottom

Good strong plume with 2 lobes.
Plume begins @ 1860 m.

Probe to within 10 m of bottom.

WATER SAMPLES ON UPGAST

Alice: BACTERIAL & VIRUS SPECIES VS depth

Ruben: POC; DIC Phytoplankton (large volumes; integrate bottles)

Thomson/Mihaly: Following CAST ERØ1, decided to leave transducer on Rosette. Did not dump data. One file.

Following STATION ERØ1 proceeded to STN ERØ2B, to WSW of ERØ1. Plume search roughly 10 km downstream

STATION ERØ2B 0320 PDT 10 km SW of VENT SITE

① 1950 m — 1st strong hint
2000 m — strong plume
2055 m — two tier plume structure
2180 m — Bottom of main plume

Max Depth CTD = 2412 m (Pinger system still working)
BOTTLES ON WAY UP.

STATION ERØ3B (47°50.00' ; 129°22.00' W) ≈ 2500 m. Bumpy/Unid = 20° kts from 180°
25 km to WSW of vent

1st
[Hint of plume @ 1890 m
"Strong" plume starts @ 1910 m
Plume ends by about 1930 m
2nd Deep plume @ 2110 m
Out of plume around 2320 m

20 m above bottom.

1890
- 1930]
30 kws
2000 - 3 IN
2300
3 Bottle

1660 1710
1435 1760

1810
1895
1910
1925
1940
1960
1980

2050
2150
2250

2350
2425
2500

2300
2350
2400

cable measurement @ 2400 out 3100, 3130, 3150, 3090, 3010 under tension *

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27	WASP 2	CTD	2252	EN	.	48° 25.691	126° 54.141			210	42448			END CAST
28	FLUX 5	ROS	1013	BE	11	48° 40.045	126° 51.036		1268	1265	1-7	1		10m OFF BOTTOM
			1047	BO		48 40.045	126° 51.057							FROM SOUNDER
✓ 4	FLUX 3		1101	BE	"	48 40.064	126° 51.101		1268		45903			1100 - Bottom
			1114	BO		48 40.059	126° 51.105			1257		1		core water layer
✓ 11	FLUX 4		1120	BE	"	48° 40.027	126° 51.148		1278		47222			FLUX 3,4,7
			1130	BO		48° 40.023	126° 51.148			1264		1		profile from
✓ 11	FLUX 7		1138	BE	"	48° 39.965	126° 51.197		1281		48472			1000m.
			1146	BO		48° 38.962	126° 51.288			1269		1		
✓ 11	FLUX 6		1212	BE	"	48° 39.855	126° 51.276		1287		50833			fall profile from
			1236	BO		48° 39.856	126° 51.285			1275		3		surface.
			1310	EN		48° 39.	126° 51.				210.54065			
11	LD 10	CTD	1429	BE	12	48 32.242	126 36.544		1473	1476				Begin LINE D
			1536	EN		48 32.211	126 36.725							
11	LD 9	CTD	16:27	BE	13	48 35.655	126 30.035		1055	1045				
			17:21	EN		48 35.774	126 30.978							
11	LD 8	CTD	18:10	BE	14	48 39.239	126 23.240		764	721				Backed up to D:
			18:41	EN		48 39.179	126 23.400							

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40

- cable ϕ measurements under tension at 1050 m. 3090, 3095, 3100, 3105

ERØ4B. NO PLUME. SLIGHT NOISE at plume depth?

PROCEED TO ERØ1 FOR DAYLIGHT CAST. winds down, overcast. Some drizzle.

ERØ1 WEATHER IMPROVING. Plume start @ 1832 m. Main plume starts at 1930 m.
ONE OF BEST PLUMES EVER. Thompson 1/2 mile to South.

ERØ2A - winch stopped at 612 m for engineering ~5 min.
stopped call at 895 m - pump leaking - 2 min.

- plume trace 1897-1900 m. 1900 } top plume
1970 }
- second plume 2000 - weaker 2000 } bottom plume
2040 }

stopped 2370 m - ~30 m above bottom.

26 JULY, 2000 PDT

WASP RECOVERED FROM ROSETTE AT APPROX 2000 PDT. TRANSDUCER DISCONNECTED AT ROSETTE, WHEN RECONNECTED IN LAB, PINGER WAS NOT FUNCTIONING. HOWEVER, WASP INDICATED 2598 (HEX) BLOCKS OF DATA. THIS TRANSLATES TO 9624 BLOCKS AND GEORGES READ WASP PROGRAM TRANSLATES THIS TO 39,419,904 Bytes OR 75808 ENSEMBLES AT 1 ping/s THIS IS ~ 21.057 h. IT IS THOUGHT THAT THE TRANSDUCER WAS DISCONNECTED ~ 4 UTC KNOWN TO BE TURNED ON AT 6:56 UTC. THAT IS 21:067 h. LIKELY THE DISCONNECTION OF THE TRANSDUCER CAN SHUT OFF THE WASP.

TIMING

WASP TIME	04:30:23
GPS TIMES	04:30:16

WASP2 - Station to NE of main vent site.
48°25.716N, 128°54.114W.

- STATION NAME FOR FILE HEADERS IS WRONG.
SHOULD BE WASP2 DEPTH IS 2230 m

- CTD Hit bottom, transmissometer showing mud on chain? large spikes on upward
→ Ricks fault

FLUX5 - sampling from bottom - raise to 1000m, travel to
next station.

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28	LD07	CTD	19:31	BE	15	48°42.651	126°16.659		430			Ø			
			19:46	BO	11	48°42.634	126°16.738			452				10m off bottom	
			19:55	EN		48°42.649	126°16.786								
28	LD06	CTD	20:43	BE	16	48°46.215	126°10.188		138			Ø		10m off bottom	
			20:49	BO		48°46.237	126°10.251		1	121					
			20:55	EN		48°46.207	126°10.230								
28	LD05	CTD	21:38	BE	17	48°49.767	126°03.665		91			Ø		20240017 dat	
			21:43	BO		48°49.641	126°03.579			76					
			21:45	EN		48°49.637	126°03.567								
28	LD04	CTD	22:30	BE	18	48°53.084	125°57.087		64			Ø			
			22:32	BO		48°53.071	125°57.075			54					
			22:33	EN		48°53.076	125°57.057								
28	LD03	CTD	23:17	BE	19	48°56.594	125°50.280		47	32.8					
			23:23	BO											
			23:25	EN		48°56.521	125°50.213								
28	LD02		23:55	BE	20	48°58.372	125°47.081		43/5						
			23:58	BO		48°58.354	125°47.092			30					
			23:59	EN		48°58.351	125°47.099								

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MOORING ERO1 JULY 27/2000
SW OF MAIN VENT SITE

3734 TIME ID WATER
43173 16:59:22 UTC
43166

1m - 5/16 AM GAL FIN
RCMS (505) # 5970 (Sonarous Return)
46.95 - 1/4 AM GAL

35630
44847
1m - 5/16 AM GAL FIN
TIME IN WATER (INSTN) 17:05:10 UTC

RCMS (504) # 8730 (paddle wheel)

46.75m - 1/4 AM GAL

32987

43113

1m - 5/16 AM GAL FIN
RCMS (502) # 8729 (paddle wheel)
TIME IN WATER 17:06:00 UTC

46.95m - 1/4 AM GAL

47481

44889

1m - 5/16 AM GAL

TIME IN WATER 17:08:20
RCMS (501) # 8558 (paddle wheel)

46.95m - 1/4 AM GAL

41932

47493

1m - 5/16 AM GAL

TIME IN WATER 17:11:25 UTC
RCMS (503) # 8556 (paddle wheel)

24.28m - 1/4 AM GAL

44045 - TRANSDUCER XT 6000

Sounder depth @ anchor away: 2174m
LAT/LONG 47 56.281 129 05.886
ANCHOR HEIGHT
DEPTH

0094183

TO 1090D #524

8442

Rel. Code ABCD

Waym COIFG

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29	LDØ1	CTD		BE	21				35	28.5				ON THE BEACH
			01:33	BO	21	49 00.166	125 43.753							
			01:34	EN	21	.171	.748							
29	EFF13	Rosette	03:50	BE	22	48 56.400	125 10.732		105		1-8	8		
				BO	"	48 56.357	125 10.735							
			04:05	EN	"	48 56.276	125 10.7400							
29	EFF12	Rosette	4:41	BE	23	48 57.995	125 10.519		94.5	90	9-15	7		
			4:49	BO	"	48 58.004	125 10.491							
			4:56	EN	"	48 58.033	125 10.502							
29	EFF11	Rosette	5:20	BE	24	48 59.102	125 11.007		85	80	16-21	6		
			5:25	BO	"	48 59.097	125 11.018							
			5:32	EN	"	48 59.098	125 11.018							
29	EFF10	Rosette	5:49	BE	25	48 59.831	125 11.229		103	98	22-29	8		
			5:56	BO	"	48 59.828	125 11.243							
			6:05	EN	"	48 59.830	125 11.238							
29	EFF09	Rosette	6:19	BE	26	49 00.092	125 10.860		63		30-36	7		
			6:23	BO	"	49 00.094	125 10.859							
			6:30	EN	"	49 00.080	125 10.865							

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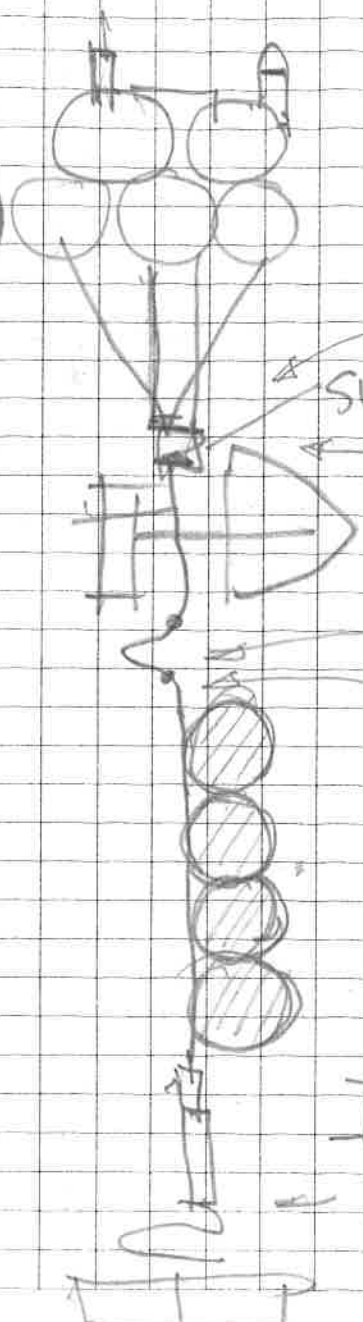
DE = deployment time
MR = messenger release time
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WASP II CAST: of WASP2.

@ 00107/27 23:10:51 UNPLUGGED WASP

Steve unplugged WASP on bench following cast. Prepare WASP for morning at this site

ERWASP5



NOVATECH VHF K12-089
NOVATECH XE ST400A #B1535

ARGOS #2772
X76000 Rel 15 kHz Reply 8 kHz
isolate 7/16 φ 1/2" φ

RCM 8 10698 tail 8-3

5 m 5/16" wire
7/16" φ
SG754611
" 44892
36103

1/2" φ swivel 5/8" φ 1" φ

IO1090D#452 Rel CDEF Rearm CDFG 8 kHz

1" φ 3 m 1" ploy 7/8" φ 800 lb Nitro on 2 m chain

July 27 (PDT)
WASP #8

18:40 PDT WASP (+7)

18:41 PDT RELEASE

2237 m Depth

18:44 PDT Anchor Aweigh

(Time July 28 01:44 UTC)
Deployed after dinner:

Anchor Aweigh:

48° 25.751
128 54.026

Depth = 2239 m

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29	EFF08	Rosette	6:46	BE	27	49 00.641	125 10.262		88		37-42	7		note: Sample 43 not taken Depth Changed
				BO	"	49	125							Hit Bottom - Range Change on Ringer
			6:56	EN	"	49 00.651	125 10.257							
29	EFF07A	Rosette	7:12	BE	28	49 00 885	125 09.816		137		44-54	11		
				BO	"	49°00'883	125 09.822			126				
			7:31	EN	"	49°00'884	125°09'821							
29	EFF07	ROS	7:47	BE	29	49°01.235	125°09'410		120		55-63	9		
			7:51	BO	"	49°01.240	125°09'486			110				
			7:58	EN	"	49°01.235	125°09'406							
29	EFF06	ROS	8:16	BE	30	49°01.780	125°09'183		150		64-73	10		20240030. dat (ref. only)
			8:21	BO	"	49°01.772	125°09'193			143				
			8:34	EN	"	49°01.784	125°09'193							
29	EFF05A	ROS	8:57	BE	31	49°02.191	125°09'163		193		74-88	15		Position different to list
			9:04	BO	"	49°02.163	125°09'146			185				Sample 88 Lost lanyard
			9:18	EN	"	49°02.167	125°09'151							tangled.
29	EFF05	ROS	9:35	BE	32	49°02.520	125°09'153		202		89-107	19		
			9:43	BO	"	49°02.	125°09'			196.4				
			10:00	EN	"	49°02.525	125°09'152							

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July 28/

FLUX 5 site. Cold Seep. Arrive early morning. Plan is to profile CTD/Rosette to the bottom, take water samples, near bottom, then raise CTD to 1000 m and tow to next site.

Alee sample for Bacteria/Virus @ bottom of each site.

Quite large transmissometer signal beginning 868 m

FLUX 5 Bottom 1265 - Sample taken ~10 m above bottom

Up to 1000 m over to next site (10:55) 48°40.061, 126 51.102 - 1268 m.
- no change in properties while dragging

FLUX 3 Bottom 1257 - Sample taken - 10 m above bottom
move up to 1000 m - over to next site

← 100 ml sample for George Spence

11:20 - next station - bring down to bottom 1278 m.

FLUX 4 Bottom 1265 m, sample collected
up to 1000 m to move to next site

← 100 ml sample for George Spence

11:38 - next station 1281 m

FLUX 7 Bottom 1269 m Sample taken, up to 1000 m
~10 m above bottom

FLUX 6 - main site, bring to surface for full profile of water column.

- depth 1287 m, start profile 12:12.
- 860 m decrease in transmissometer measurements.
- 1160 m - beginning of cold water layer
- 3 bottles fired at 1275 m, ~5 m off bottom.

← 100 ml sample for George S.

NOTE TURBIDITY LAYER AROUND 950-1000 m,

28/7/00

LD10 large transmissometer signal @ 870 m

LD07

from 150 - 220 m + 230 - 280 m and big swing from
350 - bottom
(moved up on our way back)

LD06

transmissometer excursion at bottom of cast, however 15 m off bottom
(120 m)

LD04

only 3 knot winds and no waves.
- true for all of 28/7/00 (and D Line)

STATION JF07. DOWNCAST - Strange T & S turbulent-like structure at 20 m
in 31 m of water. T & S suggest density inversion over 3-4 m.
UPCAST did not show inversion. Steve Michalek thinks this is a
'bump'.

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29	EF05	ROS	10.19	BE	33	49°02.529	125°09.156		202		1-9	9		Samples for Reuben
			10.22	BO	"	49°02	125°09			40				
			10.24	EN	"	49°02.525	125°09.166							
29	EF04A	ROS	10.47	BE	34	49°02.882	125°09.145		190		108-123	16		Logging debris all
			10.55	BO	"	49°02.	125°09			185				over surface
			11.11	EN	"	49°02.916	125°09.165							B#17 had little H ₂ O.
29	EF04	ROS	11.33	BE	35	49°03.108	125°08.588		63.5	55	124-129	6		Bottle #7 had
			11.40	BO	"	49°03.107	125°08.576							little water
			11.45	EN	"	49°03.108	125°08.583							
29	EF03A	ROS	12.02	BE	36	49°03.792	125°08.077		85.25	81.4	130-137	8		Bottle 9 fired but
			12.07	BO		49°03.799	125°09.081							NO water collected
			12.14	EN		49°03.804	125°09.082							
29	EF03	ROS	12.27	BE	37	49°04.232	125°09.376		119.0	115	138-151	14		
			12.33	BO	"	49°04.234	125°09.375							
			12.50	EN	"	49°04.248	125°09.391							Samples for Reuben.
29	EF02A	ROS	13.11	BE	38	49°04.503	125°09.759		99	98	152-162	11		
			13.18	BO	"	49°04.507	125°09.767							
			13.27	EN	"	49°04.515	125°09.766							

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29/07/00.

EF 4A Bottle No #17 bottle EMPTY and NO sample taken.

EF 04 Bottle #7 had very little water.

EF 03A Bottle #9 fired but NO water collected.

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Year 2000					Month July			Ship				Cruise I.D.		
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29	EF02	ROS	13:41	BE	39	49 04.997	125 10.205		69	66	163-170	8		
			13:46	BO	"	49 05.002	125 10.314							
			13:51	EN	"	49 05.011	125 10.331							
29	EF01	ROS	14:13	BE	40	49 05.533	125 11.597		35.5	30	171-174	4		backed-up to Cast #40
			14:17	BO	"	49 05.534	125 11.595							
			14:20	EN	"	49 05.536	125 11.592							
29	JFF02	CTD	21:08	BE	41	48 30.451	124 29.823		141	134				
			21:19	BO	"	48 30.470	124 29.810							
			21:22	EN	"	48 30.472	124 29.821							
29	JFF01	CTD	21:37	BE	42	48 31.192	124 29.893		106	100				listed in file as JFF01, -actually JFF01A.
	JFF01A		21:44	BO	"	48 31.081	124 29.875							
			21:48	EN	"	48 31.104	124 29.894							
29	JFF01	CTD	22:21	BE	43	48 31.839	124 29.808		53	46				recorded in file as JFF01 Correct.
	Correct		22:23	BO	"	48 31.850	124 29.783							
			22:25	EN	"	48 31.854	124 29.758							
29	JFF03	CTD	22:53	BE	44	48 28.614	124 30.040		213	200				
			23:00	BO	"	48 28.617	124 30.017							
			23:05	EN	"	48 28.620	124 29.977							

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Year					Month <i>July</i>			Ship				Cruise I.D.		
Day	Station I.D.	Cast Type	Time (UTC)	Time Code	Consec. Number	Latitude	Longitude	Position Code	Bottom Depth	Max Depth	Consec Sample #	# of Bottles	initials	Comments
29	JFF04	CTD	23:25	BE	45	48 26.562	124 29.988		233	224				Sunny/light wind
			23:34	BO	"	48 26.538	124 30.083							
			23:39	EN	"	48 26.540	124 30.075							
30	JFF05	CTD	00:01	BE	46	48 24.499	124 30.114		212	207				
			00:11	BO	"	48 24.573	124 30.205							
			00:15	EN	"	48 24.592	124 30.208							
30	JFF06	CTD	00:37	BE	47	48 22.564	124 30.025		110	106				
			00:45	BO	"	48 22.543	124 30.079							
			00:49	EN	"	48 22.507	124 30.111							
30	JFF07	CTD	01:11	BE	48	48 21.064	124 30.119		31	25				Sunny/light wind
			01:17	BO	"	" 21.105	" 30.289							within 2-3 m of bottom. See note
			01:19	EN	"	" 21.111	" 30.308							regarding "bump".
30	JFE07	CTD	02:46	BE	49	48 16.448	124 15.131		91	106				sunny / 8 knot
			02:52	BO	"	48 16.511	124 15.174							winds. Re-positioning
			02:55	EN	"	48 16.474	124 15.177							for wire angle.
30	JFE06	CTD	3:12	BE	50	48 17.633	124 15.016		173	169				
			3:21	BO	"	48 17.672	124 15.056							
			3:26	EN	"	48 17.694	124 15.022							

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30	JFE05	CTD	3:54	BE	51	48 19.361	124 15.072		214	208.5				
			4:01	BO	"	48 19.409	124 15.225							
			4:07	EN	"	48 19.448	124 15.237							
30	JFE04	CTD	4:33	BE	52	48 21.309	124 15.034		223	217				
			4:40	BO	"	48 21.372	124 14.996							
			4:46	EN	"	48 21.387	124 15.063							
30	JFE03	CTD	5:07	BE	53	48 23.241	124 14.983		185	180				
			5:12	BO	"	48 23.256	124 14.947							
			5:17	EN	"	48 23.242	124 14.938							
30	JFE02	CTD	5:41	BE	54	48 25.243	124 14.998		137	133	175	1		Took calibration sample @ 133.0
			5:47	BO	"	48 25.171	124 14.972							
			5:50	EN	"	48 25.143	124 14.926							
30	JFE01	CTD	6:14	BE	55	48 27.207	124 14.980		30	25				
			6:17	BO	"	42 27.230	124 15.015							
			6:19	EN	"	42 27.227	124 15.016							
30	JFD1	CTD	7:36	BE	56	48°23.042	123°59.904		62					CHRIS, JEN, DAVE
			7:40	BO	"	48°23.041	123°59.939			59.7				
			7:43	EN	"	48 23.053	123 59 925							

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30	JFD 2	CTD	7:59	BE	57	48°21.772	123°59.881		124					20240057.01	
			8:04	BO	"	48°21.771	123°59.907			119					
			8:08	EN	"	48°21.763	123°59.907								
30	JFD 3	CTD	8:33	BE	58	48°19.623	123°59.979		169		176	1		Calibration Sample taken	
		ROS	8:40	BO	"	48°19.633	123°59.967			161.5				at 161.43 dbar	
			8:46	EN	"	48°19.633	123°59.948								
30	JFD 4	CTD	9:14	BE	59	48°17.712	124°00.024		189					(REBOOTED COMPUTER)	
			9:20	BO	"	48°17.662	124°00.039			185				INITIAL COMPUTER	
			9:25	EN	"	48°17.586	124°00.001							PROBLEM, "CANNOT	
30	JFD 5	CTD	9:42	BE	60	48°15.798	124°00.054		183					(FIND LAT LONG)	
			9:49	BO	"	48°15.793	124°00.251			177					
			9:54	EN	"	48°15.746	124°00.360								
30	JFD 6	CTD	10:15	BE	61	48°13.808	124°00.009		122						
			10:19	BO	"	48°13.777	124°59.997			114					
			10:22	EN	"	48°13.774	124°59.999								
30	JFD 7	CTD	10:48	BE	62	48°11.797	124°00.034		46					Big Surface Echo	
			10:50	BO	"	48°11.765	124°00.056			40				MIGHT BE FISH!	
			10:54	EN	"	48°11.778	124°00.046							No clouds/STARRY NIGHT	
30	JFC 6	CTD	12:08	BE	63	48°10.406	123°45.022		52	47				sunrise, few clouds	

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30	JFC6	CTD	12:13	BO	"	48 10.423	123 45.029								
			12:14	EN	"	48 10.426	123 45.032								
30	JFC4	CTD	12:45	BE	64	48 14.385	123 45.089		167	161				calm sea state	
			12:51	BO	"	" " .365	" " .112							winds minimal	
			12:56	EN	"	" " .348	" " .149							and foggy.	
Proceed to Victoria Const Guard Station to Pick up Angelica Peña and Darren Tuelle.															
30	CAL01	CTD	16:18	BE	65	48 22.493	123 26.147		79		177-179	3	72.90	Calibration Cast	
			16:20	BO	"					73			62.75 50.65	No real stable	
			16:24	EN	"	48°22.537	123°26.117							layer developed	
														Backed up Cast 65 To D: Drive.	
30	CAL02	IRRADIANCE SENSOR				Angelica Peña, Darren Tuelle + Beth Bornhold.		DRIFT / CAST TESTS							
	1		1300			Report for Home									
	</														

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