

CRN

93 03

DAILY LOG

INSTITUTE OF OCEAN SCIENCES
OCEAN PHYSICS

DATE

MARCH 6, 1993 to 18 March

VESSEL

JOHN P. TULLY

PROJECT

LINE P

93-03

Captain: JOHN ANDERSON

First Officer:

Second Officer:

Third Officer:

Cruise Participants/Agencies:

Scientific Personnel: Party Chief: RON PERKIN

Name	Watch	Cabin	Name	Watch	Cabin
RON BELLEGAY	8-12	G	HELEN NICOLIDAKAS		H
PHILIP BOYD		F	WENDY RICHARDSON		C
ANNA FLAK		OFIC.	MARIE ROBERT	4-8	B
JOHN LOVE	8-12	ELC	TIM SOUTAR	4-8	G
HUGH MCLEAN		F	DIANA VARELA		H
BERNARD MINKLEY	12-4	E	FRANK WHITNEY	12-4	D

Second leg of cruise: Party Chief:

Third leg of cruise: Party Chief:

Data logging system: Unit number:

Program version:

CTD deck unit make:

model:

serial no.:

Computer make:

model:

serial no.:

Monitor make:

model:

serial no.:

Printer make:

model:

serial no.:

1st CTD make:

model:

serial no.:

58483

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:

2nd CTD make: _____ model: 8737 serial no.: 59901
 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: _____ serial no.: _____

WINCHES:

CTD	make: _____	model: _____	serial no.: _____
counter	make: _____	model: _____	serial no.: _____
HYDRO	make: _____	model: _____	serial no.: _____
counter	make: _____	model: _____	serial no.: _____
Spooling	make: _____	model: _____	serial no.: _____
Drag	make: _____	model: _____	serial no.: _____
Other	make: _____	model: _____	serial no.: _____

Salinometer make: _____ model: _____ serial no.: _____

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:

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:

6 March 1993

CRUISE 9303

PST

0800 Sailed from IOS with Tom Julasz, Peter GAMBLE, to test WINCHES, ROSETTE + new T-frame in Saanich Inlet (220m deep area).

Worked out deployment/recovery routine for Rosette using 2 winches and T-frame. 3 crew + 2 or 3 scientists needed. Extra reach with T-frame makes landing much safer. ROSETTE has WCE-CTD (GULDNER 8737) plus 150lb lead.

NISKINS ON ROSETTE, all 10L

1. 02-10211	9	02-7685	17	10212
2 10503	10	02-8573	18	8586
3 10210	11	02-7691	19	10216
4 10501	12	10494	20	10504
5 10186	13	10185	21	10491
6 10496	14	10497	22	10499
7 02-8575	15	10199	23	7693
8 02-7684	16	10505	CTD	

TILT Sensors installed on ROSETTE

Test cast with O.P. CTD using Lauke Winch. CTD malfunctioned during tests, required repair (John Love).

PCO₂ compressor caused problems with ~~and~~ measurements.

Tim/Wendy returned to lab ~~to~~ for air cylinders, returned with 2 medical Air.

1530 Departed Saanich Inlet for Line P.

~~1905~~ JFI LOOP SAMPLE #1, TAKEN S, ~~only~~ Chl_a, nut.

Loc

2100

JF2

LOOP SAMPLES TAKEN: 5%, CHL-a & NUTS.
Loop #2

2325

JF3

LOOP SAMPLES TAKEN: 5%; CHL-a & NUTS.
Loop #3

March 7

0153

JF4

Loop Samples 48 32.335N 125 00.2 W

At Stn. MPO1, there was a bad pressure on CTD 58483
and there was a blown fuse in the WOCOE CTD
deck unit. John Love fixed the deck unit.

DAILY LOG

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[illegible]

16:15

Problems with CTD deck unit Error lights
corrected problem by adjusting Wire equalization
adjustment.

Connected computer clock (4 min slow)

System #1 files

D:93030006 PRN and CTD are bad.

D:93030005 PRN No data.

48 34 53
125 29 99

D:93030006 PRN CTD Bad data and aborted cast
MP01

MP01 48 34 50
125 30 00

005.CTD 48 34 50 n
125 30 00 u)

48 34 53
125 29 99

MP02 48 36 00
126 00 00 u)

006.CTD "

48 34 53
125 29 99

007.CTD "

48 34 46
125 29 99

008.CTD "

48 34 46
125 29 99

MP03 Con#9 Used 329 winch and probe 58483
very bad data program crash.
Changed to CTD 53501 for test this also gave
bad data.

Changed over to Lantech Winch and using
CTD 58483 Completed cast #9
Program did not crash but there was still
bad data records in file.
Looks like a problem with the deck unit.

1100 meter wine out
90° L 1.5 on meter x.7

More out on the bungee @ 2 on the
meter with 90° wine L

1900 7 March 93

Blank .005
.001
.006
.004
.003

standard (10.043)

.777

.722

.722

.828

.722

.722

.721

changed sig

MP 64 - UBC WORK 1630 - 1930

1 NET TOW → 200 m

3 NET TOWS → 100 m

LIGHT METER CAST → 80 m

GO FLO CASTS → 100, 85, 55, 35, 17, 14, 7, 0 m (4 casts of 2)

HELENS TRACE METAL PUMP - TEST CAST → 500 m

± WINCH PROBLEMS ON PUMP TEST CAST

2100 completed oxygen analysis -

0556 UTC arrive Sth PDS engine room doing some
thruster and engine tests.

New WACE Probe being used without
Rorette.

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[illegible]

	LAT	LONG	TIME
MPOS START	48 41 51	127 10 13	0607
DOWN	48 41 298	127 10 146	0647
UP	48 41 214	127 10 192	0741

Depart @ 0750

Mar 8/93

MPO6

start 1007 UTC 48 44.30
127 40.12

0220 PST

Wire angle on CTD cast $> 45^\circ$.
Using Lambert Winch with Guideline 8737 (wacc) CTD.
Loops + 150 for SPOM.

Depth 2575

0230 Stopped cast with $\sim 60^\circ$ angle, ^{astern} + no descent of probe.
Wind astern.

~ 0240 With wire $\sim 30^\circ$ astern, we continued cast.

DOWN Max 2516 db 1111 UTC 48 42.377
127 38.863

MPO7: Big wire angle at 1210 m, stop the
winch for ~ 1 min

Went down: 2519 m. 48 46.609 bottom
128 10.135

(END) OUT 48 46.186 1607
128 09.799

Tension on bungee CTD ONLY
only .7 wire out 1000 m
L 90°

MP08 down

1926 UTC

48 49.120
128 40.270

Lantech winch started to surge
with 2450 m wire out 1.2 meter
head reading angle 90°

Terminated the cast with 80m left
to go

MP08

END of Cast

LAT
48°49.136

LONG
128 40.204

Time
2016

1530 added third bungee cord to assembly.

increased Lantech winch power setting from 1500 to 1750

Decided to head for VICTORIA because of failed
Bow Thruster and hydro winch. Contacted IOS for
parts needed to repair both.

2300 Found problem w/ Bow Thruster + repaired it.
Piece of hose jammed in a valve. Decided to return
to Lind P.

Mar 9

MP09: Down to 2380 at 12:41
Position 4851.000N, 129 11.125 W

At 450 m on the way up, there was a
big wing angle, then the ship turned,
so the depth went back to 480 m
and then continued up again

at end of cast at 13:36
Lat: 48 49.212
Long: 129 12.360

→ On the way up, at 150 m, stayed at 150
to turn the ship again, so depth went back
down to 198 m the which was stopped for
~ 2 min.

MP10: Probe stopped at ~ 1035 m on the
way down. Stop the winch for ~ 10 sec,
the probe started again.

Bottom: time 16 04
2715 Lat: 48 53.978
Long: 129 39.230

Note: V = 180 V
I = 70 ma
oo change winch

Same thing at 1450 way down
" " " 1587 " down

Same @ ~ 2300 m, Probe would not send.
Started the CTD again under cast P10_2.CST
as cast #16 (up cast only) file

After cast 16, moved CTD's to 329 winch.
On this winch, the deck unit voltage is still 180V
and the probe is drawing 70 ma.

CTD MPO9 Con #18

Cell flushed out by sending probe down
to 20 m. When down cast was started
salinity did not clear until 50 dbar

Probe current ≈ 80 mA
Probe volts 180 volt

	LAT	LONG	Time
Down	4855.96	13010.31	1928
up			

CTD MP11

Temperature	2	Tracking	main	Temp	down
	1	"	"	"	up
Temp #1	10 mK	High	(down cast)		
#2	10 mK	Low	(up cast)		

Did the down cast record?

Logged the upcast to con. #17: @ 2380 m

Cable Resistances
48 Ω for Lanter
100 Ω for 329

down to 2500
to clear spooling
@ 1920 stop to
attach bungees

(Tension -1.1 to -1.7
@ 1500 dbar there
was another
spooling stop

TENSIONOMETER WITH CTD ONLY:
RANGES -1.1 to -1.8

Bottle #14 on Rosette s/n 7692

Digital thermometers bottle #2 s/n 431 and 446
#22 577 and 647

MP12

LIGHT METER CAST $\rightarrow$ 80m @ $\approx$ 1450

GO FLO CASTS $\rightarrow$ 70, 35, 10, 6, 4, 0 m

NET TOW - VERT $\rightarrow$ 200, 100 X 3

HELEN'S TRACE METAL PUMP $\rightarrow$ 1000m

1730 - 2130

DAILY LOG

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YEAR	93	MONTH	3	TIME ZONE	UTC	SHIP	Tully	CRUISE	9303	PAGE	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
9	MP10	2725	1620 48 53.95 129 39.27	16								None		UP CAST FOR #15 Lantec Winch
			1654 48 53.49 129 39.15				NO CAST	#17						Surface
9	MP11	2785	1850 48 55.91 130 10.205	18	1855							16		DID IT LOG? YES CAPTURE WAS "OFF"
9	MP11		1950 48 55.43 130 10.44	17										UP CAST OF #16 @ 2380, DOWN TO RESP dbar' WINCH.
			2043 48 56.00 130 10.666	17										CAST END
9	MP12		2240 48 58.275 130 40.022	19	2307				19 1003 39 1034			17		
10	MP13	app. 3050 BE	0900 49 02.74 131 40.12	20	0911							18		DEPTH HARD TO FIND ON ECHO SOUNDER 2780 dbar MAX
	MP13	BO	0957 49 03.26 1042 131 41.475	20								✓		STOP DATA CAPTURE AT BOTTOM OF CAST.
10	MP14		1338 49 07.426 132 39.307	21	1344							19		
10	MP15		1833 49 12.171 133 39.992	22	1841							20		Data capture stopped at bottom of cast
11	MP16	3660	0013 49 17.036 134 40.980	23	0029				40 1003 61 1035			21		Look at log sheet
11	MP17	3765	0828 49 20.83 135 40.18	24	0832							22.		start position.

Bottom Beginning

MP12: Down to 30 m because Conductivity not good. Back to 5 m, then Capture OFF

→ They change the Bungee

"Capture On" again at

2 false files, then the final Capture on

at: 23:23, Lat 48 58.167
Long 130 40.133

Loop sampling at 00:06, 48 58.195 N
130 40.157 W

Bottom: 2800 at 00:14
Lat: 48 58.234
Long: 130 40.253

Maybe at 2600 m: two bottles

send 2 messages, first one strange

at around 1400 m on the way up: wire angle problem, so depth = 1300 → 1430 → up again

Digital thermometer @ 2800 db, bottle #2 1.654 1655°C

10 March, Wed.

0100 Str MP13 Wire angle highly variable, Near bottom, 3200 m out on winch, pressure reading 2780 dbar.

4903.29 13141.98 at depth.

4902.16 13144.00 at surface.

Data file not found when SAVE command given. Data from last not logged. MAYBE File named IOS.DAT on E: is P13-1.DAT (TIME FLAG IS RIGHT). RENAMED IOS.DAT, P13-1.DAT on E:

MP14: Had to turn off - on deck unit, the probe was not working.
Didn't have to wash cell, conductivity reading was ok.

Bottom: 3009m at 14 27
Lat: 49 07.313
Long: 132 39.372

Stopped the winch and went down-up a lot of times on the way up because of the wire on the winch.

On deck at 15:15
Lat 49 07.070
Long 132 38.708

Doing "Save" at end of cast: has copied
P14-1.DAT AND I05.DAT to e:

MP15 4 attempts to start the probe before it would talk
I/O during cast is 10001110 (No rosette)
-what does this mean

MP15 begins the 2nd 44 Mb Bernoulli disk.

MP16: Everything written on log sheet

UBC - Go FLO CAST → 70, 35, 20, 10, 4, 0m

NET TOWS → 200m + 100m X 3

TIME START 1930 FINISH 2125

MP 16

Thermometers on Rosette cast

Bottle #22

10 M

T 577

8.153

T 647

8.168

Bottle #2

2800 M

T 431

1.650

T 446

1.652

11 March 93

MP 17 loop samples, CTD 3000 db.

0154 Legat str 4920.30 13540.26

MP 18: Conductivity ratio = 0.77

but salinity?

Graph like that: 
instead of 

Loop $\approx$ 13615 $\rightarrow$ 13620

Bottom: 3004.1 at 1349

Lat 4925.639

Long 13640.096

In at: 1429

Lat 4925.436

Long 13640.082

BELIEVE IT OR NOT! NO PROBLEM AT ALL!

MP19

Down

49 30 114
137 39.755

1826 UTC

No log on up-cast

End cast

1908 UTC

49 30 133

137 39 699

MP20 CTD Rosette @ 3000 Jb

@ 2600 program locked up, reset probe power
on again @ 2800.

2354 49 3393 138 40.35 d depth.

UBC - Go FLO CAST → 70, 45, 18, 10, 4, 0m

NET TOWS → 200m + 100m X 3

TIME START 1750

FINISH 2000 hrs

LIGHT METER CAST → 80m @ 1600 to 1630

MP21

3840

0134 depth str. 49 38.33 139 39.97

YEAR	93	MONTH	03	TIME ZONE	UTC	SHIP	Tully	CRUISE	93-03	PAGE	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	MP17		0954	49 20.46 135 39.79	24	0912							bottom position
11	MP18	3860	1307 1433	49 25.843 136 40.049	25	1309						23	See note
11	MP19	3949	1740	49 30.061 137 39.987	26	1749						24	Probe down to 30 m to flush cell before start
11	MP20	3989	2220	49 33.91 138 40.18	27	2304			62 1047 83 1086			25	start cast
12	MP21	3840	0706 0834	49 38.06 139 40.006	28	0713						26	Bottom Position Time 49 38.204 0752 139 40.086
12	MP22	3920	1150 1315	49 41.994 140 39.898	29	1156						27	49 42.086 140 39.854 Bottom cast 1235
12	MP23	3970	1651	49 45.90 141 39.79	30	1656						28	About cast Bow thruster off.
12	MP23	3970		49 45.800 140 0 141 39.216	31	1713							All loops ok Down 49 45.847 1759 UTC 141 39.213
13	MP24	4010	0023	49 50.161 142 40.000	32	0030						29	Loop. 0120
				49 50.089 142 40.628		0115							
13	MP25		0613	50 00.017 143 36.42	33	0621						30	Down LAT LONG Time 49 57.830 143 36.26 0703
13	MP35	4172	1006 1140	49 59.87 144 18.40	34							31	start position

MP23 Con # 33

6 attempts made to start the probe, not successful.
Turned clock unit off. Turned back on
and the probe came on with the first try.

2500 m 2.4 on meter 90° L

Down	LAT	LONG	Time
	49.59.830	143.36.260	07.03

Strain gauge readout 2.8 - 3.2 87° L

Wire out. Probe depth
2960 3006

$$.7 \times 3200 = 2240 \text{ lb.}$$

13 March 93

MP35 CTD to 3000 db, deep samples.

1056 UTC at depth 49 59.84 144 19.18

1137 UTC end position 49 59.78 144 19.93

0710(PST) FID# IN WATER. 50 00.098
144 51.499

VHF CH# 72 LONG.
CH# 73 SHORT

P26 Rosette cast P26_1 CST

X axis at -10° maybe alignment of sensors

Y axis at -5° " " "

adjusted tension chart recorder for
0 - 5 volt scale

Wire angle over sheave is very constant
 $85^\circ - 90^\circ$ when ship wire angles are good

Note: Radiuss effect the tension chart
recorder.

With 1800 m of wire out recorder max out
at 2.4 volts on swells. Swells are approx
2 metres wind 10 kn

Down

LAT
50 00171

LONG
146 56 482

Time
17:57

Depth	Temp	Sal	Time
3003	1.5665	34.663	
2804	1.6202	34.653	
2600	1.677	34.642	
2400	1.764	34.624	18:05
2198	1.858	34.608	18:11
1999	1.946	34.590	18:15
(1800 trip) 1800	2.073	34.568	18:17
1600	2.242	34.532	18:22
1600	2.243	34.532	18:26
1400	2.434	34.492	18:27
1200	2.664	34.443	18:31
1200	2.662	34.443	18:35
			18:36

2 trays to trip bottle.

P26

MARCH 13

2055 UTC

50 M Bottle

TEMP

T 577

5.693

T 647

5.708

3000M Bottle

TEMP

T 431

1.564

T 446

1.566

UBC- LIGHT CAST TO 80m @ 1100-1130 (PST)

GO FLO CAST $\rightarrow$ 80, 50, 30, 17, 5, 0m $\leftarrow$ 17m $\times$ 4 + 0m $\times$ 5

1200-1430

TRACE METALS & HYDRO'S $\rightarrow$ 4200m

START * 1430

13 March

2342

placed another digital thermometer with the two
in Rosette bottle #22^{s/n 679} as either s/n 577 or 647 reads
incorrectly. Also placed two digitals in bottle #12
s/n 451 and 572.

UBC TRACE METAL CASTS $\rightarrow$ 4200, 3500, 3000, 1500, 1000

25, 50, 75, 100

NET FLOWS (500-7200) $\times$ 3 (200-100) $\times$ 3 (100-0) $\times$ 3

START 1430 13/03 FINISH 0330 14/03

0530.

0725

PRODUCTIVITY CASTS

INCUBATOR DEPLOYED

50° 00.82

144° 59.458.

GPS

CH 69

SHORT

156.475 MHz

CH 74

LONG

156.725 MHz

Depth

1500 xxx	1499	2.345	34.513	1704
1200	1200	2.654	34.446	1711
1000 x 1000		2.908	34.387	1716
800	799	3.286	34.296	1720
600 x 600		3.609	34.176	1725
500	500	3.719	34.091	1727
400 xx	399	3.841	33.988	1729
300	301	3.877	33.851	1732
200	200	4.600	33.758	1735
30	31.8	5.701	32.562	1738
30	30.8	5.700	32.562	1739
30	30.4	5.705	32.563	1740
30	30.8	5.698	32.563	1741

Temperature Thermometer

Depth	#		#		#	
1500	577	2.327	679	2.343	647	2.341
1000	431	5.732				
600	446	5.748				
400	451	3.837	572	3.830		

DAILY LOG

OCEAN PHYSICS

INSTITUTE OF OCEAN SCIENCES

YEAR 93

MONTH 03

TIME ZONE UTC

SHIP Tully

CRUISE 93-03

PAGE 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

13

P26

4276

1550

50 00.30

35

1703

84 1047

105 1086

106 1087

111 1097

32

Bottle cast 3200-4200

1500 m cast chem (POC)

14

P26

4276

1640

49 59.99

36

1646

145 00.00

15

P26

4276

0805

49 59.8

37

0825

112 1047

133 1086

Last Cast at Stn P.
7 Reversing thermometers

15

Bottom
of
cast

144 59.8

0919

49 59.8

145 00.1

16

CAL1

3840

1640

49 15.44

135 39.23

12 March Sunday

1345 completed standardization of oxygen chemicals

first standard

V_b .003

.002

V_2 .722

.721

.722

today's values

V_b = .002

.003

V_2 .722

.722

UBC 1015 - 1345 TRACE METAL CASTS
TO 2500, 2000, 500, 250

11/10. PRODUCTIVITY INCUBATOR PICKED UP

02112 (UTC) MAR. 15: FOSTAR floating moving recovered.

50° 00.93 N

144° 49.75 W

UBC - NET TOWS $\left. \begin{array}{l} (500 - 200) \times 3 \\ (200 - 100) \times 3 \\ (100 - 0) \times 3 \end{array} \right\} 1430 - 1700$

TRACE METAL CASTS $\rightarrow$ 1000, 750, 100, (25 x 4)

PRODUCTIVITY CASTS @ 80, 50, 30, 17 + 0

START 2000 FINISH 0000

P26 Con #37

Temperature

Thermometer

Bottle

T577

T679

T647

DEPTH

2

1.562

1.598

1.577

3000

T431

4

1.685

2600

T446

6

1.865

2200

T451

T572

8

1.949

1.944

2000

* BOTTLE BADLY CONTAMINATED WITH FREON 11
SN 10501

16 Mar

Stopped for a calibration cast. 22 of 23 bottles on Rosette (missed Niskin #1) shipped near 1200 dbar.

CFCs, O_2 + Sal drawn from all 22 bottles to check for CFC contamination and O_2/S consistency.

1000 - LAUTECH Winch testing with dummy load.

Winch surged under load on previous casts. Testing confirmed what looks like a design problem in hydraulics to the brake. The oiler inspected the system + will provide a report.

Rosette Position			R.P.		
	Bottle	SN		Bottle	S.N.
1	CTD	—	13	13	10185
2	2	10503	14	14	7692
3	2 3	10210	15	15	10199
* 4	4	10501	16	16	10505
5	5	10186	17	17	10212
6	6	10496	18	18	8586
7	7	8575	19	19	10216
8	8	7684	20	20	10504
9	9	7685	21	21	10491
10	10	LOST	22	22	10499
11	11	7691	23	23	7693
12	12	10494	24	1	10211

Hurricane tent dried over Rosette + worked well in light breezes. With only a little sunshine, the tent heated up quickly. Would be a problem in Tropics.

bottle	s/n	Temp.	press.
2	577	2.726	1200 lb
	679	2.744	
	647	2.742	
4	431	2.742	1208
6	446	2.742	1201
8	451	2.739	1215
	572	2.734	