

FM3506

~~TH~~

NANKAI TROUGH

GMT TIME

194 0000 Departed Tokyo, enroute to
(13 July) study area

0930 Science meeting

~1100 G. Moore informs Wiederspahn that
Radio officer will not let any
lab radios be used unless
specifically licensed for use in Japan.

1250 Taisei Maru is heading west
(now about 16.2 km behind us
bearing ~ 20°) to Nagoya Bay
(Ise Wan) in case Thelma
heads our way. Greg has
suggested heading for bay
of Osaka so as not to back
current coming out later, but
T.M. captain will make final
decision. Informed Perkins
~1300.

Recording weather rttg rpts.
on science office Mac, via
versaterm.

14 July

14 195 ~ 0500 Decision was made to go to Osaka
to ride out Thelma

FM3506

195 2200 Lat $33^{\circ}36'N$ standing by at mouth of
 Lat $134^{\circ}45'E$ Osaka bay

15 July 196 0000 new tail buoy tests

0050 successful tests

0600 Streamer repair work, remove 1 stretch

0900 Streamer work completed

1026 underway for ESP I

1800 winds ≈ 35 kts from South, slowed speed
 overnight. Gave bridge a starting point to
 SW of ESP I

2230 winds still 35 kts

2315 sent message on SSB to Tansec that we
 should be at deployment site about noon (local)
 and will deploy streamer depending on
 weather

197 0450 Streamer party begins, Tanser Maru
 16 July 97 is on the way

1530 Streamer party ending

1545 finished streamer party
 slow on 2 engines

1848 begin c/c to south

streamer configured for 96 $16\frac{2}{3}$ m
 groups. Offset as for Costa Rica.

1908 c/c 5° min to left to 225°

FM

16 July

1931 steady on 225° , 5.5 kts2010 ask for 6 kts in the water on 225° streamer depth not very well controlled,
tail tends to be on surface2130 asked bridge to increase speed again to 6 kts
c/c ~~was~~ to 2102223 c/c 090° 5°/min

J198 17 July

0835 estimate 2 hrs to end pt. of first line
shooting ship water gun prob. corrected1016 starboard engine off for fuel tank repair,
port engine at slow. Streamer getting
deep at front end1022 ~~start~~ pulling in lead cable

1038 speed started back up.

1035 communicate with Tansei-Marv msec 109-111 turnaround
watch schedules: on water guns

noon-6	}	GFM + Tokuyama, Hidekazu
mid-6		
6-noon	}	Paul & Taira ^{sr.} Taira, Asahiko
6-mid		

1058 tansei maru informs us that they are
receiving only one station

FM

17 July

J. 198

1400

Problem w/ TANKEI EXCESS SOLVED, DATA ACQUISITION
STARTED AT 1046, SSP4

- Some problem steering the Line into the crossing
Discrepancy between Syleis on MAPKE + TANKEI.
AND KOTTER NO Syleis display
NAKE for interesting crossing
- ship crossed at ~500m more starboard to stern
of TANKEI, compass heading ~230
- data monitor show NO data because NO delay
reset delay to 5.0 sec. Quality good to bad
several noisy channels, low frequency flowing noise,
spikes due to water. All can be corrected during
processing.
- Recommend we shoot all of Area 1 as is ^{do streamer} repairs on
transit to area 2
- extending SSP 1 to 17km from mid point
o this will accommodate somewhat for startup problem
o make it easier to turn onto SSP 5
- bridge doing a good job - after the crossing.
IN most cases
- during turns hope to get better display for interpretation
500m/sec AGC
12 kHz low cut
600 Hz hi cut

14:25 - relayed SSPS Lat, lon of start + end
of line to bridge + Bearing of 38.1°

- suggested 50° turn + glow onto New Line
- relayed Jane to Tancei - they wait 1.5 hrs
before shooting. Now, only 500 m until
end of SSPS
- If we come onto line $1st$, shoot anyway, +
extend line on the other end by 7 km.
- during turn we need to generate a plot of
every 15^{th} shot w/ 500m AGC, 12-look filter
table record number + min:
- SINUS channel monitor not working yet
- appears to be a problem w/ Calcom Plot
- Tancei reports WITHIN 100m of mispoint
all the way

14:32 - end of line.

- 198 1650 circling to come back on to start of SSP-S
 1700 put leader back out
 1701 increase speed ~~6.0~~ kts c/c 255° (4.0 kts over ground)
 1707 hold c/c at 250°
 1806 Data logger down!
 1818 reboot Data logger, OK
 1838 begin c/c $5^\circ/\text{min}$ to right
 1842 hold 275° after logger crash!
 started new logger tape
 1847 c/c 285° , change line display ~~to~~ from Syledis
 1851 c/c 295°
 1855 c/c 305°
 1858 c/c dead slow on 2, $\rightarrow 4.5$ kts
 1910 c/c 315°
 1912 started shooting, still 3000m to 10km point
 1914 no external time break
 logger backed up and died!
 1928 700m off track and 1000m till beginning of line
 Tansei again having navigation problems - correlates
 with Loran-C low signal strength, perhaps both
 due to day/night propagation effects?
 - making about 7.6 kts over ground, slow on 2 engines
 1932 10km point (SyL)
 1940 Tansei's navigation 'not good'
 1950 informed navigation logger down, only logging
 shot time, Syledis not working at all.
 Greg trying to get estimate of time fix
 2000 stop line, 2 hour estimate to start
 begin c/c $5^\circ/\text{min}$ to right
 2023 data logger crash again.
 Asked for Syledis data once/min
 except when in event mode, may stop crashes
 2040 continue turning at $6^\circ/\text{min}$
 Tansei informs ready to start again

198

2048 c/s 6.0 kts 230°

2058 c/c 10° to right 240°

2150 - started sending fire commands at 1-minute interval to Tansei so they could check their system.
 - this apparently stopped the logger

2200 - restarted the logger

2215 - notified Tansei that we want to start shooting in about 30 minutes

2230 - c/s 5.0 kts c/c 5°/min

2238 - change bird depths

bird #	from	to	streamer depths on line (m)
12	19 m	25 m	~ 17 m
11	17	22	~ 16
10	15	20	~ 11
9	23	25	~ 13
8	13	20	? blinking
7	20	25	? uncalibrated ~ 16

2257 - plotter crash; operator error

2304 - start SSP-5A

2320 - 10 km point (syl)

2342 - 5 km point (syl)

0004 - mid point (syl)

Tansei Marin moved off 200 m
 We crossed at 48 m

0012 - port engine alarm sounded
 no power loss yet, all OK

0052 ~ 10 km mark, continuing to 17 km
 shots on this line about 80 m apart

0123 end SSP 5A

0127 Tansec request about 2 hours to be ready
for next site.
Begin c/c 5°/min

0220 increase sp 5.5Kts hold at 205°
Tansec about 45 minutes from site

0300 watch change Stoffa et al

0525 Something wrong with GUS. Mark W. changed
a few things - shots ^(records) 407 & 408 ~~were missed~~
have two shots between them that were missed

0629 Mid-point of the line SSP-4, at 32°21'47"
and 134°56'03" with record number 610

MID POINT CROSSING Good - Since seen to be a
difference in cross line position between ship
online, mini + RADAR agree, but when MORE is online,
the third line is a difference of several hundred m's. ??

? NOT POSSIBLE LANE COUNT?

MIN. TIME records set to decimate by 2, otherwise now
only set to 50 records

This should avoid confusion about where the data is on plots.
Quality of raw records is poor

We need a quicker & better QC plot - I'd prefer
a camera & the ship channel recorded (broken)


The, the existing QC plot would be OK as it is you
are at least on top behind & this is not adequate

08:14

End of line at ~~0000~~ 8:14h, with the
coordinates 32°16'06" and 134°49'53"

PT
≡

stopped line + plotter still working!

- begin of turn by going to 270° to get enough room to get a line for SSP3, doing 44° degree
- you take quality or monitor — will check the next line since it is wind current — if problem persists to determine should remedy at end of next line, at latest!
- possibly break of the next line if quality not better when running with the current. 

08:24

08:54 — TAMSE: returning our signal directly, logged on a 1 min schedule line
will continue until start of next line

10:11 — starting on new line soon.
streamer work may need to be done.

10:19 started taking data on SSP-3
will check 1^{st} 2 tops for S/PV level
S/N about the same, a little slightly better,
current diminishing

11:16 crossed midpoint on SSP-3 record #181
mini range 252 m.

11:43

3.5 kHz working TOPO good for SSP3
looks like seabed now
predicted 5 streams confirmed
NO — JUST FURTHER DOWN SYL!


12:15

Day 199

12:43 End of Line SSP-3 at record # 455.
Start into turn for Line 2.

13:24 Quite obvious that going with current is
far better than going against. True because of water speed.

Decided to go for SSP2 + SSP1 without cable work. SSP2
will be noisy, but we get more shots per line so can $\frac{1}{2}$ later.

SSP1 should be good. Expected to complete SSP2 + SSP1 by
noon tomorrow. During transit to sites need to do
streamwork before starting next profiles. 

14:19 Started line, some confusion by radio traffic
because 1st radio out of range,
problem with logging of mini vacuum, mini broken

SP31, noise tests shots 1-7

14:22 work SP31

14:25 problem w/ Logger + Syledis, power down the boat
14:27 oh now

14:32 line a little wobbly because 1st into current
expect improvement at water change because of
experience

16:23 10 km point past

17:10 5 km point.

17:12 Syledis navigation jumping around
apparent ground speed changing
rapidly from 1.5 to 5 kts

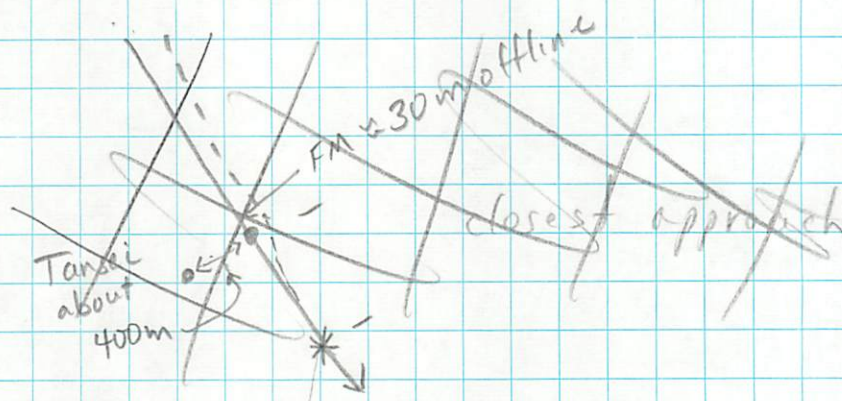
DAY 199 18 July 87

FM 3506

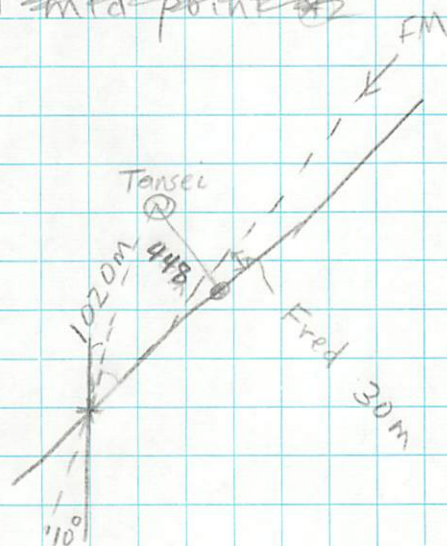
1725 lost Syledis, operator error
 1733 Syledis back OK

1744 Tansei is 400m off ~~mid point~~ closest approach

1750 ~~740~~m range miniranger
 418.
 429m radar shot 688



~~actual mid point~~



• closest approach
 * mid point

1813 Tansei ~~is~~ confirmed that they were off the mid point by ~1000m as we passed. Decided to ~~stay at the~~ leave the Tansei at this point until we finish the line.

1927 -10km point (minirange) shot #994

JDAY 199

FM3506

1950 - Winds up to ≈ 20 knots from south
 - Syledis navigation remains noisy. Correlates with same time as yesterday

2030 END LINE SSP2 increase speed

2040 Tansei says will be at next site in 1 hour

2043 begin c/c to left. Ship not under command about on top of midpoint. It should drift to ~~ENE~~ ENE

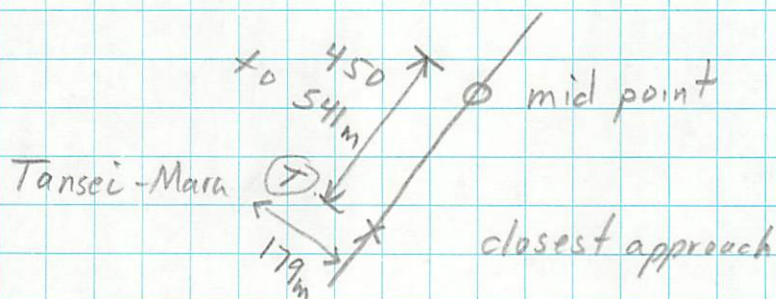
2056 hold at 158°

2116 c/s slow on 2 engines

2120 c/c 5° /min left from 156°

2148 logger crash at beginning of line - ~~type error~~ probably due to GUS not ready

2243 closest approach 179m



2310 current still 2.5-3.0 knts
 ship running down our port side at 400m

2315 break line ship crossing stream
 speed up for 3min and turned off ≈ 250 m from line
 before slowing down and coming back

Tansei beginning to have air leaks, will need to go in shore to inform Japex operators

JDAY 199

FM35 06

2330

- will set up radio watch every two hours, even hours local time to communicate on Japex SSB

Taira does not want to run ESP with the present current, does not think he can keep Tansei on course.

2 ~~4183.6~~ SSB 4143.6 ✓ 25 Japex transmit

2349 end SSP-1 d/c downwind for streamer recovery

2000250 streamer on board

1100 — STREAMING TO $31^{\circ} 25' N$ $134^{\circ} E$ SINCE STREAMER ON BOARD, will deploy streamer & make repairs, probably a boot problem + or 2 feet in water?

— speed 6.5-6.9 KTS.

— Syco's good UNTIL 0000 7/25, i.e. we have it until end of 24th — good news for MCS dip line + re-shoots

— watch in TRANSIT

- prepare 2 working maps of site 2 work with priority 1 highlighted

- small scale plot of area 1 completed for cruise report

- AGE a 15-20kt SP plot made of ESP's, 5, 3
I in progress — complete line up watch
Plots annotated with SP, delay, time etc.

— events being picked for ESP 5

based on time remaining for 2 ship work, it is likely that only priority 1 sites will be shot. Sequence needs to be redefined based on where we start.

Tentatively, more study of NE looks like

OPTION I

7, 9, 13, 17, 14, 15, 20, 23, 25 a couple of tight lines but we can come onto the line at 10km mark at 14, 15, 20

Starting at SW, looks like

OPTION II

7, 9, 13, 15, 14, 17, 20, 23, 25

to do start profiles:

15, 14, 20 at the 10km mark & no sooner

general philosophy is to start between 10-20km mark but end at 20km mark in all cases.

e.g. at end of 7 (winter direction) we can turn so as to start at 10km mark

Based on past study area, predict that data, ^{shot} will be better, i.e. for Option I 9, 17, 15, 23

OPTION II 7, 13, 14, 20 & 25

→ i.e. ^{more} start at SW - get more good lines & faster acquisition

FM 35 06

JD 200 19 JUL 87 Sunday

1130 — Lat $31^{\circ} 51.5' N$
 Long $134^{\circ} 37.47' E$ speed 6.2 kts

1206 — Lat $31^{\circ} 49.6' N$
 Long $134^{\circ} 31.2' E$ speed 6.9 kts

1215 — called bridge to speed up — they had slowed because of
 higher winds
 will try to speed up — but will fall off if too much
 'pumping'!

1220 — speed up to 7.5 kts 12:20

NI CONTACT w/ TANKI MARU YET

13:15 — $31^{\circ} 45.37' N$
 $134^{\circ} 27.33' E$ 6 kts

13:50 — $31^{\circ} 43.88' N$ 7.5 kts
 $134^{\circ} 22.5'$

1500 continue underway for 2nd deployment site

1800 slow to change oil in main engine

1810 resume speed

Heading toward $31^{\circ} 15' N$ ~~134~~ $133^{\circ} 47' E$
 or 18 nm SSW of SW end of ESP 7

ETA 0500

1900 $31^{\circ} 20' N$, $133^{\circ} 57' E$ c/c 230° Syledis

1938 31 18 133 53

2000 31 16 133 51

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JDAY 200

2020 ON LOCATION FOR STREAMER DEPLOYMENT

0300 Streamer work done MAKING 6.3 kts to ESP 7 NW at 10km

32+38 still leak

23+47 OPEN

0318

current 1.2 kts 1.2 kts

0328

problem w/ fire control box a TANSI
 wait 20 minutes for info
 status 1hr etc ESP 7

deploy nose loader pos to get birds
 to fly at 15m -

see log later for measurement

IP. ESP 1-6 toward pt to IUT return = 1h

ESP 7- " " " " = h

0437

turning onto line, ESP 7 toward pt, cable ok,

problem w/ bus in repair now, ok now

0441 - nearly on line at 8km pt well likely started 7.5km

442 - about 5th km pt a line

802 - start of data ESP 7

541

mid point - not bad 125m SPIR

TANSI, could get closer

0613 -

cannot do delay readily because of cycle total length

missed a couple of shots, had to no delay

210-214 alternate shots only in target

0636

- good ESP will stop at 10.5km

end 6:42

+ go to ESP 9

0657 - TRANSIT to ESP 9 Sweed

counsel 350 spd 5.8 kts

at 1530 local TANLEI switch for hydrophic statistic
630 GMT to

0830

moving on line, TANLEI having trouble is late
because of hydrophic work, will run anyway
comp will be off somewhat

1028 begin ESP-9
logger begins rec #5
gus reset @ rec #9
due to logger crash
believe rec #7 lost

accelerated to 5.6 km point & going slow down
4.0 kts through water

1044

ESP 9 passed mid point at 4.3 km

but 200m off, trouble mounting proper
speeds because of current

TANLEI refuse to turn back the 5 kts through
the water

did not get off the line!

1052

spike with TANLEI ^{they} later, slow at 6-6.5 kts

about to SP! we cannot accommodate
his towing constraint of 5 kts through
the water!

10⁰⁴

OK things are better by the 3 km pt.

ESP data to 3-22 km should be good

next profile should be better

end ESP 9
11 47

=====

LAIT 3P 246

sync 11 km
mini 2200m

— Start towards ESP 13 NE end well joints

1 kt current
50/min. to pump 6.0 kts through the water

12⁰⁸ $\frac{1}{2}$ through turn

12¹³ on the line for ESP 13 at 8.1 km pts

Tanni needs to sync up

try to start winding at 5 km mark

12⁴⁸

start winding mini 14.44 km

note like 1xL = 2 km

hard to keep a steady good speed units

keep going & going ~ 1 kt
3.5 stone tops

13⁰⁹

all going well, sync up is good, data ok

since -7 km, tops ok

13²⁰

still ok, weights good, sync up good
tops ok

MIDPOINT, SYL = +30 m

Rec NO. 143

Time 13:35 55

mini = 92 m *

Lat 31° 48' 14" N

Long 133° 51' 51" E

good crossing
temp !

9/9/88

0019

1336

Leaky out to 10km mark, ~5.2 kts over the ground
pdr shows some tips, getting deeper

1354

amazingly good sync $\pm 10m$ throughout profile
lipo OK again, only minor depression

1439

- using the end of ESP 13 - will stop at 11km for cont
+ move to S.W. end of ESP 17 get a line at
8 km pt.

1442

end ESP 13

end watch

last line probably with fire command not FTB.

1453

c/c at 60/min c/s slow on 2

1523

~~1552~~ 5777 Sybdis 11670 mini (11554)*
just about on line + distance,
Tansel adjusting speed

1552 start recording 17 m off, still closing OK

1610 3000 Sybdis 5868 mini = Δ mid pt 66m*

1616 2000 m 3964 mini*

1629:47 record 123 shot 124 mini range = 116 m
Sybdis midpoint off about 50m (1/2 shot distance)

1645

2261 Sybdis

4693

$\Delta 171^*$

*this may be wrong,

1655

Record 202

7363

3685

$\Delta 13m$

I wasn't comparing

the exact same

times TTS

1700

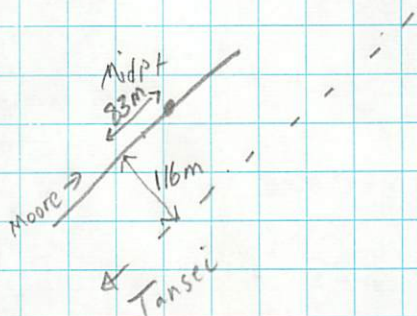
Tansel is running 6-6.5 kts
in the water

FM35 06

JD 201

Mon 20 JUL 87 (GMT)

1655 ESP-17 closest approach
 minimum mini ranger = 116m at record 123
 Fred Moore crossed midpoint at record 124, range 143m



Tansei ~~was~~ moved offline last ~2 minutes to pass on our starboard side

1724 Record 296 8164 Syledis 16307 $\Delta = 21m$

1737 Record 336 10021 Syledis 20051 $\Delta = 9m$

1744 Record 351 11 km end of line

1755 c/s slow on 2, 6°/m to right, leading for ESP-14

1805 Tansei asked for more time to work on their gun firing system.

1825 Tansei system ok. Request that from now on leave the system running at 19s - no change when hit end of line

Note

Groups 1-24 amplifier board was burned, weaker response is possible than for 25-96. Replaced board

1850 asked Tansei if we should speed up?
 they say no, but will ask again at 8 km

1907 logger crash

1908 logger crash

1909 Syledis 8004 mini 15,828; they are closing
 we are maintaining about 3 kts - 4 kts over ground; unable to get Tansei to allow us to increase speed

FM 3506

JD 201

Monday 20 July 87

0021

- 1916 logger rebooted
- 1937 Tansei Maru lost Syledis, range to midpoint about 4800m after much trouble maintaining " speed of approach to midpoint
- 1942 begin c/c 6°/min to left
- 2000 *NOTE* changed record length on BUS to 1 sec to accommodate the I/O Box rep rate while not on line to keep logger from crashing. Be sure to switch back to 16 sec ←
- 2024 Tansei still not ready agreed to meet at 10 km point.
- 2030 Tansei says problem is overheating. Greg not so sure, he thinks problems occur when Tapex operator asleep and "6-otters" gather round and play with the buttons — Greg said he plans to "put his foot down" with Taira and get 1 person trained for when the Syledis technician is sleeping.
- 2045 increase speed 0.5 kts and then begin c/c 6°/min to left
- 2107 Tansei not ready 'not a clue' as to what problem is or when will be ready
c/c slow on 2, steady ~~now~~
- 2110 begin c/c 5°/min to right
- 2143 hold c/c steady, no idea yet when Tansei will be ready
- 2208 Logger down after SATNAV fix
reboot at 2210
- 2212 JNOC ship approached while we were trying to turn back online
- 2210 Greg came up, that Tansei was ~~is~~ getting concerned about Vernon and OBS pick-up!

FM 3506

JD 201- 202

20-21 JULY 87

0022

JD 201 20 July 87

2249 o/s to 6 kts
 2346 still running to position

2345 logger down @ SATNAV FIX

0008 reboot logger

At 8 km slowed to 5.2 kts. Tansei
 down to 3.0 kts. streamer 'still noisy'.

0030 4993m begin recording, Tansei says all OK

0030 logger crash

0033 start recording

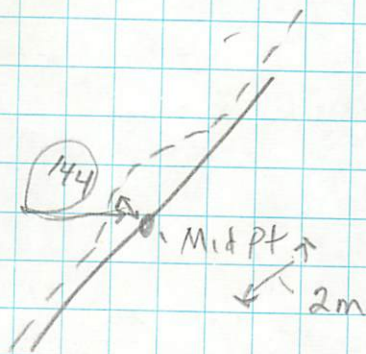
two Navy ships have been paralleling our track at 9 km.

0041 Tansei water gun(s) quit. ran out of gas,
 expect to be back in operation shortly

0052 Back to normal with water guns

0058 Syledis navigation getting very noisy
 streamer level at 15m

0104 Tansei moving off at 170m from midpoint began offset
 to go around



CPA 125 m
 at midpoint 144 m offset

0115 Fred Moore 96 m off line | Captain was in the
 bridge, Gagnor was getting coffee

0125 Sybdis may be giving the problem. TASC does not indicate any problem, but no native English speaker could be found to really verify

Called Hiroyuki to check for us
Captain has it stabilized at 150 m excursions

0145 navy ships crossing our bow at 6 km

0226 end line ESP-14, lead for ESP-15 @ 8 km
ESP-14 midpoint smear perhaps 158 m, but more likely \pm 75 m

0229 C/S ~~is~~ dead slow on 2; eta 8 km pt about 0315

hydrophone FTB was used as a + after
NOTE

0317 - coming onto line for ESP 15 at ~6 kts

0324 FIRST SHOT of ESP 15 offset 7000 m

0338 almost synced up at the 4654 kts
beginning to etc 4 kts to auto
1st count

0342 synced up

MID POINT

LAT 31° 49' 20"
LONG 133° 51' 11"
REC 137

MINI 102 SYL 02

TYPE Present

0722

sync up good now w/ current 10k
TARSA: against

good crossing

system has 1 week station
sanction gives current node good news

water guns down for last 5 minutes

missing data from 13:17 local 04:17Z

STOP LINE move to left

0432 welding on back deck

Over Line at 13:17

try to come back later

UNBELIEVABLE LACK of backup and
preparation on the part of TARA
he has cut us at least 14 hrs only lost
20. Acquisition rate is 25% of what it
should be. Performance is the worst
I have ever experienced.

welding done 04:57

apparently

TARA contact out fire control + water
guns + skew after May meeting
w/ Michael

FS

05:26 still waiting

5⁵³

waiting for Tiana to finish up decided to
go to ESP 23 + save turning times
Course 340, speed 4.5 kts in water
~ 1 hr eta ESP 23

6¹⁵

still waiting course 330
4.5 kts through water

TRANSEI fire control circuit keeps blowing 1
transistor, they are trying to redesign
have only 1 transistor left on board, we
may have an equivalent? + can xfer if we do
otherwise program ends or perhaps
as Tiana suggest, helicopter support

06⁵⁰

TRANSEI CAN AGAIN fire 2 guns
but once transistor goes, we are out of
business. Still trying to decide if we
have an equivalent on board more
making 270° @ 5.5 kts to

10 km pt of ESP 23

Paul W & Paul M working on a solution
apparently fire control circuit underdesigned
+ board burned up!

0752 - ON LINE ESP 23 NE to SW

at 12.26 km, 4.9 kts ground 5.4 kts water

0800 = start data acquisition

some startup problems, logs crashed etc.
all ok now, 10.79 km from camp

mini 21.55

08:14

some IB's not getting returned
of IB's?

maybe more TM problems??

range 17.9 km on mini

8:23

some topo on 3.5 kPa
all ok so far!

08:33

all ok sync up good will need out to
15 km after crossing
0.1 km from camp

topo - shallower some
more towards camp

08:45

all ok

lots of topo under Moore
4130 to camp

wiggly line by bridge!

0850

off of hill in topo

this hill near camp will screw
up the profile!

Is bad TIARA's topo chart has
missing data we could have
avoided it

09:12

Good!

CROSSING

mini 44

CAMP 0

LAT 21 55.07

LONG 133 46.29

0922

End ESP 23

after good mid pt crossing

TM has problem with water gun

stopped shortly 300m before camp

will run the track anyway

0946

problem not transmitt, but over the side

will try to go to 25 of 10 km pt on

SW end



MAGIC - water gun ON again

0952

Restart 2nd half of ESP 23, just

continue on course, ship already in SYNC

CMP 6.3 km

mini 12600

NOTE on FIELD TAPES from GUS

2nd part of LINE will begin at

Rec #1 once again rather than

rename 23A, this 'A' convention is used for

whats 'MT CONTINUATIONS

TIME SYNC will be used anyway

(do, different tape #)

(Will change BUS DELAY to 5.0 sec at
10 km and rep rate to 25 sec)

WAIT! WATER GUN dead 10:13 &
did not do, ok if the gun is

10²²

set to 25 sec cycle + delay a gun to 50 sec
just in case water guns come on

10.178 km for CMP

min = 20.5 km

Rec # 87 for daily change + cycle change
will run course anyway, hope H₂O guns come back!

10³⁸

By that day will be ready soon, so keep to track
+ plan to move to 25 at 15 km mark on SW

ESP 25 needs to be run the entire length by TM
for OBS program
we will record from -15 km to +15 km
+ then go to ESP 25

→ when delay of > 3 sec. the # of LOGGER is
from previous gun rec # ←
to save + check TIME STAMP ←

still NO H₂O shots

10⁰¹

— end of ESP 23 NO H₂O guns

moving to ESP 25 at 15 km mark at SE end
of line will try to get OBS
+ ESP done, if H₂O guns start working

Course 300° 5.0 kts (water)

Note: Keep 5 sec delay at start of ESP 25

1143

almost on Line 25 still no H_2O guns
S.4 kt (water)

1202

coming on to line for ESP 25

* recommends we run the line even if
no H_2O guns. if they start we are ready!

They have bit end of line to work with chocking our
chances for getting it. If they fail, we should shoot
the line for OCS using other 1 airgun + the short
the dip line + redundancy to ensure covering.
This gives us 1 day to get some ESP's e.g. 20 + 15

1231

on the line, S.1 kts through water
waiting for H_2O guns

TM onto line

→ QESP mode Q = quiet

1253

TM says 1 hydroprobe down for good!

so, only 1 H_2O gun possible for rest
of cruise. We will start ESP 25
soon, go to 10 knts. as the go sound
to ESP 20. TM will start toward 25
for OCS profile, then go to 20.

13⁰⁰ = Reset Gun to 0.0 delay, cycle time is set to 19 sec
 trying to SYNC up, expect 1 Hit Gun anytime now

Silks (ground) 3.9 kts (water)
 CS 54

4066m fur mid pt
 9000m mini

13¹⁸

Still not firing - Off well lots of 7000
 anyway!

13²⁰

START of ESP 25 large note
 NO delay

2060 fur mid pt
 4966 mini

→ *NOTE → mid point will be off!

dead slow on 1 engine 3.7 in water
 4.8 over ground

13²⁵

*M needs to speed up, but won't

at this point we're lucky they haven't
 go home because of the PROXON that is
 about 1000 mi away!

13³⁵⁻⁴⁰

ORIG CMP

MINI = 700

13³⁸

CLOSING

LAT 31 58 29

LONG 133 49 33

distance from ORIG mid PT 382 m to the NE!

mini minimum 120m

we will accept this!

1400

still shorty ESP25
 mini = 6750m
 orig CMP = 3738 for 1xL

5.4 kts ground, 3.8 kts water
 lots of topo

1417

Move 200m off the line because of
 engine switch, back on slowly

6250 for orig CMP
 11788 MINI

4.2 kts water 5.5 kts ground

Signal level with 1 H₂O gun Not too bad

1432

still OK mini = 16512
 orig CMP = 8804

5.5 kts ground 4.2 kts water
 CS 50°

1437

Continue ESP until 11km for orig CMP

1442

end ESP25

mini = 19539

orig CMP 10457

Move to WE of 20 of 10 km
 pt.

1444 turn 50°/min UNTIL
 course 130°

FM 3506 JD 202 21 JUL 87 Tuesday

1506 underway for ESP-20
only 1 water gun now available on the Tansei

1511 course is 130°

1513 continue c/c $5^{\circ}/\text{min}$

1523 steady on 165° , tansei 30km @ 235°

~ 1620 Tansei heading to Kochi to take crewman to doctor

lost navigation plotter due to 11/34 hardware fault, they are repairing

engineers wanted at least 1 hour to bring up computers

1718 trying to refix Nav 11/34 - Plot system

1948 guns deployed getting ready for shooting

logger - plotter system still screwing up

1856 trying to fire starboard array

1912 test fire starboard array, then port
c/s 5.0 knots

2018 holding at 190°

2033:47 begin shooting NT62-1
2 shots then stopped

2038 start shooting again! 1-array

2043-2045 no guns firing - operatn screw up
shot distance about ~~14sec~~ 40m, 14sec

FM3506 JD202 21 JULY 87

Shooting NT62-1 starboard array 1065 ci, ^{20 feet} ~~10 meters~~ depth
 ship speed 4.8 in H₂O; 5.2 over ground
 96+ trace 16²/₃ m groups, 8 mill, 11 sec records
 streamer towing at 15 meters

2118 all looks OK, this ~~seems~~ work seems to be something 'tbc Fred Moore knows how to do.

5 dead, 1 weak trace
 Syledis remains fairly noisy, perhaps related to squall line between station & ship

2327 All lab power off,

Gus down, Calcomp plotter down
 changed many amplifier boards

0007 logger crash, starting again with ~~sto~~ record 729' at 0007:59

Calcomp still down
 Now OK

0033 end of NT62-1, begin turn to next line

0046 c/c 6°/min to left
 try 8°/min, OK
 try 10°/min, OK in blue calm seas
 try 12°/min, OK

0138 just informed Syledis down because Tansei in port!

0212 c/c 50 to 305°, Now using all other navigational sources

0223 start NT62-2

0244 c/c 315°

0354

switched to 14 sec Syledis

4th

missed 3 shots Syledis gun

run # 387

04 36

Syledis generating trip, but location off because
 The well not shut down + will not respond yet
 so our master well is not yet possible

0504

STILL using CORAN waiting for SYLEDIS...
 all system operational

0525

all ok CS 310. sp 5.5 lts

544

missed a couple of shots, low pressure, work on
 back deck

0608

missed several shots due to misfires
 SP# 751 + 752 (w)

0635

Syledis appears to be working but not in
 agreement with CORAN (not unexpected)
 will use CORAN to complete the Line
 appears the SYLEDIS is due NORTH by 1 or 1.5 km
 from CORAN

0653

end LINE ^{MT622} begin gun tests

LAST SP# 1124

just past 25
 crossing

Begin TURN 30/m

0726

CONTINUING TURN & RUTING Compressors
 2000 psi over the side & fired
 compressor problem, so test stopped until
 end of next line

0807

STARTING LINE NT 62-3 Sylewis course
 wrong, must redo, will
 come onto line MANUALLY with reset

0812

Sylewis best to 2.5 km from camp,
 bridge turning to come onto line

0825

getting back onto the line
 all systems OK

0833

SP 116 is on the line finally!
 up to here part of turn

0853

all ok 5.0 kts (water) 5.4 kts ground

0951

end of line 09:51 NT 62-3

returning to Kochi because
 has red problem

END 2 Ship Ops!

FM3506 JD203 22 JULY 87

2125 15nm from Kochi

JD204

1030 departed Kochi

deployment point $31^{\circ}50'$ $134^{\circ}15'$ gyro not stabilized because of power glitch
before sailing

2313 beginning streamer work in area 1.

2354 cls slow on one engine, lead down wind

0100 $31^{\circ}48'$ $134^{\circ}18'$ 0156 $31^{\circ}51'$ $134^{\circ}22'$ 0320 $31^{\circ}55'$ $134^{\circ}27'$ 0439 $31^{\circ}59'$ $134^{\circ}33.6'$ 0530 c/c 30° to left0620 $32^{\circ}03'$ $134^{\circ}38.5'$

0630 c/c into wind

0705 $32^{\circ}04.5'$ $134^{\circ}38.9'$ 0811 $32^{\circ}02.5'$ $134^{\circ}39.8'$ 0902 $32^{\circ}00.4'$ $134^{\circ}40.5'$ c/c 20° to right $\approx 230^{\circ}$ 1215 $31^{\circ}50.76'$ $134^{\circ}35.334'E$

1340 Z

streamer work nearly done

changed out 2 sections
re-set to 33m activitiesDeployed 6 funs that were removed (disposed
in Tokyo and added 2
others as replacementsSkipped overboard (2 yesterday) total 3 for
shipping & refurbishing, have 3 sections back for
repair, that is all that remainsall remaining 4 barrels of streamer oil of 200 liters each put into
clean tank, released as much oil as possible
(probably 75%) for streamer work

- currently working on scrubber then done
- No compasses used
- distance to tail buoy ~2.5 km

- start of 1st line is SW end of 3 ^{CWA} $134^{\circ}53' E$
 $32^{\circ}15' N$
- air guns & compressors ready

currently set a course to get to start of line
as soon as possible, drifted too far to the
S.W.

- long day for most of staff, streamer should be
in good condition however

- toldCapt we need receiving streamer fun truck
on the dock at 0900 on 7/27/87.

- need help, 5 workers to load it.
- need 5 more 3'x5'x6' to return burned
streamer sections

- scheduled to arrive 0900 USNA Monday 7/27

- begin shooting 3rd str line WP 345 and 1
dip line WSP then put into WACA

- good weather

13512

31° 51' 39" LAT

124° 35' 00" E Long

Turn completed + on course at 5.0 kts to start of
LINE 3

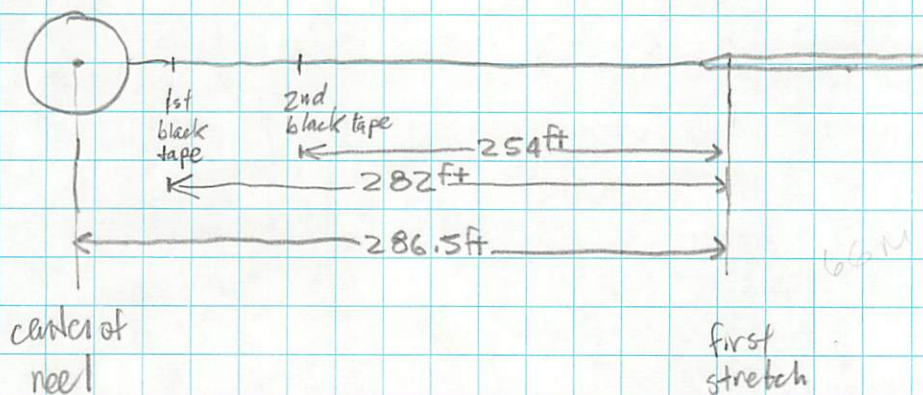
1415 Z

31° 52' 8"

124° 37'

bridge say still in progress, back deck work
 IN PROGRESS Can not go any faster, currently 3.9 kts
 moving to 5.5 kts when streamer work done
 ~ 1/2 hr.

1606 distance to first stretch 286.5 ft



SEIS CHANS 28-96

1713 both airgun arrays deployed, c/s dead slow on 2
 only got 3.7 kts
 1717 c/s 4.5 kts, all guns test fire OK
 1727 c/s 5.0 kts
 1822 c/c 50° to right
 1834 c/c 50° to "

FM 3506 JD 205 24 Jul 87

IN AREA 1, OFF OSAKA, SHOOTING MCS LINES

- 844 c/c 5° to right
 903 c/c to 5 knots - streamer a little shallow at 5.5 kts
 notify engine room, 15 minute until start
 914 c/c 2° to ~~left~~ right
 917 first shot line NT62-4 (SSP 3)
 919 c/c 2° to right
 streamer still shallow, trying to set for 10m
 not getting shot number
 944 c/c 2° to left
 955 c/c 1° to left
 firing starboard array at 14 sec
 2004 c/c 1° to left
 2009 c/c 1° to left
 2016 c/c 2° to left
 2028 c/c 2° to left, probably miss midpoint 3 by 400m
 2038 c/c 1° to left
 2040 adjusted cable depths, apparently on surface
 2046 c/c 2° left
 2050 bridge wants specific course, not 1° right or left
 agreed present course is 002°, will call
 changes in course to steer.
 2055 foran C just went away - low signal
 lost gun 4 starboard array (108 ci)

2124	Bind	Depth	DI's read about 10m
	6	20	
	7	20	
	8	15	
	9	15	
	10	15	
	11	13	
	12	15	

- 2208 c/c 355° (from 352°, but were supposed to be on 002°)
 2223 end line NT62-4 (SSP 3)

FM 35-06

JD 206

24 JULY 87

2224 c/g 6°/min to right
 2232 begin 6°/min to left

2301 mode 270°

2085
 0252

STARTED CINTAS almost on line NT 62-5
 course 265.3 speed 5.6 kts (water)

after rain, needs slight adjustment to make good to line

0037 2° to port course now 260°

0100 5° to port

112 240° should do it speed 5.6 kts water

0120 slow to sink streamer to avoid
 fishing boat, moved streamer to 20m (acc)

0134 resume normal ops; correct heading; get back on course

0157 back on course 5.3 kts 251° signal level good

0220 problem w/ gun missed a couple of shots

0225 switched to starboard, 1000m, gun out of array, now back in, signal ok

0240 5.6 kts 248° TRANSIT: DRIFT 3.1
 speed 5.5

0246 MONITOR & plot shows loss of contact re 457
 1st 1st or 2nd want for next target

delay in QC plots (if really Gus problem) will cost 1 hr
 before a decision can be made & put into effect
 — another example of why we need better real time QC

0251 plotters tests ok so far

0256 problem not in Gus, A/D seems ok, not going further
 — restart of Gus, but one type ring gap RBL-0257
 prevented the problem before

0310 Gus OK now, after system restart?

0330 c/c to 246° (2° to left)

0346 lost air pressure rec # 865
 1 sec. gun trouble again

0350 STBD 108 back up

0424 gun 108ci misfire again

0435 c/c 2° to cse made good 222° / or 244 gyro

0452 108ci misfire again

0454 STBD 108 back

0512 108ci misfire, still OK again

0515 c/c 240°

0547 end NT62-5

0548 c/c 4° /min to right, pull port array to repair 240ci
 0619 continue c/c, gun

0730 c/c 6° /min to right

0736 hold at 354°

0739 c/c 358°

0748 start NT62-6

0800 air pressure dropping! engineer "playing with compressor"
 OK at 0802

FM35 06 206 JD 25 JULY 1987

0800 port array in water and ready for test firing
 0803 c/c 006°
 0816 108ci gun starboard misfiring, air pressure drop
 0819 pressure up, gun working
 0824 c/c 004°
 0837 c/c 002°
 0842 low pressure alarm, 108ci miss fire turned gun off (108ci)
 0844 c/c 000°
 0852 c/c 357°

0906 356 3.1 kts all ok

0941 — large freighter passing (maybe) slowed down to 3 kts

— no h poses in front appears to be ok

— line off course to avoid freighter, would not respond, slowed down, passing in front, speed built up and the line early + begin turn to 1st dip line

1021

1022 — 3°/min to starboard onto next line

line for gun tests + compressor test (P)

1035 — 8°/min — no engine because of air gun returned

1044 — 6°/min

1105 — 2 way through turn 3.1 kts 267
going against current, should have turned to port

— gun work done port array ready, still working on starboard
 gun 4 misfiring
 gun 1 2nd depth } in again now
 — compressor test at full not possible till later

- 1205 still in time getting near to start of line
- 1226 making 5.5 kts through water to start of line strong current
- 12 ready for maneuvering test when we get on the line
- 1244 gun tests of both wings, jumps in Latitudes of $.10'$?
and 2' bad readings
- 1251 Loran weak (Holdside) shipped a line, also getting
intermittent bad readings, GPS up,
speeding up to 5.6 Kts
- 1303 Loran still intermittent, still turning to Line
- 1330 5.7 kts 268° still no, then current strong
still having Loran dropouts
- 1335 starting turn onto NT 62-7
still bad Loran
- 1341 Loran appears to be back, line shipped back
same long as earlier line ship
holding at 245° , 5.8 kts
- made 7 km in 2 hrs went 9 km/h⁺ (water)
3.5 km/h good
i.e. current ≈ 5.5 km/h
bad current; JAT NAV says 3.7 kts!
 ≈ 3.7 kts
- 1414 still try to get to line Loran bad
INTERMITTENT LANE jumps + dropouts
current still 3.7 kts. About there

- 1430 Start NT 62-7
- 1427 all systems up; sonobuoy test; port side gun away
even on/off
- 1438 sonobuoy in the water + passing the guns; lead a shot 1440
- 1444 about a Line 242° 5.4 kts
- 1442 SB dropped out - good corner no acoustic return? hydrophonic
- 1448 will try another; course change to 220° 5°/min
- 1503,30 SB down on channel 9; hearing but weaker
- 1507 - dead again??
- 1510 c/c 200°
- 1523 c/c 205
- 1557 c/c 208
- 1613 c/c 205
- 1624 c/c 201
- 1637 c/c 197
- 1650 c/c 201
- 1717 c/c 5°/min to left
- 1723 steady on 1720
- 1724 c/c 160°, heading for 1
- 1728 157°
- 1734 160
- 1747
- 1750 c/c 6°/min to left
- 1755 c/s 5 kts - 4.5 kts
- 1823 c/s back to 5.5 kts, turn nearly complete
+ hold on cse
- 1833 c/c 6°/min left
- 1837 steady
- 1844 fine tune speed to 5.5 kts in water
- 1853 end NT 62-7 adjusting birds, streamer
- 1853 begin NT 62-8, towing very shallow
- 1603 at SSP4 midpoint
- 1712 at SSP 2 midpoint
- 1747 at SSP 1 midpoint

FM 3506 JD 206 25 JUL 87

1859 adjust speed to 5.5 in water, again

1920 3.5 KHz started to have a problem, turned off until technicians are up.

1939 c/c 301

1951 c/c 303

2005 c/c 306

2045 crossed SSP3 midpoint

2123 c/c 303° 5.6 kts

2125 cross line NT62-7 21 25 45 E Rec 1780

2134 cross line NT62-5 (SSP 4.7) / to SW of mid point by ~ 1 km
c/c to 305° Rec # 1815

2200 all ok 304° 5.7 kts depth 2.7 kts

2216 5.7 kts 305°

2224 miss fire - port side, switch starboard pressure not built up
2230 high to port only 10P new out

2322 c/c 305° 5.7 kts

2351 c/c 302° 5.7 kts

JD 206
0005

crossing NT62-6 + SSP5 Rec # 2466

0030 C 294° current pulled up, correct to get back in line

0104 c/c 290° current dropped off a bit but to 290

0131 296° 5.8 kts

0200 correct to 300°

0237 300° 57kts heavy trend of NT62-8

0254 295° 57kts change of water on bridge!

0305 3.8kt current

0340 END Line NT62-8

0343 6°/min to left turn

0355 Hold up on 220°

0403 Loran C signal low

0435 6°/min to right

0515 6°/min to left to bring us on line

0524 start NT62-9

335° on the gyro 5.8kts thru the water

16°-18° on the Loran 5.4 ~~thru~~ the ground

0617 1st ship's air, port engine jumped out of gear
spd dropped to 4.0kt thru the H₂O, 3.5 over the ground

0625 back on track

0650 ^{small} leak in STBD 150

0709 DEPLOYING STBD 2000in³ GUN

0714 End of NT62-9

COMPRESSOR TEST
3000 in³ @ 27 sec

0715
1890 IND
-1790



START 0715Z

0047

3000 cu in

Time INTERVAL
30 sec

Reading
2000

2 sensors + mdy (1)

engineer working in mdy
down to 1800

25 sec

2100
2080
2080
2070
2070

24 sec

2070
2050
2050
2050

23 sec

2040
2030
2030
2020
2020
2020
2020

22 sec

2020
2010
2000
2000
2000
2000

overheating shut down

Can put out 3000 cu in @ 22 sec
sent overheating

time 0750 Z
end test

pull gear

end log

FM 3506

JD207

1215 Tail buoy on board, heading home (OSAKA)

2245 Run over fishing net in Osaka Bay, all stop

2320 underway again