

UTIG SC 13

L90-566A

20 Aug. 1990

0538 Depart Dock

0545-50 Safety meeting

TRANSIT TO sediment wave field

27° 16' N 96° 47' W

1230: LORANC NOT FUNCTIONING PROPERLY
(got LAT & LON from GPS)* NO PRINTOUT SINCE 1210
(using MORROW for ~~CR~~ COURSE & SPEED
until further notice)11558 begin survey circle in sed waves
3°/min left1620 day label on 1 min LORANC
was less than correct - eg 231 not 232
Fixed at 1622

1653 Change of course to 311 to return to Survey Circle

1726 restart survey circle (3°/min @ 6 kts.)

1806 restart survey circle "

2040 abandon survey circle for a course of 138°, ~~138°~~ continue
to end of wave field

2315 course change to 180° (due South)

2348 head sbw to East to deploy seismics

Day 2 233

0019Z : Deployment of streamer

0036Z : gun is in water

0038Z : first gun shot ~0038:40 begin regular firing

Depth Transducer Calibrations - Student Cruise 13

212

20-Aug-90

Cal Pressure

Gauge Reading (m)

feet

H/m 3.2808399

near DT

Far DT

feet

feet

0

0.0

0

0

5

16.4

15

10

32.8

33

32

15

49.2

51

20

65.6

71

73

25

82.0

92

96

30

98.4

0200Z change 10Hz low cut to 15Hz low cut
 preamps 33dB + 10dB + 20dB
 GUS Filter boards @ 140 Hz hi cut
 tried 10Hz low cut, but 15Hz low cut
 seems to get rid of pops and rumble
 in epc record. 60 Hz Filters tried
 for a while but are now out. Channel
 1 is still dead, recording it anyway in
 case it fixes itself.

21046Z Compressor Stopped ~ shot last: 3535

1049Z turn to south at 5°/min (090 → 180)

1118Z Streamer & gun retrieved

Compressor shaft broken, heading for P.A.

0203Z locked at MSI to repair compressor

0252Z depart MSI

0330Z restart 3.5

2103

21 Aug

2152

2230

Day 3 cont.

0400Z LORANC fixes jump around; CSE & speed from GPS

0405Z Cycle light on. Look ok (relatively const)

22 Aug 90 0500Z LORANC Locations look good

0715Z 3.5 profile getting weak signal & poor resolution. Tried adjusting the gain - not very successful. Woke up Mark & Ken. Turned up signal strength to X10. Much better profile

0830Z 3.5 profile looking a little weak again. Played with gain again

0900Z 2nd string takes over. Send in the Subs.

0930Z 3.5 too dark, played with gain, looking better

1000Z LORANC acting up - using GPS

1110Z LORAN (NORTHSTAR) working again

1412Z LORANC - low signal/noise (compressor started)

1424Z slow to ~3 knots to deploy streamer

1431Z gun in the water
begin shooting for Line 21437Z { speed back up to ~5.6 knots
1st recorded shot

0937 22 Aug local

NOTE: printout from LORANC is 5 min behind
from ~~1415~~ - 1445. corrected on Nav log.
11151606Z LORANC in computer Files now have
MASSCOMP time tag also.1631Z FTB From CYCLE TIMER, NOT BLAST PHONE
PHONE HAS XTRACK FROM COMMAND TO FIRE

DAY 3 CONT.

024

2048Z compressor shut down - check oil leak
2055Z restart ~ shot 2222

2145Z record of air shots taken
has stopped counting --
corrected by plugging it in

2305Z changed mag taps

Last shot 2989 @ 23:03 GMT

2355Z begin line 6

23 Aug 0345Z begin turn for line 7

0635Z begin Line 8 at beginning of Turn
May be a bit early

0700Z Generator Failure Lost Steering Control
+ Went ~ 3 mi North of Line GYRO out *

~0715Z Regained Steering

0805Z Power Down in Lab for ~30 seconds
having generator problems or periodic power losses
0810Z Working on generator

0923Z all gear pulled - ship is down to 1 generator
and one main engine

0931Z second main quit; dead in the water.

0946Z one main on line; underway for port.

24 AUG 90

0520Z in the jetties

0535Z enter boat basin

0553Z secured at dock 0053 local

Day 5 (8/23)

025

18:20 (local) 23:20 (GMT)

Depart Port Aransas

Cause of the engine ~~problem~~ problem is not really known.

0720 Turn course to 115° @ $27^\circ 22'$ $-96^\circ 00'$

0830 (1330 Z) turning onto line ^{#8}; slow to deploy streamer.

0837 (1337 Z) streamer in the water

0841 (1341 Z) gun in the water; 1st Test SHOT

13 0444 Z 13 44 5~~5~~ SHOT 9

13 46 45 SHOT 20 @ 5 kts.

1455 Z Loranc antenna rerouted ^{on} lab overhead - SNR from ~100 to ~650 on master.

1100 Z

1603 Z 1 minute Loranc time corrected. was off log ~3 minutes from about 1430 Z.

0226 PM (1426 Z) compressor trouble

Begin turn to line 9

End turn to line 9

compressor universal blew - NO compressor
NO Seismics

Begin 3.5 survey for 1st Coring site

1740 (2240) turn from 000 to 270

1805 increase RPM from ~1050 → 1200 (~6.5 kts)

1825 " " " 1200 → 1300 (~7.4 kts)

0651:30 C/L 107

~~1955 (0030 Z)~~

7:40 pm (0040 Z) slow for coring
 ~ 2107 Under way to reposition for coring
 2228 Stop for core

Core started down ~0347 Z
 Trip 7,7,7,7 0351 Z 1051 L

Core coming up ~0407 Z
 1120 Surface - NO TRIP

1125 pm (~0425 Z) core sent back down
 ~0453 Z winch problems

1200 1800m wire out, no trip seen
 winch stopped level winding

~1222 started in hand level winding

~1244 corer on board - NO TRIGGER

0100 L start 3.5 survey

1350 CHANGE COURSE TO 000

~~0813~~ 1425 Misscomp down at 0808,
 restarted now.

C/C 000° @ 1748

1949 C/C to 199°

1955 C/C 246

2204Z 1704L HEAD FOR PA. 1704L

1000Z slow down to enter the port
 turn off 3.5 kHz

UTIG SC 13 leg 2

29 Aug. 1990

1805 (local) depart MSI

30 Aug 13 stop for sta. 1 piston core

0143 core lowered

0152.5 Trigger

0245 - 0255 Reposition @ 250m

0308:30 Boxcore Starts down

0321 Box core 'hit' 262m wire out

0332:30 - 0338:30 25m plankton Tow

0354 2nd Boxcore on bottom

0359 2nd Boxcore on deck

0406 Underway Heading 081

SATNAV LOGGING OFF ~0200 → 1200 (PLUG OUT)

1527.2 streamer & gun deployed

1529.2 gun firing

15:31:20.2 shot 1 reel 7 line 9

1715 REPAIR DRAGGING STYLUS BOLT ON SEISMIC APC.

1849

(23:49:19.2) last shot on Line 9

~1905

streamer & gun retrieved

1907

CTD started down

1913

CTD back at surface

1935

CTD down

1948

CTD up

2001

Box core in water ... going down

Station

2

~~0149~~
20491st box core hit bottom, but
did not trigger

2202:30.2 3rd try at Box core enters water

2253

abandon box coring; underway to start of next seismic line

30 Aug 90

2330 deploy streamer for Line 10

2339 finish deploying streamer + gun

2341 start line 10 (243:04:41:30 shot #1)
600 fm water depths course problems

0120 end line 10 sp 592 (243:06:20)

begin line 11 sp 1

782 fm water depth

change course to 308° following current causes streamer to sink to
52 feet (from about 40)

31 August 90 End line 11 @ 08:20 z

08:20 z End line 11; Begin 12

Line 12 change course in NW direction to
reach line 13, a 180° due south line thru
salt structure.

09:20 z Start line 13 THROUGH SALT STRUCTURE

10:58 z COURSE CHANGE TO 031° BEGIN LINE 14
POLARITY CHANGED ON SEISMIC RECORDERS11:54 z COURSE CHANGE TO 180° END LINE 14
BEGIN LINE 15, POLARITY CHANGE (SWEEP DIR) ON
SEISMIC RECORDERS1048 (15:48 z) EOL (#15) last shot: 4000
slow to retrieve gun + streamer

1120 Pinger on Box Cover 1303 m deep sta.

1136 Box core going down

1154 Box core started back up

1230 Box core retrieved.

Note: poor Aggie stand design spilled contents on deck.
Subsampling attempted nonetheless.STATION
B

31 Aug 90

1250₅₂ CTD started down to 200m

1256 CTD to surface.

1316

0116 Niskin water bottle cast. Samples retrieved from 5 and 35 meters.

1321

0121

Phytoplankton net sample 35 meters to surface.

0130

Zooplankton net sample 35 meters to surface.

1330

1408

0208

Piston core started down.

1434

0231

Piston at bottom; started up. No indication of triggering.

1503 Piston core recovered at surface. Mud up to weights.

1538 seismic gear deployed

1600 Polarity switched on charts
Begin line 1723:45 Z BEGIN OUTSIDE TURN TO TAKE SHIP
FROM 000 HEADING TO 27000:00 Z END LINE 17 BEGIN LINE 18 @ 270 HEADING
W/ OUTSIDE TURN MIDWAY.

00:25 Z END OUTSIDE TURN

2006 (0106 Z) begin boat circle to line 19

0117 Z end line 18, start line 19

0145 Z end circling; head south for remainder of line

0426 Z course change from 180 → 270° at 26 49.22
-94 55.58

September 1, 1990

0430 Z

Start line 20

0645 Z

Slight c/c; moving W towards original
waypoint

10:30 Z CHANGE TAPE from #10 to #11 Shot

10:39 Z Compressor Trouble ~ 9018
Killed Gun

~~11:00~~

11:10 Z START CIRCLE TURN BACK TO POINT WHERE
COMPRESSOR BROKE

12:20 Z NAVIGATION EQUIP MALFUNCTION (LORAN)
CAUSED BY ELECTRICAL STORM? DAWN?
POOR MASTER SIGNAL

12:40 Z BEGIN RECORDING SEISMIC SHOT# = 9257
@ HEADING 94° CRSE 84°

12:44 Z BEGIN 5° TURN TO SWTH BEGIN LINE 20A

13:05 Z Turn to West complete - run line 20A course 265° , 5 kts

15:24 Z End line 20A, begin 21A course change from $281^\circ \rightarrow 68^\circ$
 $26^\circ 50.77'$, $95^\circ 38.37'$

16:05 Z End line 21A, begin turn to line 21B, orient to 292°
1610: $26^\circ 52.23'$, $95^\circ 34.14'$

16:40 Z End line 21B - begin turn to line 21C, orient to 68°
16:40 - $26^\circ 53'$, $95^\circ 36.83'$

17:21 Z End line 21C, shot point 10935. $26^\circ 54.57' N$
 $95^\circ 33.67' W$

~~Begin sampling operations. All stop.~~
~~Station 4.~~
Sailing to sample area.

September 1, 1990 cont'd

1745 = Change of course to return to slope
lat. $26^{\circ}54.81$ > change heading from 67° to 237°
long. $95^{\circ}32.58'$

1820 = Stop boat for coring operations
640 fathoms
lat. $26^{\circ}53.12'N$
long. $95^{\circ}34.94'W$

STATION No. 4.

1843.5 = Piston core started down. 1204 meters water depth.

1900 = Piston core hit bottom. No hit visible.

1925 = Piston core to surface. Good penetration (11.5'),
poor recovery.

1959 = CTD cast to 100 m.

2010 = Box core started down

~ 2030 = Box core hit bottom. Started up.

2042 = Power out in ship, except labs. Generator problem.

2053 = Power restored.

2104 = Box core up.

2117 = Niskin Bottles - Messenger Sent

2125 = Phytoplankton, zooplankton 1 tow 50 m Pa 0-20 m

2130 " " 2 4 Z 0-19 m

2135 = Set sail for next waypoint. PB 0-10 m

2257 REACHED WAY POINT FOR START OF LINE 22

23:06 = START LINE 22 ON NEW TAPE 12 COURSE 190

Sept 2, 1990

- 0405 z Loran C out (SNR low)
single channel monitor still not plotting 15 min lines
using GPS for positioning.
- 0500-0900 Storm, Hull, Gary on watch.
- 0520 z End line 22, sp 2236.
Begin line 23, sp 2237.
- 0725 z Change tape reels. New reel is 013.
- 0815 z Loran C repaired. Peace restored.
SNR was < 100 , now 330 - 360.
power cycled and filters checked.
- 0845 z more slack between reel
and streamer tow point to
prevent (?) jerking off reel.
- 0915 SEISMIC PLOTTER NOT PRINTING 15 MINUTE
LINES.
- 10:15 BEGIN MARKING 15 MIN. LINES OF SEISMIC
PLOTTER MANUALLY
- 10:45 MARKER NOT WORKING ON SEISMIC PLOTTER
- 11:45 ~~MARK~~ SEISMIC PLOTTER MAKING 15 MIN
MARKS AGAIN
- 12:07 END LINE 24, TURN OF AIRGUNS SO
JERRY CAN ✓ OIL
BEGINNING TURN TO 060.5
- 1348 shrimp (longliner?) crossed stern near end of
streamer. (@ 45°)
- 1604 End of line 25 - ship slows to 3.8kt - pull in gear
- 1114 (1614) seismic gear retrieved.
- 1625 Change course to 270° / speed - 6.5

September 2, 1990 (cont.)

1710z Change of course to 108° / speed same

1740z Stop boat, ~~for~~ begin coring procedures

1748z CTD cast to 100 m. $\begin{cases} 27^\circ 09.81' N \\ 95^\circ 05.35' W \end{cases}$ STATION No. 5
- no data > 40 m

1757z Box core started down.

1814z Box core started up. $\begin{cases} 27^\circ 09.99' N \\ 95^\circ 05.63' W \end{cases}$

1830z Box core up.

1840z 2nd CTD Cast $\begin{cases} 27^\circ 10.34' N \\ 95^\circ 05.92' W \end{cases}$ 100 m.

mm 1900 Sailing to piston core location.

1920z All stop at new location. Station 5a.
Depth: 1297.5 meters or 692 fathoms

1927z Piston core started down

1944z Piston core hit bottom.

2013z Piston core up. 1m recovery

2033z Niskin water bottle cast: 50 m, 10 m.

2034z Zooplankton tow to 50 m 3:40 DOWN

2047z Phytoplankton tow to 50 m; 13 m. 3:50 UP

2206z Piston Core down $\begin{cases} 27^\circ 11.70' \\ 95^\circ 05.28' \end{cases}$

2226z Piston Core hit $\begin{cases} 27^\circ 11.80' \\ 95^\circ 05.50' \end{cases}$

2249z Piston Core to surface $\begin{cases} 27^\circ 11.78' \\ 94^\circ 5.70' \end{cases}$

2320z Heading for new box core location - Heading 125

2340Z Box core down { 27 11.41
-95 04.98

0004Z Box core hit bottom { 27 11.26
-95 05.13

JDAY 246

0024 Box core UP. { 27 11.19
-95 05.27

0048 Underway for Waypoint 16

0157Z turn to start line 26

0208:41Z first shot line 26 (SP 6101)

0500Z Crack watch on duty: Hull, Sloan, Gary.

0610 Change of course, bearing 187°

0820 Slight change of course, bearing 194°

10:00 END TAPE 14

10:15 TAPE 15 ON LINE

10:50 End line 26 - shot 9230
Haul in seismic gear

STATION 6

11:56Z PISTON CORE DOWN @ 26 25.03 / -95 24.96

1220Z Piston Core Hit @ 26 24.84 / -95 25.16

1255Z PISTON CORE UP.

1314Z Box Core Down { 26° 24.71
-95° 25.83

1338Z Box Core Up { 26° 24.59 ← Lat/Lon @ 1342
-95° 26.00.
Surface Disturbed -- Try again

1405Z Box Core Down Second Try

3 Sept 90

035

1456 Z Box core up.

~ 1510 Z CTD

1524 Z Niskin bottles going down

1545 Z Transit to Way pt 18

1634 Z d/c 0°, c/s 3/5 to deploy streamer

1645 Z start line 27

4 Sept 90

0026 Begin line 28

0045 Z Begin line 29 (cse 180°)

0324 Bearing change to 224°

0425 Compressor malfunction. Severe oil leak in compressor section. oil pressure 0. oil leaking around fan drive shaft?

0515 Continue to waypoint 21 / no compressor
Will continue looking for channels at end of line 22

21

2103 CHANGE COURSE TO 040°, ENDING TURN

2110 ADJUSTED PULSE WIDTH TO MAKE 3.5
PLOT (DATA NOT PLOTTING)

2155 INCREASE TO FULL SPEED; BAD COUPLING
DUE TO HIGH SEAS IS KEEPING 3.5 DATA
FROM PLOTTING

2220 BEGIN TURN TO EAST @ 20° PER MINUTE TO
PICK UP A SOUTHERLY COURSE ~ 200°

2345 CHANGE COURSE TO 042°
5 Sept 90 (248)

2046 CHANGE COURSE TO 180° onto line 29A

1110^{PM} 0410z abandon attempts to profile channel
because rough seas completely wiping out
3.5 record. Begin transit to
INTERDOMAL BASIN

1607z (1107 L) stop for station

STATION 7

1616z Box core in water

1711z Box core to surface. Poor recovery, only one
jaw closed. Re-rigging, oiling jaws.

1715z Short transit to reposition. Station 7a

1725z On station; drifting

1727z Box core away.

1750z Box core hit bottom.

1820z Box core to surface. Excellent recovery.

1827z CTD cast 100m.

1845z Rerigging piston core

1909z Transit to reposition at basin center

1932z On station, drifting.

Station 7b

1937z Piston core away. 1736m

2002z Piston core hit bottom. Clear hit.

2103z Piston core on deck

2115z Niskin Bottles overboard

2116z Niskin Bottles retrieved

2119z Plankton Tow

2131 leaving station 7, heading for new box core
station.

2200 STATION 8

2208 BOX CORE DOWN

2300 BOX CORE UP - FAILED - RETRY

2325 - 2nd attempt at box core down

2351 2ND BOXCORE HIT

0003 Generator out -- waiting to cool down before finishing retrieval of box core

0007 Generator back - Continue retrieval of box core

0020 BOX CORE ON DECK - FULL CORE

0037 COURSE 020 N/NE TO NEXT BASIN

0336 ~~3.5~~ 3.5 m/sec on core of 054
3.5 very good on 298°
had to take 045 instead of desired 060 because seismic ship is deploying 2 streamers.

0642 Stop for station 9

0650 BOX core away.

0740 Box core surfaced - failed - retry. Cable tangle prevented closing

0743 Box core away

0826 Box core to surface. No recovery; one jaw failed to close.

0836 Box core away (3rd attempt). 1414 m.
Jaws oiled.

0924 BOX CORE ON DECK - SUCCESSFUL -

9/6/90 (249)

09:30 HEAD 180° FOR NEXT BOX CORE STATION
R SOUTH END OF BASIN

1115 STOPPED FOR BOX CORE STATION 10

1120 BOX CORE DOWN

1141 BOX CORE HIT

12:00 BOX CORE UP - FAILED

12:05 BOX CORE DOWN AND TRY

1225 - Box core hit

1245 - BOX CORE UP - FAILED (CORE JAW DID NOT CLOSE)

1359 piston core started down after repositioning

1419 z piston core hit bottom

1447 z piston core up

1458 z CTD going down

1502 z CTD up

~ 1507 z Box core going down...

1527 z Box core started up

~ 1548 z Box core at surface - failed (one jaw did not close)

~ 1555 z Niskin bottles LA

~ 1606 z plankton tows in progress.

1635 z c/c 048; c/s 6 kts to reposition again for box core

1655 z back at station 10; c/s to 0

1704 z Box core down

6
Sept 8, 1990 (249)

1726 Box core hit bottom. 1453 m.

1748 Box core to surface. Failed to trigger. Mud on insides.

1811 Box core away. Filed trigger hook.

1854 Box core up. Failed to trigger. Mud on insides.

1901 Box core away. Attached rubber band to trigger.

1953-1917 Box core to surface. Half-full.

2000 Transit to ~~Gyre basin~~ bathymetric high to West. 250° / 7.1 knots.

2025 On station, drifting.

2033 Box core away. 562 fathoms / 1790 m

2049 Box core on bottom

2102 Box core up; technical success; strategic failure
RETRY

2132 2nd try of boxcore overboard -- UT rig w/ extra weights

2147 Boxcore hit.

2202 BOX CORE UP - TIPPED; DIDN'T ENTER SED STRAIGHT.
SEDIMENT DISTURBED

22:10 COURSE 227

JOY 250 (7 Sept)

0104 Begin Lin 30

0149 compressor's making strange noises

0154 stop shooting; end Lin 30

0217Z start line 31 into turn southward
 Bridge (Napier) turned N instead of S, stop shooting to reposition
 compressor throwing more oil (and it's black (burned))

0331 restart line 31

0401 Compressor shut down itself - ending
 attempts to shoot seismics, will
 begin piston core stations

0952 Stop STATION 12 - Piston Core $27^{\circ} 06.3'$
 Rigging Piston core $-94^{\circ} 58.2'$

0959 - Piston Core Down

1020 - Piston Core Hit $\begin{cases} 27^{\circ} 06.56' \\ -94^{\circ} 58.56' \end{cases}$

1050 - Piston Core onboard - core barrel full

1107 - Crse 262 to next way point

1235 - Stop for Piston core STATION 13 $\begin{cases} 27^{\circ} 05.67' \\ -95^{\circ} 08.12' \end{cases}$

1250 - Piston core down

1310 - Piston core triggered

1335 - piston core up -

1412Z transit to next way point

2317Z - Stop STATION 14 - Piston Core

2331Z - Piston core down

2353Z - Piston core hit

0034Z - Piston core up - full core

GOS/ CTD Cast

- 0100 z Box core dn (try 1)
 0121 Box core on Bottom
 0141 Box core up - too light. ³ little penetration; jaws closed but
 no seal from sediments
 ~0145 plankton tows ongoing
 0205 reposition for box core
 0215 on station
 ~0230 box core on its way down (try 2)
 0243 box core hit bottom (1468 m)
 0304 box core on board.
 0322 z c/c 140; c/s ~5kts to reposition
 0340 Stop for boxcore rehy (3)
 0345 Box core starts down
 0406 Box core hit bottom
 0429 Box core up. Successful, Big smile on Tony's face.
 ~0445 Setting sail for next way point 130°/6.0kts
 0500 c/c 180°
 0528 c/c 090°
 0614 c/c 198°
 0728 c/c 064°
 0823 c/c 200°
 1740 c/c due north from 274°
 1745 c/c due east
 2035 stop & drift 5-10 minutes to determine drift

2145Z on STATION 15 for Piston Core

21:50 PISTON CORE DOWN

22:22 PISTON CORE HIT

22:44 PISTON CORE UP

22:45 Reposition for box core

2258 - Repositioned for box core

23:05 - BOX CORE DOWN

23:27 BOX CORE HIT

2357 BOX CORE UP AOK

0018Z CTD down

0025Z CTD up

J 252 9 Sept 90

0104Z plankton trws finished

0107 Transit to next waypoint

0122 stop for piston coring

0147 piston core started down

0213 triggered

0300 c/c 0°; 4/5 8 kts start new set of zig zags (3.5 kHz)

1121 STATION 16₁₇ - Stop for Piston Core

11:28 PISTON CORE DOWN

11:47Z PISTON CORE HIT

1210Z PISTON CORE UP - Half Full

0737 underway @ 266° (for wave field & 700m station)
 1621 z all stop for STATION 17

1627 Box Core AWAY STATION 17

1637 Box core coming back up

1647 Box core up.

1743 Stop for piston core STATION 18

1750 Piston core down.

1804 Piston core tripped at bottom. Visible hit.

1830 Piston core up.

1840 CTD cast 100m.

1909 Niskin bottles cast 20m.

1912 Phytoplankton tow 25m

1912 Zoo plankton tow 25m

1918 Phytoplankton tow 35m

1924 Set sail for next waypoint 075° / 9.0 kts.
 Sailing thru "WAVE FIELD".

21:32 Boxcore DOWN STATION 19

21:39 Box core HIT

21:45 Box core UP SUCCESSFUL

2200 - PISTON CORE LAUNCHED

22:27 - PISTON CORE UP

0006 Boxcore @ 250m STATION 20

0015 BOXCORE DOWN

253 JULIAN DAY

0016 BOX CORE HIT

0019 BOX CORE UP TOO FULL

0023 BOX CORE DOWN 2ND TRY

0027 BOX CORE HIT

0030 BOX CORE UP - UNSUCCESSFUL

0039 3RD BOX CORE TRY HIT.

0042 3RD B. CORE UP - SUCCESSFUL.

0100 underway to P.A.

0655 Arrive Port Aransas, Texas!

LEG 1

[illegible]

LOS T. HOOKS

[illegible]

Depth Transducer Calibrations - Student Cruise 13

20-Aug-90		feet/meter		3.2808399
Cal. Pressure				
Gauge Reading		Near DT	Far DT	
Meters	feet	feet	feet	
0	0.0	0	0	
5	16.4	15		
10	32.8	33	32	
15	49.2	51		
20	65.6	71	73	
25	82.0	92	96	
30	98.4			