

**BAHAMAS CRUISE REPORT
HIGH RESOLUTION MULTICHANNEL SEISMIC SURVEY
CRUISE BAHAMAS ON THE R/V LONE STAR
06 JUNE 1994 TO 07 JULY 1994**

by

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University of Miami cruise participants: Don McNeill, Gergor Eberli, Flavio Anselmetti, Dominic Esker, Christian Palud (Ifremer, France).

The following is a technical summary of the Bahamas cruise aboard the R/V *Lone Star*. The Bahamas multichannel high resolution survey was a joint effort between Rice University and University of Miami. The cruise incorporated single channel and multichannel seismic with a small amount of piston coring.

Seismic acquisition was digital using the Elics digital acquisition system, D24. Seismic data collected in compressed Elics format and translated into SEG-Y format on site, both formats stored on 2.3 GB Exabyte tapes. Navigation was GPS acquired every 5 seconds and input directly to the Elics system through the RS232 serial port. Energy sources were the SSI GI-50 air gun and SSI S-15 water gun in conjunction with an ITI 10 hydrophone single channel 6.1 m streamer, ITI 24 hydrophone 24 channel 72 meter streamer, and 240 hydrophone 24 channel 600 m streamer with Syntron RCL-2 cable levelers. Air pressure supplied by Deutz/Bauer 35 scfm and Ingersol/Rand 15 scfm compressors in series for the GI-50 and only the 15 scfm unit for the S-15. Coring was done with a 10 ft piston coring device. Details of the seismic and cores taken on this cruise are appended to the back of this technical report. Additional information on this cruise is available from the University of Miami.

Seismic acquisition:

	<u>GI-50 (mc)</u>	<u>GI-50 (sc)</u>	<u>S-15 (mc)</u>
Shooting Interval =	6000 ms	6000 ms	2000 ms
Sampling Frequency =	1000 Hz	1000 Hz	2000 HZ
Recording Length =	2500 ms	2500 ms	800 ms
Energy =	2000 psi	2000 psi	2000 psi
High Pass Filter Digital =	100 Hz	100 Hz	160 Hz
Low Pass Filter Digital =	400 Hz	400 Hz	800 Hz
Signal Amplification =	128 db	72 db	72 db
Source distance from ship =	7.5 m	7.5 m	7.5 m
Source depth =	1.5 m	1.5 m	0.5 m
Distance to 1st phone from ship =	119.5 m	10 m	12.5 m
Distance from source to cable =	2.45 m	7.9 m	0.0 m
Distance from source to 1st phone =	112 m (75 ms)	8.3 m	5.0 m

Seismic File Statistics for multichannel lines using S-15 with 24 channel 72 m streamer or GI-50 with 24 channel 600 m streamer:

<u>Line name</u>	<u>Dist. nm</u>	<u>Shots</u>	<u>Time</u>	<u>Size MB</u>	<u>SI sec.</u>	<u>Rate kts</u>	<u>Coordinates</u>	<u>Source</u>
BTM1B	2.3	395	1:10	12.1	6	4	24°22.87'N 79°22.07'W 24°25.10'N 79°22.10'W	GI-50
BTMS1	POWER FAILURE LOST DATA							
BTMS1B	4.0	2102	1:07	14.0	2	4	24°39.26'N 79°13.29'W 24°35.70'N 79°10.53'W	S-15
BTMS2	5.6	2580	1:22	40.4	2	4	24°36.03'N 79°14.80'W 24°36.13'N 79°09.20'W	S-15
<u>Line name</u>	<u>Dist. nm</u>	<u>Shots</u>	<u>Time</u>	<u>Size MB</u>	<u>SI sec.</u>	<u>Rate kts</u>	<u>Coordinates</u>	<u>Source</u>

BTMS2B	6.2	2900	1:35	48.5	2	4	24°36.13'N 79°09.15'W	S-15
BTMS2C	GUN PROBLEMS NO DATA COLLECTED							
BTMS3	7.8	3864	2:10	74.4	2	4	24°37.29'N 79°52.18'W	S-15
							24°37.16'N 79°00.00'W	
BTM3B	7.8	3001	1:39	57.8	2	4	24°37.14'N 79°00.13'W	S-15
							24°37.21'N 79°07.97'W	
BTM3C	7.8	3001	1:24	55.1	2	4	24°37.21'N 79°08.08'W	S-15
							24°37.26'N 79°14.78'W	
BTM4	5.8	2719	1:31	52.4	2	4	24°36.46'N 79°15.44'W	S-15
							24°38.71'N 79°09.60'W	
BTM4B	6.8	3000	1:39	57.2	2	4	24°38.69'N 79°09.37'W	S-15
							24°38.52'N 79°02.53'W	
BTM5A	6.8	3020	1:38	58.1	2	4	24°42.09'N 79°02.00'W	S-15
							24°38.28'N 79°07.62'W	
BTM5B	7.5	4070	2:18	78.4	2	4	24°38.25'N 79°07.67'W	S-15
							24°39.51'N 79°15.05'W	
BTM6	5.1	2220	1:14	42.8	2	4	24°32.54'N 79°15.82'W	S-15
							24°32.50'N 79°10.73'W	
BTM7	6.8	3025	1:40	58.4	2	4	24°32.75'N 79°10.79'W	S-15
							24°39.58'N 79°10.67'W	
BTM7B	5.3	2368	1:20	45.9	2	4	24°39.62'N 79°10.67'W	S-15
							24°44.91'N 79°10.64'W	
BTM8	2.6	904	0:26	17.4	2	4	24°44.98'N 79°10.76'W	S-15
							24°45.85'N 79°12.10'W	
BTM101A	14.5	2010	3:21	60.3	6	4	24°45.00'N 79°21.96'W	GI-50
							24°30.46'N 79°22.15'W	
BTM101B	16.0	2296	3:51	68.9	6	4	24°30.36'N 79°22.15'W	GI-50
							24°13.90'N 79°21.99'W	
BTM102A	13.0	2332	3:56	70.0	6	4	24°10.70'N 79°19.75'W	GI-50
							24°24.06'N 79°19.43'W	
BTM102B	15.5	2490	4:09	74.7	6	4	24°24.18'N 79°19.43'W	GI-50
							24°39.67'N 79°19.24'W	
BTM102C	5.0	750	0:51	22.5	6	4	24°39.74'N 79°19.25'W	GI-50
							24°44.94'N 79°19.13'W	
BTM103A	14.0	1980	3:18	59.4	6	4	24°43.74'N 79°17.01'W	GI-50
							24°29.81'N 79°16.99'W	
BTM103B	12.0	2015	3:18	60.5	6	4	24°29.72'N 79°16.99'W	GI-50
							24°17.63'N 79°16.98'W	
BTM104A	7.5	1220	2:01	36.6	6	4	24°14.65'N 79°18.42'W	GI-50
							24°14.49'N 79°26.99'W	
BTM105A	12.0	1963	3:16	58.9	6	4	24°15.09'N 79°27.77'W	GI-50
							24°26.59'N 79°27.52'W	
BTM106A	16.5	2551	4:16	76.6	6	4	24°23.01'N 79°28.68'W	GI-50
							24°34.57'N 79°12.86'W	
BTM107A	7.7	1139	1:56	34.2	6	4	24°37.24'N 79°13.91'W	GI-50
							24°44.96'N 79°14.01'W	
BTM108A	15.0	2190	3:38	65.7	6	4	24°45.00'N 79°15.55'W	GI-50
							24°29.98'N 79°15.58'W	
BTM108B	15.2	2375	3:55	71.3	6	4	24°29.92'N 79°15.60'W	GI-50
							24°14.70'N 79°15.53'W	
BTM109A	23.8	3410	5:39	102.3	6	4	24°14.00'N 79°13.89'W	GI-50
							24°37.81'N 79°13.94'W	

<u>Line name</u>	<u>Dist. nm</u>	<u>Shots</u>	<u>Time</u>	<u>Size MB</u>	<u>SI sec.</u>	<u>Rate kts</u>	<u>Coordinates</u>	<u>Source</u>
BTM110A	13.8	1756	2:56	52.7	6	4	24°40.56'N 79°14.43'W	GI-50

BTM111A	15.9	2217	3:40	66.5	6	4	24°40.60'N 79°28.25'W	GI-50
							24°38.74'N 79°28.43'W	
BTM111B	2.8	346	0:35	10.4	6	4	24°38.68'N 79°12.54'W	GI-50
							24°38.62'N 79°12.47'W	
BTM112A	13.8	2060	3:28	61.8	6	4	24°36.54'N 79°15.34'W	GI-50
							24°36.52'N 79°13.61'W	
							24°28.47'N 79°26.30'W	
BTM113A	LOST DATA							
BTM114A	8.0	1191	1:59	35.8	6	4	24°31.43'N 79°14.76'W	GI-50
							24°26.26'N 79°21.73'W	
BTM114B	8.5	1220	2:02	36.6	6	4	24°26.84'N 79°20.99'W	GI-50
							24°21.64'N 79°27.65'W	
BTM115A	7.3	872	1:30	26.3	6	4	24°19.99'N 79°28.72'W	GI-50
							24°20.01'N 79°21.44'W	
BTM116A	5.0	670	1:07	20.1	6	4	24°19.74'N 79°17.36'W	GI-50
							24°19.89'N 79°12.32'W	
BTM117A	5.0	1340	1:38	40.2	6	4	24°19.85'N 79°12.25'W	GI-50
							24°19.58'N 79°12.33'W	
							24°17.47'N 79°17.52'W	
BTM118A	4.2	538	0:53	16.2	6	4	24°14.69'N 79°19.49'W	GI-50
							24°14.59'N 79°15.29'W	
BTM119A	4.1	525	0:53	15.8	6	4	24°33.77'N 79°23.94'W	GI-50
							24°33.87'N 79°19.85'W	
BTM119B	10.7	1555	2:35	46.7	6	4	24°33.80'N 79°23.60'W	GI-50
							24°33.41'N 79°12.94'W	
BTM120A	10.2	1281	2:08	38.6	6	4	24°33.20'N 79°13.47'W	GI-50
							24°33.54'N 79°14.87'W	
							24°32.43'N 79°23.64'W	
BTM121A	11.6	2225	3:43	66.8	6	4	24°30.61'N 79°24.52'W	GI-50
							24°30.54'N 79°12.92'W	
BTM122A	11.1	1644	2:45	49.4	6	4	24°29.86'N 79°12.96'W	GI-50
							24°27.68'N 79°14.19'W	
							24°27.37'N 79°24.08'W	
BTM123A	13.2	1915	3:09	57.4	6	4	24°37.23'N 79°13.76'W	GI-50
							24°24.01'N 79°13.66'W	
BTM124A	9.9	1378	2:14	41.4	6	4	24°27.12'N 79°15.98'W	GI-50
							24°36.99'N 79°16.02'W	
BTM125A	9.8	1517	2:31	45.6	6	4	24°36.79'N 79°18.96'W	GI-50
							24°26.96'N 79°19.07'W	
BTM126A	10.8	1538	2:35	46.2	6	4	24°22.96'N 79°23.45'W	GI-50
							24°23.23'N 79°12.65'W	
BTM127A	9.9	1420	2:22	42.8	6	4	24°29.02'N 79°14.11'W	GI-50
							24°29.26'N 79°24.05'W	
BTM128A	9.9	1505	2:30	45.2	6	4	24°33.29'N 79°23.51'W	GI-50
							24°33.24'N 79°13.57'W	
BTM129A	8.6	1080	1:47	36.8	6	4	24°34.54'N 79°21.48'W	GI-50
							24°34.51'N 79°12.90'W	
BTM130A	8.3	1129	1:54	33.4	6	4	24°35.85'N 79°12.85'W	GI-50
							24°35.85'N 79°21.19'W	
BTM131A	24.2	2920	4:54	87.6	6	4	24°33.32'N 79°22.98'W	GI-50
							24°32.51'N 79°47.17'W	

<u>Line name</u>	<u>Dist. nm</u>	<u>Shots</u>	<u>Time</u>	<u>Size MB</u>	<u>SI sec.</u>	<u>Rate kts</u>	<u>Coordinates</u>	<u>Source</u>
BTM132A	4.4	630	1:03	18.9	6	4	24°30.14'N 79°46.01'W	GI-50
							24°34.55'N 79°45.98'W	

BTFS1	6.8	1000	1:40	30.0	6	4	23°40.34'N 79°05.03'W 24°33.52'N 79°04.99'W	GI-50
BTFS2	1.7	241	0:25	7.2	6	4	23°33.41'N 79°03.33'W 23°35.16'N 79°03.51'W	GI-50
BTFS2B	4.0	588	0:59	18.4	6	4	23°35.50'N 79°03.51'W 23°39.47'N 79°03.35'W	GI-50
BTFS3	4.2	615	1:00	18.5	6	4	23°38.94'N 79°06.34'W 23°38.29'N 79°02.24'W	GI-50
BTFS4	4.4	830	1:21	24.9	6	4	23°38.17'N 79°02.18'W 23°36.52'N 79°06.25'W	GI-50
BTFS5	5.4	815	1:23	24.5	6	4	23°34.43'N 79°06.51'W 23°34.16'N 79°01.13'W	GI-50
BTFS6	1.7	261	0:32	8.0	6	4	23°34.09'N 79°01.13'W 23°32.50'N 79°01.57'W	GI-50
BTFS7	7.1	930	1:32	27.9	6	4	23°32.44'N 79°01.75'W 23°39.53'N 79°03.37'W	GI-50

Seismic File Statistics for single channel lines using GI-50 with single channel 10 phone 6.1 m streamer:

Line name	Dist. nm	Shots	Time	Size MB	SI sec.	Rate kts	Coordinates	Source
BTFN1	3.5	513	0:46	0.67	6	4	25°24.53'N 79°17.99'W 25°25.99'N 79°14.78'W	GI-50
BTFN2	3.1	435	0:56	0.56	6	4	25°27.10'N 79°15.26'W 25°25.52'N 79°17.97'W	GI-50
BTFN3	3.1	453	0:45	0.59	6	4	25°26.82'N 79°18.50'W 25°27.94'N 79°15.59'W	GI-50
BTFN4	2.4	363	0:36	0.47	6	4	25°28.43'N 79°15.96'W 25°26.63'N 79°17.52'W	GI-50
BTFN5	3.4	478	0:48	0.63	6	4	25°27.67'N 79°19.28'W 25°28.42'N 79°15.98'W	GI-50
BTFN6	5.5	930	1:35	1.22	6	4	25°28.62'N 79°16.62'W 25°23.68'N 79°14.26'W	GI-50
BTFN7	5.6	656	1:05	0.86	6	4	25°23.61'N 79°14.91'W 25°28.63'N 79°17.29'W	GI-50
BTFN8	3.0	520	0:55	0.68	6	4	25°29.00'N 79°16.81'W 25°26.56'N 79°15.05'W	GI-50

Piston cores collected:

Line name	Length (m)	WD (m)	Coordinates	
BTC1	1.2	251	24°34.41'N	79°13.50'W
BTC2	1.0	310	24°34.47'N	79°13.82'W
BTC3	No trigger	398	24°33.43'N	79°14.80'W

GI-50 and S-15 gun statistics:

GI-50 Total Shots Recorded = 64,305	S-15 Total Shots Recorded = 39,312
GI-50 Total Miles Recorded = 457.8	S-15 Total Miles Recorded = 80.1
GI-50 Total Hours Recorded = 106.2	S-15 Total Hours Recorded = 23.4

CRUISE OUTLINE: 04 June to 07 July 1994

04 June 1994 1) Depart IAH at 1850 on Continental Flt. 606 to MIA. Transported all seismic equipment on plane.

- 2) Arrive at MIA at 2315, meet with Don and Gregor at airport. Bring equipment to R/V Lone Star. Elics monitor did not arrive at MIA.
3) Stay at hotel (DoubleTree).
- 05 June 1994
- 1) Meet at R/V Lone Star at 0700 to test 600 m streamer and birds (3 out of 5 birds worked). Set up hardware to streamer and birds.
 - 2) Tried to re configure another monitor for Elics system since our monitor did not arrive with my flight.
 - 3) Track down monitor with Continental Airlines.
 - 4) Stay at hotel.
- 06 June 1994
- 1) Monitor arrived, finish setting up Elics D24 system with multichannel amplifier.
 - 2) Collected data for the Miami group to test ability to read Elics SEG-Y formatted data.
 - 3) Begin working on hose bundle for GI-50 and S-15 seismic guns.
 - 4) Stay at hotel.
- 07 June 1994
- 1) UM group having trouble reading SEG-Y data collected for Elics. Best method is translating Elics formatted data through Playback on the Elics with Motorola.
 - 2) Finish configuring hose bundle.
 - 3) Work on GPS, cannot get Trimble to output to Elics system or to Procomm.
 - 4) Stay on R/V Lone Star.
- 08 June 1994
- 1) Problem with 2 channels on multichannel amplifier.
 - 2) Solder connector to deck leader for 600 m multichannel streamer for connection to amplifier.
 - 3) Andre arrives, unload equipment from truck to R/V Lone Star and extra streamer sections to storage. Stow and secure all gear.
 - 4) Fix Trimble GPS connection/communication to Elics.
 - 5) Ship orientation meeting
 - 6) Fill out customs documents for seismic gear on board ship.
- 09 June 1994
- 1) Departure delay - water pump on Onan generator broken delay from 0030 until 1120.
 - 2) Set up GI-50 gun with float array, connect hose bundle to gun and computer.
 - 3) Depart dock at Port of Miami at 1120, arrive at Ocean Cay, Bahamas at 1930 to clear customs, depart at 2030.
 - 4) Deploy 600 m streamer at 2230, attach all collars for 3 birds, one at beginning of the 1st, 3rd, and 5th sections. Tune streamer and Elics for low signal to noise ratio.
 - 5) Problems with connector at amp, reseal and solder wires.
- 10 June 1994
- 1) Attach GI-50 air gun to tow array and deploy at 0400.
 - 2) Finish tuning Elics and streamer.
 - 3) Problem with Deutz/Bauer compressor, blow down block failure, blew pop off valve on manifold due to over pressure. Have to manually blow down compressor. Only one Ingersol/Rand compressor working (starboard), other has electrical problem.
 - 4) Data quality on Elics - channels 3 and 24 on amplifier not working.
 - 5) GPS navigation on line, input every 5 seconds.
 - 6) Begin collecting data (BTM1) at 2103.
- 11 June 1994
- 1) GI-50 failure after about 15,000 shots, air leaking from both chambers, only one shuttle o-ring looked bad (blistered), replaced and reassembled. A number of attempts were made to repair gun with no luck.
 - 2) Set up to run S-15 until the GI-50 can be repaired. Modify hose bundle.

- 3) Problems with ITI 24 channel 72 m streamers connector. Needed to resolder some of the wires.
 - 4) Tune Elics and steamers signal to noise ratio.
 - 5) Problems with pressure regulator, not able to fire S-15 less than 3 seconds with both compressors on line, regulator having trouble maintaining 2000 psi.
 - 6) Begin collecting S-15 data on bank with multichannel ITI streamer.
- 12 June 1994
- 1) Pressure regulator failure, pressure at 800 psi, cannot increase. Repair regulator (clean, reassemble), working better, pressure slowly climbs to 2000 psi, needs to be rebuilt.
 - 2) Back up data in Elics format, translate lines to SEG-Y and store to tape. Lines BTM1B, BTMS1, BTMS1B, BTMS2, BTMS2B, BTMS2C, BTMS3, BTMS3B, BTMS3C, BTMS4, BTMS4B.
 - 3) Lost one line to power failure, line BTMS1.
 - 4) Determined that regulator is source of GI-50 failure, no problem with gun, not enough scfm to seal gun. Clean and stow GI-50.
- 13 June 1994
- 1) Continue collecting multichannel data using S-15 and ITI 24 channel streamer.
 - 2) Back up data in Elics format, translate lines to SEG-Y and store to tape. Lines BTM5A, BTMS5B, BTMS6, BTMS7, BTMS7B, BTMS8.
 - 3) Recover ITI streamer and S-15, head to Ocean Cay to clear customs and head to Miami for compressor repairs and a new regulator. Compressor problems consist of blow down block failure, belt, blown stainless steel air line.
 - 4) Depart Ocean Cay at 1600 for Miami.
- 14 June 1994
- 1) Arrive at Port of Miami at 0010 cannot clear customs until 1115.
 - 2) Rewire ITI 24 channel connector to improve signal to noise ratio.
 - 3) Pick up supplies at hardware store in Miami (degreaser, silicon, WD-40, contact cleaner, shrink wrap, tape).
 - 4) Bring Chris Palud to airport with Andre.
 - 5) Work with compressor repairman - remove compressor from ship to be repair at shop.
 - 6) Onan 12 kW generator on ship failed, need to replace Onan generator.
 - 7) Stay at hotel with Andre.
- 15 June 1994
- 1) Go to Port of Miami to check status of R/V Lone Star.
 - 2) Go to RSMAS, problems reading SEG-Y files from Elics.
 - 3) Drop off Andre at airport, renew rental car for another day.
 - 4) Stay at hotel.
- 16 June 1994
- 1) Return rental car.
 - 2) Check on ship status with respect to compressor and generator.
 - 3) Ship leaves Port of Miami to the Onan dealer dock on the Miami River.
 - 4) Shop for provisions.
 - 5) Pick and pay for compressor and new regulator and regulator rebuild kit.
 - 6) Clean, service, and stow S-15 water gun.
- 17 June 1994
- 1) Still in Miami at Onan dealer dock in Miami River installing new 20 kW generator.
 - 2) Loaded compressor on ship at 1030 with rented crane. hooked up compressor, secured to deck, attached hose to blow down block.
 - 3) Set up new high flow regulator, attached to manifold and hose bundle.
 - 4) Re configure hose bundle for GI-50.
 - 5) Went to RSMAS to handle paperwork (receipts, photocopy, phone calls).
 - 6) Hook up UPS to Elics and Monitor, works great with new Onan generator.
 - 7) Finish installing new generator.

- 8) Don and Dominac join the group.
 - 9) Depart Onan dock for Bahamas at 2330.
- 18 June 1994
- 1) Arrive Ocean Cay, Bahamas to clear customs at 0810. Take on water and fuel. Change oil in new Onan generator. Depart Ocean Cay at 1230.
 - 2) Change batteries in birds and program.
 - 3) Set up GI-50 on float and tow array.
 - 4) Deploy 600 m streamer with 3 birds at 1705
 - 5) Power up seismic system and begin collecting data at 1854.
 - 6) Deutz/Bauer compressor working OK.
- 19 June 1994
- 1) Problem with Deutz/Bauer compressor, battery is dead. Hook compressor to ships 12 VDC source. Compressor working well at 2200 RPM maintaining 2800 psi.
 - 2) Back up data in Elics format, print out lines, translate lines to SEG-Y and store to tape. Lines BTM101A, BTM101B, BTM102A, BTM102B, BTM102C, BTM103A, BTM103B.
 - 3) Routine maintenance checks and fueling.
- 20 June 1994
- 1) Continuing to collect multichannel seismic with GI-50 and 600 m streamer.
 - 2) Back up data in Elics format, print out lines, translate lines to SEG-Y and store to tape. Lines BTM104A, BTM105A, BTM106A, BTM107A, BTM108A.
 - 3) Routine maintenance checks and fueling.
- 21 June 1994
- 1) Continuing to collect multichannel seismic with GI-50 and 600 m streamer.
 - 2) Back up data in Elics format, print out lines, translate lines to SEG-Y and store to tape. Lines BTM108B, BTM109A, BTM110A, BTM111A.
 - 3) Routine maintenance checks and fueling.
- 22 June 1994
- 1) Continuing to collect multichannel seismic with GI-50 and 600 m streamer.
 - 2) Back up data in Elics format, print out lines, translate lines to SEG-Y and store to tape. Lines BTM111B, BTM112A, BTM113A, BTM114A, BTM115A, BTM116A, BTM117A, BTM118A.
 - 3) Routine maintenance checks and fueling.
 - 4) Rechain compressor to deck. Problem with Deutz/Bauer compressor, wire broke off, oil line on oil gauge broke, compression fitting and tubing on stage 3 on blow down block broke, need to head to Miami for repairs.
 - 5) Recover GI-50 and 600 m streamer, leak in section 2, patched with Bull Dog tape to stop fluid loss.
 - 6) Head to Ocean Cay at 2345.
- 23 June 1994
- 1) Detach GI-50 from tow array, cover and stow GI gun.
 - 2) Arrive Ocean Cay at 0800 to clear customs.
 - 3) Depart Ocean Cay at 0930 to head for Miami.
 - 4) Make back up tapes of data collected to date.
 - 5) Arrive at Port of Miami at 1800 to clear customs.
 - 6) Gregor departs group.
- 24 June 1994
- 1) Unspool 600 m streamer to dock. Repair leak in PVC liner in the last 2 m of second 100 m section. Disconnect between sections 2 and 3, slide on repair liner and clamp into place, reconnect section, fill with fluid, and tape connections. Spool streamer on ship.
 - 2) Repair compression fitting on Deutz/Bauer compressor, obtain some spares.
 - 3) Take on fuel, water, and provisions.
 - 4) Depart Port of Miami at 2230.

- 25 June 1994
- 1) Arrive Ocean Cay to clear customs at 0750, leave at 0930.
 - 2) Assemble GI-50 to tow array.
 - 3) Change batteries in birds and program, one of the remaining 3 birds has a problem. Battery goes dead after about 45 minutes.
 - 4) Deploy 600 m streamer with 2 birds at 1530 and GI-50 at 1650.
 - 5) Begin collecting seismic data at 1845.
 - 6) Deutz/Bauer compressor failure at 1938, stage 3 compression fitting, repair with new tubing and fittings. Electronics controlling blow down block not working. Hooked up by-pass switch to manually control blow down block.
 - 7) Routine maintenance checks and fueling.
- 26 June 1994
- 1) Collect multichannel seismic with GI-50 and 600 m streamer.
 - 2) Back up data in Elics format, print out lines, translate lines to SEG-Y and store to tape. Lines BTM119A, BTM119B, BTM120A, BTM121A, BTM122A.
 - 3) Routine maintenance checks and fueling.
 - 4) Stop collecting data at 1325, ship problem, leak in fresh water supply.
 - 5) Recover GI-50 and 600 m streamer, another leak in streamer, this time in the end of section 3, not as bad as first leak. Degreased area around leak and patched with electrical and Bull Dog tape. First leak repair holding very well.
 - 6) Head for Ocean Cay at 1500 to repair leak and take on more water.
- 27 June 1994
- 1) Arrive at Ocean Cay at 0015.
 - 2) There also appears to be a leak in the ships engine heat exchanger.
 - 3) Make ship repairs.
 - 4) Depart Ocean Cay at 2230 for seismic site.
- 28 June 1994
- 1) Assemble GI-50 to tow array.
 - 2) Change batteries in birds and program.
 - 3) Deploy 600 m streamer at 0550 with 2 birds.
 - 4) Problem with Elics D24, lost channels 13 - 24. Repaired by reseating boards.
 - 5) Collect multichannel seismic with GI-50 and 600 m streamer at 0931.
 - 2) Back up data in Elics format, print out lines, translate lines to SEG-Y and store to tape. Lines BTM123A, BTM124A, BTM125A, BTM114B, BTM126A.
 - 3) Routine maintenance checks and fueling.
- 29 June 1994
- 1) Collect multichannel seismic with GI-50 and 600 m streamer.
 - 2) Back up data in Elics format, print out lines, translate lines to SEG-Y and store to tape. Lines BTM127A, BTM128A.
 - 3) Routine maintenance checks and fueling.
 - 4) Recover GI-50 and 600 m streamer at 1300. Seas too rough, tropical depression in the area. Head for Ocean Cay, arrive at 1940.
- 30 June 1994
- 1) Depart Ocean Cay at 0950 to attempt survey with single channel ITI 10 phone 6.1 m streamer and GI-50. Seas still rough.
 - 2) Set up Elics for single channel data. Begin shooting at 1904.
 - 3) Problems with 24 channel ITI 72 m streamer, could be in the connection, noisy channels and unstable. Resolder connector.
 - 3) Routine maintenance checks and fueling.
- 01 July 1994
- 1) Collect single channel seismic with GI-50 and 6.1 m ITI streamer.
 - 2) Back up data in Elics format, print out lines, translate lines to SEG-Y and store to tape. Lines BTFN1, BTFN2 BTFN3, BTFN4, BTFN5, BTFN6, BTFN7, BTFN8.
 - 3) Routine maintenance checks and fueling.
 - 4) Recover GI-50 and single channel ITI streamer at 0510.

- 5) Deploy ITI 24 channel 72 m streamer to see if connection was source of noise problem. No improvement. Recover at 0541.
 - 6) Head for Bimini at 0600, Arrive at 0827.
 - 7) Translate navigation files, Don leaves group.
- 02 July 1994
- 1) Depart Bimini at 1010 for Ocean Cay to take on water and fuel.
 - 2) Test ITI 24 channel streamer on deck, appears to work OK on deck but not in the water. Problem may be in streamer.
 - 3) Arrive at Ocean Cay at 1230, depart at 1910.
- 03 July 1994
- 1) Deploy GI-50 and ITI 24 channel 72 m streamer, streamer still not working, missing channels, high signal to noise ratio, variable preamp voltage. Recover ITI streamer at 0610. Work on connection again.
 - 2) Change batteries in birds and program.
 - 3) Deploy 600 m streamer with 2 birds, one at beginning of 1st section the other at beginning of 5th section. Complete deployment at 0710.
 - 4) Begin collecting multichannel seismic data at 0920.
 - 5) Back up data in Elics format, print out lines, make navigation back up, translate lines to SEG-Y and store to tape. Lines BTM129A, BTM130A, BTM131A, BTM132A.
 - 6) Routine maintenance checks and fueling.
 - 7) Recover GI-50 and 600 m streamer at 2350.
 - 8) Before heading to southern survey site, tested ITI 24 channel streamer one more time, still not working.
- 04 July 1994
- 1) Recover ITI 24 channel streamer and head to southern site at 0110.
 - 2) Noticed cracks in hydrophones and phone separation from cable on ITI 24 channel streamer. Contacted John Anderson to get permission to seal phones with waterproof 3M sealer. Begin work on streamer at 1100
 - 3) Change batteries in birds and program.
 - 4) Deploy GI-50 and 600 m streamer with 2 birds at 1400.
 - 5) Begin collecting multichannel seismic data at 1640.
 - 6) Fuel leak in Deutz/Bauer compressor fuel tank. Connect a direct fuel inflow and outflow line.
 - 7) Routine maintenance checks and fueling.
- 05 July 1994
- 1) Continuing to collect multichannel seismic with GI-50 and 600 m streamer.
 - 2) Back up data in Elics format, print out lines, make navigation back up, translate lines to SEG-Y and store to tape. Lines BTFS1, BTFS2, BTFS2B, BTFS3, BTFS4, BTFS5, BTFS6, BTFS7.
 - 3) Routine maintenance checks and fueling.
 - 4) Stop collecting data at 0836. Recover 600 m streamer at 0915.
 - 5) Test sealed ITI 24 channel streamer, much better, but damage already done to streamer, some channels no good (not a problem with connector). Streamer not usable for survey, needs to be rebuilt. Channels 2, 10, 14 dead, channels 7, 8, 11, 19 very noisy, preamp voltage stable.
 - 6) Recover ITI streamer and GI-50 at 1400. Stow all gear and prepare for piston coring. Set up piston coring device.
 - 7) Clean and service GI-50.
 - 8) Take 2 piston cores at two different sites, failed to collect a core at third site.
 - 9) Depart for Ocean Cay at 2300.
- 06 July 1994
- 1) Arrive at Ocean Cay at 0600 to clear customs, depart at 0830 for Miami.
 - 2) Talk to John Anderson about ITI 24 channel streamer, Andre Droxler about end of cruise, arrange a truck to return equipment to Houston and Galveston.

- 3) Arrive at Port of Miami at 1630.
- 4) Off load equipment on U-Haul truck. flake 600 m streamer onto truck.
- 5) Stay at hotel.

07 July 1994

- 1) Finish loading U-Haul truck with electronic equipment, spare streamer sections, and spool. Truck departed Miami at 1030. Call Andre Droxler about cruise and truck arrival.
- 2) End of cruise depart Miami on American Airlines Flt 2130 at 1405 arrive at IAH 1544.