

**CARIBBEAN CRUISE REPORT
HIGH RESOLUTION SINGLE CHANNEL SEISMIC SURVEY
CRUISE IN CARIBBEAN AND COLOMBIA BASIN ON THE R/V MAURICE EWING
26 NOVEMBER 1994 TO 07 DECEMBER 1994**

by

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The following is a technical summary of the Caribbean cruise aboard the R/V *Maurice Ewing*. The Caribbean single channel high resolution survey was a site survey for a potential ODP drilling Leg. The cruise incorporated single channel and 3.5 KHz seismic with Hydrosweep 3D profiler.

Seismic acquisition was digital using the Elics digital acquisition system, D2x. Seismic data collected in compressed Elics format and in SEG-D format using the ship multi-channel acquisition system the Digicon 2000. Elics data was stored on 2.3 GB Exabyte tapes. Navigation was GPS acquired every 10 seconds (every shot) and input directly to the Elics system through the RS232 serial port. Energy sources were 2 SSI S-80 air guns in conjunction with an AMG 224 hydrophone single channel 1375 m streamer. Air pressure supplied by 1000 scfm compressors.

Seismic acquisition:

	<u>S-80 (ci)</u>
Shooting Interval =	10000 ms
Sampling Frequency =	1000 Hz
Recording Length =	40000 ms
Energy =	2000 psi
High Pass Filter Digital =	100 Hz
Low Pass Filter Digital =	400 Hz
Signal Amplification =	72 db
Source distance from ship =	18.2 m
Source depth =	10.0 m
Distance to 1st phone from ship =	181.75 m
Distance from source to cable =	8.7 m
Distance from source to 1st phone =	163.8 m (109 ms)

Seismic File Statistics for single channel lines using two (2) S-80 with 224 phone 137.5 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>
E9417-01	16.66	972	2:41	2.05	10	6	15°24.57'N 75°12.86'W 15°40.04'N 75°19.07'W	S-80
E9417-02	18.45	1102	3:04	2.32	10	6	15°40.74'N 75°16.79'W 15°23.83'N 75°09.40'W	S-80
E9417-03	18.84	1122	3:07	2.36	10	6	15°25.39'N 75°06.74'W 15°42.80'N 75°13.92'W	S-80
E9417-04	11.17	675	1:52	1.42	10	6	15°42.08'N 75°13.06'W 15°31.23'N 75°15.72'W	S-80
E9417-5A	20.40 13.92	2061	5:33	4.33	10	6	15°32.78'N 75°14.72'W 15°46.87'N 74°59.97'W 15°40.22'N 74°47.74'W	S-80
E9417-06	20.28	1180	3:46	2.49	10	6	15°40.26'N 74°47.63'W 15°59.99'N 74°42.95'W	S-80

<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>
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E9417-07	10.98	675	1:51	1.42	10	6	15°58.65'N 74°42.01'W 15°48.45'N 74°37.93'W	S-80
E9417-08	11.05	664	1:50	1.40	10	6	15°50.01'N 74°35.17'W 15°59.96'N 74°39.97'W	S-80
E9417-09	12.91	667	1:50	1.40	10	6	16°01.00'N 74°37.00'W 15°50.88'N 74°31.95'W	S-80
E9417-10	31.86	1840	5:09	3.88	10	6	15°52.39'N 74°31.30'W 15°54.40'N 74°33.77'W 15°42.86'N 75°00.02'W	S-80
E9417-11	23.39	1312	3:48	2.77	10	6	19°24.86'N 82°38.14'W 19°38.29'N 82°57.29'W	S-80
E9417-12	13.58	805	2:13	1.70	10	6	19°36.54'N 82°58.79'W 19°26.25'N 82°49.94'W	S-80
E9417-13	13.03	748	2:05	1.58	10	6	19°25.12'N 82°51.98'W 19°34.34'N 83°01.19'W	S-80
E9417-14	9.08	520	1:27	1.10	10	6	19°34.54'N 83°00.81'W 19°35.98'N 82°51.76'W	S-80
E9417-15	30.01	1771	5:14	3.73	10	6	19°36.75'N 82°51.56'W 19°16.85'N 83°14.02'W	S-80
E9417-16	29.77	1738	4:49	3.66	10	6	19°14.83'N 83°12.64'W 19°34.01'N 82°49.87'W	S-80
E9417-17	23.65	1448	4:00	3.05	10	6	19°31.92'N 82°48.11'W 19°24.94'N 83°10.70'W	S-80
E9417-18	8.56	515	1:21	1.09	10	6	19°24.69'N 83°10.92'W 19°18.07'N 83°05.50'W	S-80

S-80 gun statistics:

S-80 Total Shots Recorded = 19,815

S-80 Total Miles Recorded = 337.59 nm

S-80 Total Hours Recorded = 56.08

Hydrosweep Profiler Statistics:

Plot #	Date	Julian Day	Time (GMT)	Site	Shooting Time
1	11/29/94	333	0230-0815	6	5hr 45min
2	11/30/94	334	1230-2400	3A	11hr 30min
3	12/01/94	335	0000-1615	3A-3	16hr 15min
4	12/01/94	335	1000-2000	3	3hr 45min
5	12/01/94	335	2000-2400	3-3A	4hr 00min
	12/02/94	336	0000-0115	3A	1hr 15min
6	12/02/94	336	0115-1100	Transit	9hr 45min
7	12/02/94	336	1100-2115	Transit	10hr 15min
8	12/02/94	336	2115-2400	Transit	2hr 45min
	12/03/94	337	0000-0115	Transit	1hr 15min
9	12/03/94	337	0115-0700	NR 1/2	5hr 45min
10	12/03/94	337	0700-1000	NR 1/2	3hr 00min
11	12/03/94	337	1000-2400	NR 1/2	14hr 00min
12	12/04/94	338	0000-0400	NR 1/2-Transit	3hr 00min
13	12/04/94	338	1625-2400	2A	7hr 35min
	12/05/94	339	0000-0145	2A	1hr 45min
14	12/05/94	339	0145-2300	2A	21hr 15min

CRUISE OUTLINE: 26 November to 07 December 1994

- 26 November 1994
- 1) Depart IAH at 1434 on Continental Flt. 770 to Panama. Transported all seismic equipment on plane. Checked 5 pieces (Gulton plotter 98 lbs., monitor 84 lbs., CPU 56 lbs., misc box 54 lbs., paid 132.50 for excess baggage).
 - 2) Arrive at Panama at 1930, meet with agent at Panama airport. Paid \$5.00 for tourist Visa.
 - 3) Brought all seismic equipment to R/V M. Ewing at 2130.
 - 4) Stay at hotel in Panama City.
- 27 November 1994
- 1) Meet with Mike Rawson (LDEO logistic coordinator) at 0900.
 - 2) Left hotel for ship at 1100 - boarded ship at 1130.
 - 3) Ship left dock at 1505 for Panama Canal. Entered first lock on western side at 1600 and finished third lock at 1820. Headed for Lake Gatun.
 - 4) Entered exit locks on eastern side at 2340.
- 28 November 1994
- 1) Cleared final exit lock at 0130
 - 2) Ship safety drill at 1030.
 - 3) Set up Elics seismic acquisition system.
 - 4) Work on digitizing 3.5 KHz seismic data with Elics. Need to modify EPC recorder to output trigger signal for Elics. Problem - water depth deep (4000 m) and 3.5 KHz unit outputs/receives multiple key pulses. Having difficulty synchronizing Elics.
 - 5) Work on navigation connection to Elics.
 - 6) Meeting with captain, science officer, chief engineer at 1300.
 - 7) Began Hydrosweep at 2140 L/0240 GMT (11/29/94).
 - 8) No success with 3.5 KHz using multiple key pulses can do key/listen one at time but lose resolution.
- 29 November 1994
- 1) End Hydrosweep collection at 0305 L/0805 GMT.
 - 2) Connected navigation - needed to modify output string for Elics (9600,N,8,1), string output (Time, Shot # from Digicon, Lat., Long., total 45 characters)
HH:MM:SS.SSS ##### N DD MM.MMMM W DD MM.MMMM
 - 3) Will only collect analog 3.5 KHz seismic.
- 30 November 1994
- 1) Begin deploying two (2) SSI S-80 air guns at 0630 L and streamer at 0645.
 - 2) Begin collecting seismic data at 0825 L (1325 GMT) with line E9417-01 Site 3A. Sampling frequency = 1000 Hz, Bandwidth = 0 to 400 Hz, Recording length = 4096, Shooting interval = 10 seconds, ADL gain = 8. Recording delay = 3500 ms.
 - 3) Ships digital acquisition system (Digicon 2000) collecting in synchronization with Elics.
 - 4) Collecting Hydrosweep data at 0825 L.
 - 5) Print out lines E9417-01 through E9417-03.
 - 6) End day with start of line E9417-04.
- 01 December 1994
- 1) Collecting S-80 and 3.5 KHz seismic data moving towards Site 3 grid.
 - 2) Complete lines E9417-04 through E9417-10. Digicon line E9417-05 is equivalent with Elics E9417-5A and E9417-06. Lines E9417-5A and E9417-10 tie Site 3 and 3A together.
 - 3) Finished line E9417-10 at 2016 L (0116 GMT 12/2/94) retrieved guns and streamer at 20 40 L.
 - 4) Strip navigation data from Elics header.
 - 5) Still collecting Hydrosweep data.
 - 6) Sent e-mail messages to Rob Dunbar.
 - 7) Cleaned up André's Mac Powerbook desk top, set up Eudora.
- 02 December 1994
- 1) Process seismic lines E9417-01 through E9417-10 and print out.
 - 2) Finish making seismic/navigation track line plots of Sites 3 and 3A.
 - 3) Back up lines E9417-01 through E9417-10 on Exabyte tape.

- 4) Back up navigation data on diskette and on Exabyte tape.
 - 5) Still collection Hydrosweep data and 3.5 KHz seismic, small grid off of Rosalind Bank.
 - 6) E-mail Rob Dunbar and Julie Cole.
- 03 December 1994
- 1) Sitting watch over Hydrosweep and 3.5 KHz seismic. Shooting grid WNW of Pedro Bank. Working our way to Site 2A.
- 04 December 1994
- 1) Sitting watch over Hydrosweep and 3.5 KHz seismic. Shooting grid W of Pedro Bank through the Cayman Trough to Site 2A.
 - 2) Arrive Site 2A at 1050 L (1550 GMT) and deploy S-80 air guns and streamer.
 - 3) Begin collecting seismic data with Elics and Digicon at 1135 L (1635 GMT). Begin shooting with line E9417-11.
 - 4) Collect lines E9417-11 through E9417-15.
- 05 December 1994
- 1) Sitting watch over S-80, Hydrosweep, and 3.5 KHz seismic. Shooting Site 2A grid continuing with line E9417-16.
 - 2) Finish Site 2A survey at 1545 L (2045 GMT). End with line E9417-18. Retrieve air guns and streamer. Head for Tampa FL.
 - 3) End 3.5 KHz and Hydrosweep collection.
 - 4) Back up lines E9417-11 through E9417-18 on Exabyte tape.
 - 5) Back up tape index files and navigation data on diskette and on Exabyte tape.
 - 6) Finish making seismic/navigation track line plots of Site 2A.
- 06 December 1994
- 1) Process seismic lines E9417-11 through E9417-18 and print out.
 - 2) Calculate cruise statistics for S-80 data and Hydrosweep data.
 - 3) Provided Elics printout examples for Mike Rawson.
- 07 December 1994
- 1) Print out a few more processed lines for André.
 - 2) Pack up Elics seismic acquisition system, plotter and misc. equipment.
 - 3) Pack up paper data from analog S-80, 3.5 KHz, and Hydrosweep. Pack up Digicon SEG-D tapes.
- 08 December 1994
- 1) Arrive port of Tampa FL at 0700. Cleared US Customs at 1030.
 - 2) Al Hine at USF met us at the ship. Gave him and his students a tour of the ship. Also had lunch.
 - 3) Al Hine transported André and I to the Tampa airport.
 - 4) Plane departed Tampa at 1345 arrived at IAH at 1550.