



# United States Department of the Interior

## GEOLOGICAL SURVEY

Branch of Atlantic Marine Geology  
Office of Energy and Marine Geology  
Woods Hole, MA 02543

UNITED STATES GOVERNMENT  
MEMORANDUM

DATE: 26 November 1985

UPDATE: 30 September 1986

FROM: Kim D. Klitgord, Chief Scientist

SUBJECT: CRUISE REPORT - R.V. GYRE 85-G-11

TO: The record, Bob Halley, Tom Aldrich, Tom O'Brien, Nancy Soderburg

85035

### SUMMARY

The Atlantic Marine Geology Branch, U.S. Geological Survey, (USGS), Woods Hole undertook a 29-day geophysics survey in the Gulf of Maine. This cruise was part of the U.S. Geological Survey's Deep Crustal Program and the primary objectives were to acquire: 1) shallow to intermediate depth penetration (10-20 km) seismic reflection data with the U.S.G.S. seismic-reflection system; 2) intermediate to deep depth penetration (30-50 km) wide-angle seismic reflection and refraction data with the USGS Ocean Bottom Seismometer (OBS) system; and 3) high-quality gravity and navigation data. The survey was undertaken using the R.V. GYRE belonging to Texas A&M University. The ship left Woods Hole on October 6, 1985, made intermediate stops in Rockland, Maine (October 20-21) and Woods Hole (October 29-30), and returned to Woods Hole on November 4, 1985. During the cruise (Figure 1) we acquired 11 multichannel seismic-reflection (MCS) lines (total of 1305 km), 8 OBS lines (total of 28 OBS deployments) and two small gravity-box surveys for navigation-gravity calibration. Underway geophysical data also included magnetic, gravity, and 3.5- kHz reflection profile data. A summary chronology is given in Table 1, summary of scientific personnel is given in Table 2, equipment summary is given in Table 3, and summaries of the MCS and OBS seismic lines are given in Tables 4 and 5.

Primary scientific objectives were to map the areal distribution of crustal penetrating faults within the Gulf of Maine-Fundy fault zone, to investigate the basement and upper crustal structure of the Franklin rift basin, and to acquire crustal velocity structure information for constraining crustal models and improving seismic processing on a deep penetration seismic reflection profile across the Gulf of Maine. The survey was focused around a deep crustal penetration (15 sec. two way travel time, sub-Moho) seismic-reflection profile from Penobscot Bay to Georges Bank (Figure 1) acquired for USGS in 1984 by GSI, Inc. using an airgun array with 6000 cu.in. total volume and a 3000-m, 120-channel seismic receiver array. A reasonable grid of MCS reflection profiles was acquired across and along the Franklin basin, but the 2 OBS profiles will be of limited quality because of poor weather conditions. An attempt to reshoot these OBS lines at the end of the cruise was cancelled because of bad weather. The grid of reflection profiles across the Gulf of Maine-Fundy fault zone was greatly reduced from original plans

because of bad weather and equipment problems; four good MCS lines were acquired across the fault zone and one MCS line parallel to the zone. Five excellent OBS lines were acquired within the fault zone, including 2 along the GSI deep crustal line and 3 across the line. A single OBS line was acquired across the large paralkaline granite pluton in the center of the Gulf of Maine.

Processing and evaluation of the MCS and OBS lines will take several months and a summary of these data sets is given in the tables 4 and 5. From an operational perspective, the combination of MCS and OBS profiling was an unqualified success. Switching from one operation to another took only a few hours; moreover down time because of equipment problems was minimized because one operation could proceed when the other was inoperable. Three 2000 cu.in. airguns were kindly loaned to us by the University of Texas at Austin and two of these guns were fired simultaneously at 1 minute intervals for the OBS lines. These airguns were a very dependable energy source and provided seismic data at ranges of over 50 km. The great variety of seas states should also enable us to evaluate the sensitivity of OBS's to weather conditions when deployed in shallow water.

Data acquisition on the cruise was reduced by bad weather (high winds over 25 knots and large seas over 10 foot ) and equipment failures. Seven days (including coming in one day early at end of cruise) of survey time were lost because of bad weather and two OBS lines (OBS lines #1 and 2 - 2 days) were acquired in high sea states requiring them to be re-shot. A major failure of the DFS-V internal electronics caused MCS line #7 to be terminated early. We continued to shoot OBS lines until a scheduled stop in Rockland, Maine where the DFS-V was repaired by a service contractor from Denver. Areal coverage on some OBS lines was limited by various program-control and power-board failures, as indicated in Table 5. Only 1-2000 cu.in. airgun was used on OBS lines #1 and 2 because of problems with the shot-control units and for the first 2 hours on OBS line #7 while one of the guns was being rebuilt. On OBS line #3, the OBS C-6/A-1 did not return. There was no response from it when we attempted to recover it and about 6 hours were spent looking for it in its likely drift direction in case it had come up prematurely. This OBS was later recovered by a fisherman and returned to USGS in May, 1986. It contained a completely full data tape and was unaffected by the 6 month delay in its recovery. The most time consuming equipment problem occurred when the streamer became hooked on a lobster pot bouy and broke as it was being redeployed on MCS line #8 outside of the mouth of Penobscot Bay. The streamer tail bouy was recovered and the streamer was being brought back on deck when a section was caught in the ship's propeller and cut again. The lobster boat Westwind was working nearby and recovered the streamer for us from the pot bouy. About 2 days were lost and while repairing the streamer (about 8 hours in daylight), we steamed over to a TAMU long-term monitoring bouy to check why it was not responding to routine satellite integration; some of its masts had been stripped off, but the flasher still was working.

#### ACKNOWLEDGEMENTS

Acquisition of excellent seismic data and other underway geophysical data was possible because of the tremendous effort by the technical staff: Greg Miller, David Nichols and Tom O'Brien with the seismic acquisition systems, David Mason and Oscar Febres-Cordero with the airgun-compressor systems, Barry

Irwin, Jim Dodd, and Corina Savela with the Navigation/gravity system, and other members of the USGS staff who helped with the ship mobilization. Additional essential watch standing, deployment/recovery support, and data archiving support was provided by our GFA's - David Leeds, Sarah Dunlap, and John Brooks -, and volunteers from other Institutions and USGS Branches -David Taylor, John Unger, David Stewart, Wally Bothner, and Charlie McClennen. Extra support for the navigation/gravity evaluation studies was provided by Jim McCullough and David Turner. Special thanks go to Anne Trehu and Debbie Hutchinson who are responsible for the OBS and MCS programs, including overseeing the post-cruise data processing. The cooperation of the University of Texas at Austin, Institute of Geophysics in loaning the 2000 cu.in. airguns is greatly appreciated and contributed significantly to the success of the OBS lines. I also thank the Canadian government for permission to work in Canadian waters and T. Cocke of the U.S. State Department for his efforts to arrange this permission.

## SUMMARY CHRONOLOGY

GYRE 85-G-11

## Deep Crustal Seismic Survey - Gulf of Maine

2200z/ 6 OCT 85		Depart Woods Hole, MA
0500z/ 7 OCT 85	0900z/ 7 OCT 85	Gravity Calibration Survey
0900z/ 7 OCT 85	0230z/ 8 OCT 85	Deploy streamer and guns
0233z/ 8 OCT 85	0418z/ 9 OCT 85	MCS line #1, Franklin Basin Area, 2-540 cu in. airguns
0418z/ 9 OCT 85	0950z/ 9 OCT 85	MCS line #2, Franklin Basin Area, 2-540 cu.in. airguns
1325z/ 9 OCT 85	0016z/10 OCT 85	MCS line #3, Franklin Basin Area, 2-540 cu.in. airguns
0016z/10 OCT 85	0215z/10 OCT 85	haul in gear - bad weather
0215z/10 OCT 85	1300z/10 OCT 85	holding station for weather to improve
1300z/10 OCT 85	2200z/11 OCT 85	OBS line #1, Franklin Basin, 5-OBS's, 1-2000 cu.in. airgun
2200z/11 OCT 85	1330z/12 OCT 85	Holding station for weather to improve.
1330z/12 OCT 85	0900z/13 OCT 85	OBS line #2, GSI Deep Crustal line-Franklin Basin, 3-OBS's, 1-2000 cu.in. airgun
1030z/13 OCT 85	1445z/13 OCT 85	Deploy streamer and airguns
1445z/13 OCT 85	0236z/14 OCT 85	MCS line #4, Franklin Basin Area, 2-540 cu.in. airguns
0236z/14 OCT 85	0758z/14 OCT 85	MCS line #5, Franklin Basin Area, 2-540 cu.in. airguns
1000z/14 OCT 85	1659z/14 OCT 85	Streamer bouy repairs
1659z/14 OCT 85	1958z/15 OCT 85	MCS line #6, Gulf of Maine Transect, 2-540 cu.in. airguns
2003z/15 OCT 85	0503z/16 OCT 85	MCS line #7, Gulf of Maine Transect 2-540 cu.in. airguns, ended with DFS-V Failure.
0503z/16 OCT 85	1415z/16 OCT 85	Haul in gear and DFS-V repairs
1507z/16 OCT 85	0020z/18 OCT 85	OBS line #3, Fundy Shear zone, 4-OBS's (1 lost but recovered 6 months later), 2-2000 cu.in. airguns
0125z/18 OCT 85	2230z/18 OCT 85	OBS line #4, Fundy Shear zone, 3-OBS's, 2-2000 cu.in. airguns
2356z/18 OCT 85	1506z/19 OCT 85	OBS line #5, GSI Deep Crustal line - Fundy Shear zone, 3-OBS's, 2-2000 cu.in. airguns
1630z/19 OCT 85	2000z/19 OCT 85	Gravity Calibration Survey
1624z/19 OCT 85	1340z/20 OCT 85	OBS line #6, GSI Deep Crustal line Penobscot-Bay, 3-OBS's, 2-2000 cu. in. airguns
1340z/20 OCT 85	1600z/20 OCT 85	Pre-survey Penobscot Bay MCS line #8
1800z/20 OCT 85		Arrive Rockland, Maine
1800z/20 OCT 85	2000z/21 OCT 85	Port call in Rockland to repair DFS-V
	2000z/21 OCT 85	Depart Rockland, Maine
2000z/21 OCT 85	2230z/21 OCT 85	Steaming to north end of Penobscot Bay
2230z/21 OCT 85	0140z/22 OCT 85	Deploying airguns and streamer
0140z/22 OCT 85	0512z/22 OCT 85	MCS line #8, Penobscot Bay, 2-540 cu.in. airguns
0512z/22 OCT 85	0640z/22 OCT 85	Hauling in gear at north end of lobster-pot field at mouth of Penobscot Bay.
0640z/22 OCT 85	0900z/22 OCT 85	Steaming to south side of lobster-pot field
0900z/22 OCT 85	1150z/22 OCT 85	Deploying streamer, but drifting into new lobster-pot field, streamer birds caught and streamer broken.
1150z/22 OCT 85	1458z/22 OCT 85	Retrieving streamer tail bouy and bringing streamer aboard backward, coiled on deck.
1458z/22 OCT 85	2200z/22 OCT 85	Steaming to TAMU long-term Phys. Oceanog. Bouy

2200z/22 OCT 85	2356z/22 OCT 85	Monitoring TAMU Bouy
2356z/22 OCT 85	1315z/24 OCT 85	Magnetometer, 3.5kHz, Sea Otter and Side Scan Survey of Fundy Fault Zone, streamer repairs.
1350z/24 OCT 85	0032z/26 OCT 85	OBS Line #7, across Fundy Fault zone, 4-OBS's, 2-2000 cu.in. airguns
0032z/26 OCT 85	0415z/26 OCT 85	Steaming to OBS line #8
0415z/26 OCT 85	2200z/26 OCT 85	Holding station because of bad weather
2200z/26 OCT 85	0330z/28 OCT 85	OBS Line #8, across magnetic-high, paralkaline granite pluton, 3-OBS's, 2-2000 cu.in. airguns
0330z/28 OCT 85	1350z/28 OCT 85	Holding station because of bad weather
1350z/28 OCT 85	0430z/29 OCT 85	Steaming to Woods Hole to repair compressor, bad weather due to continue for 2 days
0430z/29 OCT 85	1430z/30 OCT 85	At Woods Hole repairing compressor and waiting for weather to improve
1430z/30 OCT 85	2038z/30 OCT 85	Steam to MCS line #9.
2038z/30 OCT 85	0043z/31 OCT 85	Deploying streamer and airguns.
0043z/31 OCT 85	0330z/ 1 NOV 85	MCS line #9, across Nauset-Fundy Fault system, 2-540 cu.in. airguns
0333z/ 1 NOV 85	0533z/ 2 NOV 85	MCS line #10, along OBS line #7, 2-540 cu.in. airguns
0533z/ 2 NOV 85	1209z/ 2 NOV 85	Transit without airguns firing but all equipment deployed. Bad weather prevents data acquisition
1209z/ 2 NOV 85	1800z/ 3 NOV 85	MCS line #11, along OBS line #8, 2-540 cu.in. airguns
1800z/ 3 NOV 85	2030z/ 3 NOV 85	Hauling in gear
2030z/ 3 NOV 85	0025z/ 4 NOV 85	Steaming towards OBS line #9
0025z/ 4 NOV 85		Bad weather at OBS site and poor weather forecast for next day cause termination of OBS plans and change course to Woods Hole.
	1530z/ 4 NOV 85	Arrive in Woods Hole - end of Cruise

PERSONNEL

GYRE 85-G-11

Master R/V GYRE: Captain Don Armand, Texas A&amp;M Univ.

Chief Scientist: Kim D. Klitgord, USGS - Woods Hole

Woods Hole to Rockland

Wallace Bothner, Univ. New Hampshire

John Brooks, Univ. New Hampshire

James Dodd, USGS, Woods Hole

Sarah Dunlap, USGS, Woods Hole

Oscar Febres-Cordero, Univ. Texas-Austin

Deborah Hutchinson, USGS, Woods Hole

Barry Irwin, USGS, Woods Hole

David Leeds, USGS, Woods Hole

David Mason, USGS, Woods Hole

James McCullough, WHOI, Woods Hole

Greg Miller, USGS, Woods Hole

David Nichols, USGS, Woods Hole

Thomas O'Brien, USGS, Woods Hole

Corina Savela, USGS, Woods Hole

David Stewart, USGS, Reston, VA

Anne Trehu, USGS, Woods Hole

David Turner, LaCoste Romberg Co.

Rockland to Woods Hole

David Taylor, USGS, Denver

John Brooks, Univ. New Hampshire

James Dodd, USGS, Woods Hole

Sarah Dunlap, USGS, Woods Hole

Oscar Febres-Cordero, Univ. Texas-Austin

Deborah Hutchinson, USGS, Woods Hole

David Leeds, USGS, Woods Hole

David Mason, USGS, Woods Hole

Charles McClennen, Colgate University

Greg Miller, USGS, Woods Hole

Thomas O'Brien, USGS, Woods Hole

Corina Savela, USGS, Woods Hole

John Unger, USGS, Reston, VA

Anne Trehu, USGS, Woods Hole

DATA ACQUISITION SYSTEMS

1. Multichannel Seismic Reflection System
  - a. Source
    - 2 - Bolt airgun firing circuits FC 100
    - 2 - 540 cu.in. Bolt airguns with waveshaper kit
    - 2 - 275 scfm Price compressors
  - b. Receiver
    - SEI 24-channel streamer, 1200m active length
    - 12 active sections, 2 channels/section (50 m/channel)
    - 4 Syntron, Inc. depth control birds (located between channels 23,22; 17,16; 9,8; 3,2)
    - 4 SEI depth indicators (located between channels 23,22; 17,16; 9,8; 1, isolation).
    - 2 isolation stretch sections (before channel 24 and after channel 1).
    - total offset of 202 m to center of first channel on MCS lines #1-7, 170m on MCS line #8, and 156m on MCS lines #9-11..
  - c. Digital Recorder System
    - Texas Instruments DFS V Acquisition Unit with dual 1600 bpi tape recording
    - Seismic Engineering Depth Indicator System
    - Syntron, Inc., Depth-control command console
    - SIE, Inc., Camera oscillograph
    - SDA 9580A Firing delay package (WHOI)
    - Seismic Engineering Co., 24-channel patch panel
    - EPC (Model 3200 S) graphic recorder
    - Krohn-Hite (Model 3550 R filter)
2. Magnetic Field System
  - Geometrics G-801G proton precession total field magnetometer
  - graphics recorder
3. Gravity Field System
  - a. 2 - LaCoste and Romberg sea gravity systems (self contained), units S-111 and S-113 on loan from LaCoste-Romberg Co.
4. Navigation System
  - a. IBM-PC based navigation control system
  - b. LORAN-C using updated overland time delay coefficients
  - c. Satallite positioning system.
  - d. Global Positioning System (GPS) available 4 hours per day.
  - e. Ship's speed log and gyro compass.
5. OBS Wide-Angle Seismic System
  - a. Source
    - 2 - 2000 cu. in. Bolt airguns on loan from Univ. Texas-Austin
  - b. Receivers
    - 5 - Ocean Bottom Seismometer (OBS) Systems.
    - 2 with 24 inch spheres. (OBS A-2 and A-8).
    - 3 with 20 inch spheres. (OBS C-3, C-4 and C-6).
6. High-resolution Seismic Systems
  - a. Hull-mounted 3.5 kHz Raytheon System
  - b. Towed HUNTEC Sea Otter Reflection System (~ 500 - 2000 Hz).

MCS SEISMIC LINES  
GYRE 85-G-11

## MCS LINE #1

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>TIME</u>
START:	41°27.48'N	69°14.69'W	0233Z 8 OCT 85
WAY POINT:	41°21.75'N	68°55.49'W	0700Z 8 OCT 85
WAY POINT:	41°34.00'N	68°25.56'W	1400Z 8 OCT 85
WAY POINT:	42°17.03'N	67°53.75'W	0200Z 9 OCT 85
END:	42°22.85'N	67°43.10'W	0418Z 9 OCT 85
LINE LENGTH	185 km, 7425 shot points, tapes #1-18		
SOURCE:	2-540 cu.in airguns @ 1700 p.s.i. firing at 25-m spacing		
RECEIVER:	1200-m, 24-channel array		
AREA:	Franklin Basin		
COMMENTS:	Good weather.		

## MCS LINE #2

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>TIME</u>
START:	42°22.85'N	67°43.10'W	0418Z 9 OCT 85
END:	42°38.65'N	67°55.31'W	0949Z 9 OCT 85
LINE LENGTH	35 km, 1390 shot points, tapes #19-22		
SOURCE:	2-540 cu.in. airguns @ 1700 p.s.i. firing at 25-m spacing		
RECEIVER:	1200-m, 24-channel array		
AREA:	across Franklin basin		
COMMENTS:	good weather		

## MCS LINE #3

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>TIME</u>
START:	42°36.65'N	67°51.75'W	1325Z 9 OCT 85
WAY POINT:	42°30.68'N	68°00.36'W	1630Z 9 OCT 85
END:	42°04.71'N	68°19.85'W	0016Z 10 OCT 85
LINE LENGTH	72 km, 2874 shot points, tapes #23-29		
SOURCE:	2-540 cu.in. airguns @ 1700 p.s.i. firing at 25-m spacing		
RECEIVER:	1200-m, 24-channel array		
AREA:	Franklin basin area, northwest of and parallel to basin		
COMMENTS:	line terminated because of bad weather		

## MCS LINE #4

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>TIME</u>
START:	42°23.13'N	67°39.38'W	1445Z 13 OCT 85
WAY POINT:	43°01.37'N	67°04.29'W	0200Z 14 OCT 85
END:	43°01.52'N	67°00.93'W	0236Z 14 OCT 85
LINE LENGTH	91 km, 3634 shotpoints, tapes #30-38		
SOURCE:	2-540 cu.in. airguns @ 1600 p.s.i. firing at 25-m spacing		
RECEIVER:	1200-m, 24-channel array		
AREA:	Franklin basin		
COMMENTS:	moderate weather, continuation of MCS line #1		

## MCS LINE #5

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>TIME</u>
START:	43°01.52'N	67°00.93'W	0236Z 14 OCT 85
WAY POINT:	43°00.00'N	66°59.41'W	0300Z 14 OCT 85
END:	42°38.91'N	66°40.89'W	0758Z 14 OCT 85
LINE LENGTH	48 km, 1933 shot points, tapes #39-43		
SOURCE:	2-540 cu.in. airguns @ 1800 p.s.i. firing at 25-m spacing		
RECEIVER:	1200-m, 24-channel array, ch. 7 not working		
AREA:	across Franklin basin		
COMMENTS:	calm weather		

## MCS LINE #6

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>TIME</u>
START:	42°28.89'N	66°56.87'W	1656Z 14 OCT 85
WAY POINT:	42°30.47'N	66°58.19'W	1730Z 14 OCT 85
WAY POINT:	44°00.87'N	68°21.49'W	1900Z 15 OCT 85
END:	44°00.62'N	68°25.88'W	1958Z 15 OCT 85
LINE LENGTH	212 km, 8490 Shot points, tapes #44-64		
SOURCE:	2-540 cu. in. airguns @ 1800 p.s.i. firing at 25-m spacing		
RECEIVER:	1200-m, 24-channel array, ch. 7 not working		
AREA:			
COMMENTS:	calm weather, 1-540 airgun for 1st hour, line ends near Maine coast		

## MCS LINE #7

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>TIME</u>
START:	44°00.31'N	68°26.17'W	2003Z 15 OCT 85
WAY POINT:	43°49.63'N	68°34.82'W	2300Z 15 OCT 85
END:	43°27.28'N	68°18.65'W	0503Z 16 OCT 85
LINE LENGTH	70 km, 2809 shot points, tapes #65-71		
SOURCE:	2-540 cu.in. airguns @ 1800 p.s.i. firing at 25-m spacing		
RECEIVER:	1200-m, 24-channel area, ch. 7 not working		
AREA:	across Gulf of Maine Fault zone		
COMMENTS:	line terminated when DFS-V recording system failed		

## MCS LINE #8

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>TIME</u>
START:	44°15.67'N	68°58.54'W	0140Z 22 OCT 85
WAY POINT:	44°12.58'N	68°59.61'W	0230Z 22 OCT 85
END:	44°01.92'N	68°59.55'W	0512Z 22 OCT 85
LINE LENGTH	25 km, 1020 shot points, tapes #72-74		
SOURCE:	2-540 cu.in. airguns @ 1800 p.s.i. firing at 25-m spacing		
RECEIVER:	1200-m, 24-channel array		
AREA:	Penobscot Bay - West Branch		
COMMENTS:	line ended on north side of lobster-pot fields at mouth of bay		

## MCS LINE #9

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>TIME</u>
START:	41°38.26'N	69°29.25'W	0043Z 31 OCT 85
WAY POINT:	42°30.47'N	70°05.10'W	1530Z 31 OCT 85
WAY POINT:	43°22.40'N	70°05.78'W	0300Z 1 NOV 85
END:	43°24.37'N	70°03.28'W	0330Z 1 NOV 85
LINE LENGTH	212 km, 8495 shot points, tapes #75-96		
SOURCE:	2-540 cu.in. airguns @ 1800 p.s.i. firing at 25-m spacing		
RECEIVER:	1200-m, 24 channel array		
AREA:	Nauset Fault to Clinton-Newbury Fault zone		
COMMENTS:	fine weather		

## MCS LINE #10

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>TIME</u>
START:	43°24.56'N	70°03.01'W	0334Z 1 NOV 85
WAY POINT:	43°14.14'N	69°54.55'W	0630Z 1 NOV 85
WAY POINT:	42°34.50'N	69°18.60'W	1751Z 1 NOV 85
WAY POINT:	42°23.20'N	68°56.40'W	2330Z 1 NOV 85
WAY POINT:	42°20.11'N	68°49.44'W	0200Z 2 NOV 85
END:	42°11.21'N	68°58.49'W	0533Z 2 NOV 85
LINE LENGTH	187 km, 7470 shot points, tapes #97-114		
SOURCE:	2-540 cu.in. airguns @ 1800 p.s.i. firing at 25-m spacing		
RECEIVER:	1200-m, 24-channel array		
AREA:	Clinton Newbury Fault zone to Nauset fault		
COMMENTS:	line terminated because of bad weather and seas		

## MCS LINE #11

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>TIME</u>
START:	42°00.60'N	69°20.10'W	1209Z 2 NOV 85
WAY POINT:	42°00.80'N	69°23.61'W	1300Z 2 NOV 85
WAY POINT:	42°03.10'N	69°25.52'W	1400Z 2 NOV 85
WAY POINT:	42°32.70'N	69°14.70'W	0030Z 3 NOV 85
END:	43°05.99'N	68°18.36'W	1800Z 3 NOV 85
LINE LENGTH	168 km, 6730 shot points, tapes #115-137		
SOURCE:	2-540, cu.in. airguns @ 1800 p.s.i. firing at 25-m spacing		
RECEIVER:	1200-m, 24-channel array		
AREA:	Nauset Fault and across paralkaline granite pluton		
COMMENTS:	weather poor, 8-10 foot seas		

OBS SEISMIC LINES

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## OBS LINE #1

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>OBS ID</u>	<u>WATER DEPTH</u>	<u>STATUS DATA TAPE</u>
START:	42°26.54'N	67°46.64'W			
END:	41°33.25'N	68°26.30'W			
OBS #1:	41°39.62'N	68°20.74'W	C-3	56m	1-Track
OBS #2:	41°40.94'N	68°19.84'W	A-2	54m	1-Track @ 3 min.
OBS #3:	41°58.30'N	68° 7.60'W	C-6/A-1	210m	1-Track
OBS #4:	42°16.05'N	67°54.93'W	C-4	220m	1-Track
OBS #5:	42°17.05'N	67°53.94'W	A-8	215m	28 Shots

SOURCE: 1 - 2000 cu.in. air gun @ 2 minute firing rate

AREA: Franklin Basin

Deployment:	1300z	10 OCT 85	to	2155z	10 OCT 85
Shooting:	2155z	10 OCT 85	to	1200z	11 OCT 85
Recovery:	1200z	11 OCT 85	to	2200z	11 OCT 85

COMMENTS: Power Failure OBS A-8; Rough weather-data very noisy; program bug caused OBS's to abort after 1 track.

## OBS LINE #2

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>OBS ID</u>	<u>WATER DEPTH</u>	<u>STATUS DATA TAPE</u>
START:	42°10.20'N	68°13.20'W			
END:	41°39.03'N	67°58.98'W			
OBS #1:	41°48.56'N	68° 2.51'W	A-8	56m	2 1/2 Tracks
OBS #2:	41°58.32'N	68° 7.57'W	C-3	210m	3-Tracks
OBS #3:	42° 7.49'N	68°11.98'W	C-6/A-1	196m	No Data

SOURCE: 1 - 2000 cu.in. air gun @ 2 minute firing rate

AREA: Deep Crustal Line - Franklin Basin

Deployment:	1330z	12 OCT 85	to	1830z	12 OCT 85
Shooting:	1830z	12 OCT 85	to	0323z	13 OCT 85
Recovery:	0323z	13 OCT 85	to	0842z	13 OCT 85

COMMENTS: Program failure on OBS C-6; OBS's A-8 and C-3 recorded full line.

## OBS LINE #3

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>OBS ID</u>	<u>WATER DEPTH</u>	<u>STATUS DATA TAPE</u>
START:	43°12.40'N	69°12.18'W			
END:	43°49.50'N	68° 9.99'W			
OBS #1:	43°39.00'N	68°29.00'W	A-2	188m	4 full tracks
OBS #2:	43°31.99'N	68°40.52'W	C-4	150m	4-full tracks
OBS #3:	43°25.33'N	68°52.45'W	A-8	105m	1-Track + 8 shots
OBS #4:	43°17.97'N	69° 3.46'W	C-6/A-1	165m	4-full tracks*

SOURCE: 2 - 2000 cu.in. air guns @ 2 minute firing rate

AREA: Fundy Fault Zone Basin

Deployment:	1507z	16 OCT 85	to	2111z	16 OCT 85
Shooting:	2111z	16 OCT 85	to	1230z	17 OCT 85
Recovery:	1230z	17 OCT 85	to	0020z	18 OCT 85

COMMENTS: Power failure - OBS A-8; No response at all from OBS C-6/A-1.

\* OBS C-6/A-1 did not return when recall was attempted, but it was recovered 6 months later by fishermen and contained 4-full tracks.

## OBS LINE #4

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>OBS ID</u>	<u>WATER DEPTH</u>	<u>STATUS DATA TAPE</u>
START:	43°20.20'N	68°20.58'W			
END:	42°51.62'N	69°12.82'W			
OBS #1:	43° 2.48'N	68°53.45'W	A-2	152m	1 3/4 - Track
OBS #2:	43° 8.99'N	68°41.40'W	A-8	174m	2-Tracks.
OBS #3:	43°15.46'N	68°29.44'W	C-4	185m	16 shots

SOURCE: 2 - 2000 cu.in. air guns @ 1 minute firing rate

AREA: Fundy Basin

Deployment:	0125z	18 OCT 85	to	0410z	18 OCT 85
Shooting:	0410z	18 OCT 85	to	1630z	18 OCT 85
Recovery:	1630z	18 OCT 85	to	2230z	18 OCT 85

COMMENTS: OBS A-2 and A-8 aborted prematurely because of program bug but excellent data obtained for most of line; power failure on OBS C-4.

## OBS LINE #5

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>OBS ID</u>	<u>WATER DEPTH</u>	<u>STATUS DATA TAPE</u>
START:	43°31.84'N	68°51.61'W			
END:	43° 8.14'N	68°39.74'W			
OBS #1:	43° 6.48'N	68°39.02'W	A-2	176m	1 3/4 Tracks
OBS #2:	43°17.08'N	68°43.97'W	A-8	146m	2 3/4 Tracks
OBS #3:	43°27.11'N	68°48.55'W	C-4	108m	No Data

SOURCE: 2 - 2000 cu.in. air guns @ 1 minute firing rate

AREA: Deep Crustal line - Fundy Fault zone

Deployment:	2356z	18 OCT 85	to	0500z	19 OCT 85
Shooting:	0500z	19 OCT 85	to	1100z	19 OCT 85
Recovery:	1100z	19 OCT 85	to	1506z	19 OCT 85

COMMENTS: OBS A-2 and A-8 aborted prematurely because of program bug but excellent data obtained for most of line; power failure on OBS C-4.

## OBS LINE #6

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>OBS ID</u>	<u>WATER DEPTH</u>	<u>STATUS DATA TAPE</u>
START:	43°58.10'N	68°58.90'W			
END:	43°20.78'N	68°45.94'W			
OBS #1:	43°37.50'N	68°53.01'W	A-8	113m	2 3/4 Tracks
OBS #2:	43°47.50'N	68°55.97'W	A-2	44m	3 + Tracks
OBS #3:	43°57.52'N	68°58.90'W	C-4	39m	No Data

SOURCE: 2 - 2000 cu.in. air guns @ 1 minute firing rate

AREA: Deep Crustal Line - Penobscot Bay

Deployment:	1624z	19 OCT 85	to	2330z	19 OCT 85
Shooting:	2330z	19 OCT 85	to	0800z	20 OCT 85
Recovery:	0800z	20 OCT 85	to	1340z	20 OCT 85

COMMENTS: Shooting in very shallow water (<100m) at north end of line.

## OBS LINE #7

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>OBS ID</u>	<u>WATER DEPTH</u>	<u>STATUS DATA TAPE</u>
START:	43°18.18'N	69°59.85'W			
END:	42°22.85'N	68°58.33'W			
OBS #1:	42°25.46'N	69°00.45'W	A-2	208m	3 1/2 Tracks
OBS #2:	42°34.50'N	69°18.60'W	C-3	226m	3 1/2 Tracks
OBS #3:	42°48.52'N	69°31.51'W	A-8	168m	3 1/2 Tracks
OBS #4:	43° 2.04'N	69°43.54'W	C-4	142m	3 1/2 Tracks

SOURCE: 2 - 2000 cu.in. air guns @ 1 minute firing rate

AREA: Bloody Bluff - Clinton Newbury Fault Zone

Deployment:	1350z	24 OCT 85	to	2300z	24 OCT 85
Shooting:	2300z	24 OCT 85	to	1630z	25 OCT 85
Recovery:	1630z	25 OCT 85	to	0032z	26 OCT 85

COMMENTS: Dog leg at 42°34.5'N, 69°18.5'W; only 1-2000 cu.in. gun for first 2 hours shooting; All OBS's recorded full line.

## OBS LINE #8

	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>OBS ID</u>	<u>WATER DEPTH</u>	<u>STATUS DATA TAPE</u>
START:	42°59.10'N	68°30.55'W			
END:	42°19.83'N	69°35.72'W			
OBS #1:	42°28.97'N	69°20.98'W	A-8	220m	4-Tracks
OBS #2:	42°39.58'N	69° 3.43'W	A-2	170m	4-Tracks
OBS #3:	42°49.54'N	68°46.41'W	C-3	225m	4-Tracks

SOURCE: 2 - 2000 cu.in. air guns @ 2 minute firing rate

AREA: Center of Gulf of Maine, Large paralkaline Granite - magnetic high

Deployment:	2200z	26 OCT 85	to	0500z	27 OCT 85
Shooting:	0500z	27 OCT 85	to	2030z	27 OCT 85
Recovery:	2030z	27 OCT 85	to	0330z	28 OCT 85

COMMENTS: Only one compressor working; All OBS's recorded full line.

