

# 76028

CRUISE REPORT

M.V. L'OLONNOIS

12 July - 20 Sept, 1976 (At Sea 21 JUL - 20 SEP)

(Atlantic Margin Coring Project)

JAMES M. ROBB  
U.S.G.S.

SHIP: M.V. L'Olonnois (1976)

AREA: Continental shelf and slope, Eastern U.S.

DATES OF OPNS: 12 July - 20 Sept, 1976

PERSONNEL: USGS

J. Robb 18 July - 9 Aug, 21 Aug - 18 Sept  
K. Parolski 12 July - 9 Aug, 21 Aug - 18 Sept  
D. Kinney 12 July - 21 Aug  
R. Sylwester 9-21 Aug  
W. Jaworski 9-21 Aug

SHIP CAPTAINS

Buster Haley 18 July - 4 Aug  
James Elliot 4 Aug - 8 Sept  
Jack Rogers 8 Sept - 20 Sept

PURPOSE OF CRUISE:

Seismic surveys and navigation for the Atlantic Margin Coring Program, as well as anchor handling and supply transportation for the drill ship, GLOMAR CONCEPTION.

SCIENTIFIC EQUIPMENT:

Bolt Airguns (1 to 40 cubic inch chambers), compressors, EPC recorder, Kronheit filters, varian magnetometer (not deployed), Teledyne minisparker (used on last two sites).

NAVIGATION:

Two Internav 101 Loran-C receivers

DATA ACQUIRED:

A total of 491 km of high resolution seismic data was gathered on 22 sites. Lengths of each site survey and the Loran-C readings at the final drill ship locations are addended. Jack Hathaway has the geographic coordinates.

COMMENTS ON THE OPERATIONS:

Jobs for the L'Olonnois as initially intended were: 1) set anchors and run errands for the drill ship; 2) run site surveys before coring operations

using an airgun system. During the operation it developed that the L'Olonnois really had to do all the site location navigation as well.

Navigation lessons learned: 1) Loran-C navigation, for reliability, must be run in closed traverses, starting and ending at known locations. 2) It is useful to set buoys to give a known location to tie to, should a Loran-C signal be lost during a transit or a survey, when operating under time constraints at some distance offshore. 3) One must check buoys for drift before leaving them. 4) Make sure of the water depth before dropping a buoy anchor, especially along the shelf edge in a canyon area. 5) Two Loran-C receivers offer considerable more security in weak signal areas. One receiver might lose the signal temporarily but you can't tell whether it had regained the correct lane unless the other one also has the same reading, or has not lost the signal. 6) Loran-C signals fluctuated or were lost frequently during the 1730-2000 hr period each day in the southeastern area of Georgia to Cape Hatteras.

The site surveys were a simple operation. We drafted an expanded scale map of the Loran-C grid and recorded and plotted 5 minute fixes.

Placement and anchoring the drill ship on site: Normally, in the "oil patch", the site of the well to be drilled and the site of each anchor in the anchor pattern are buoyed with flags. The ship is towed on site and each anchor is placed by the work boat at the proper flag. In this project, the L'Olonnois had the only navigation and to save time, we were attempting to place the ship using only one buoy on the site. The L'Olonnois would then run other anchors at some azimuth and distance from the drill ship, under the direction of the drill ship's captain. This was moderately successful, although we had to allow quite a bit of error in site locations. The final location of the drill ship could only be determined when the L'Olonnois was tied alongside the drillship after anchoring. There would be considerable resistance to pick up anchors to move the ship closer to an intended site. Plotting relative locations at a distance by Loran-C is not very precise. At night, with low buoy visibility,

or, twice when the drill ship fouled the buoy and carried it off, placement became very difficult. We finally found (lesson learned) that when attempting to place the ship precisely, the L'Olonnois could pick up a bow anchor from the ship and using Loran-C plots place that anchor where it was intended to be in relation to the site, allowing the drill ship to drop a stern anchor as she was under tow approaching the site, at some pre-determined distance from the site. The L'Olonnois could then place other anchors, again using Loran-C plots, where they should be in relation to the site, not in relation to the drill ship, as we had previously been attempting.

#### RECOMMENDATIONS:

- 1) On a future operation of this type the drill ship should have her own reliable high resolution navigation capability, preferably satellite.
- 2) The minisparker system gave better records with less maintenance and less anxiety about mechanical reliability than did the airgun system. It is also considerably smaller in size.
- 3) A punch tape recorder for the Loran-C could be helpful in future operations. A track recorder could be helpful for buoy placement or for drill ship towing on site.

#### TABULATED INFORMATION:

- a) Number of days at sea: 70 (includes mobilization)  
60 (on project)
- b) Total km of ship track: unknown
- c) Total data: high resolution seismic 491 km (265 n. mi)
- d) 22 sites surveyed (21 sites attempted, 20 sites cored)

HOLE 6002 21 July 76 (SITE 90)  
35 n. mi. of survey, site location  
W 13867.5, z 71062.2

HOLE 6003 24, 25 July 76 (SITE 93)  
17 n. mi. survey (no recovery, hard bottom)  
W 15207.5, z 71692.9

HOLE 6004 25 July 76 (SITE 92)  
5.4 n. mi. survey  
W 14760.6, z 71568.0

NO HOLE 26 July 76 (SITE 91)  
13 n. mi. survey (high current, no hole)  
W 14740.2, z 71590.8

HOLE 6005 29 July 76 (SITE 69)  
7.1 n. mi. survey  
W 15645.7, z 71747.7

NOT OCCUPIED 30 July 76 (SITE 68)  
4.6 n. mi. survey  
site not occupied

HOLE 6006 1,2 Aug 76 (SITE 41)  
14.5 n. mi. survey  
Y 54784.8, z 71821.7

HOLE 6007 4 Aug 76 (SITE 101)  
10.5 n. mi. survey  
X 41703.6, z 70860.1

HOLE 6008 7 Aug 76 (SITE 89A)  
14.5 n. mi. survey  
X 41227.5, z 70389.6

HOLE 6009 10 Aug 76 (SITE 100)  
11.5 mi. survey  
X 40459.4, z 70376.1

HOLE 6010 14 Aug 76 (SITE 99)  
13 n. mi. survey  
X 40169.0, z 70359.8

HOLE 6011 16 Aug 76 (SITE 33)  
11 n. mi. survey  
X 40179.4, z 70021.2

HOLE 6012 19 Aug 76 (SITE 30)  
10 n. mi. survey  
X 38953.4, z 70229.4

HOLE 6013 23 Aug 76 (SITE 3)  
23 mile survey  
X 37804.3, z 70377.4

HOLE 6014 26 Aug 76 (SITE 54)  
8.7 mile survey  
X 37043.1, Y 49280.3

HOLE 6015 28 Aug 76 (SITE 7)  
9.1 n. mi. survey  
X 37087.2, Y 49438.4

HOLE 6016 1 Sept 76 (SITE 95)  
10.5 mi survey  
X 37253.7, z 70116.2

HOLE 6017 4 Sept 76 (SITE 144)  
10 n. mi. survey  
X 36481.9, z 69921.7

HOLE 6018 6 Sept 76 (SITE COST G-1)  
no survey run: gear problems  
X 37174.6, z 70198.4

HOLE 6019 9,10 Sept 76 (SITE 12B)  
6.7 mi. survey  
X 36774.4, z 69983.2

HOLE 6020 14 Sept 76 occupied (SITE 34)  
surveyed, 18 Sept, 10 n. mi.  
X 40182.1, z 70178.3 (14 Sept)

HOLE 6021 15 Sept 76 (SITE 26A)  
20 n. mi. survey  
X 40088.5, z 70419.7

22 SITES TOTAL

265 NAUTICAL MILES (491 km) TOTAL SURVEYS