

CRUISE REPORT, DISC87-1

Vessels: RV Discovery--Maryland Geological Survey
Cruise number: DISC87-1
Parent project: Geology of Chesapeake Bay
Cooperators: Maryland Geological Survey
Area of operations: Northern Chesapeake Bay
Cruise dates: July 6-17, 1987
Chief scientist(s): Steve Colman (USGS)
Jeff Halka (MGS)
Technician: Dave Nichols (USGS)
Ship's captains: Jerry Cox (MGS)

Purpose of cruise:

Collection of high-resolution seismic-reflection data in order to define the geology and shallow structure of the Chesapeake Bay. The data will contribute to understanding the history and evolution of the Bay, and will provide basic data for management and planning decisions for the Bay, including those related to waste disposal; pollution control and clean-up; dredging and dredge-spoil disposal; and sand, gravel, and biological resources.

Navigation:

Positions were determined from Loran-C time delays using the Branch's IBM-PC system and Megapulse receiver, on lines 9960-X and 9960-Y. Coordinates were recorded on disc at 5 to 30 second intervals and printed at five minute intervals. Coordinates were also recorded by hand on the seismic-reflection records.

Scientific equipment employed:

ORE Geopulse seismic-reflection system
Benthos AQ-4 10-element hydrophone streamer
Datasonics SBT-220 high-resolution seismic system
Datametrics SP 425 IRIG-B time-code generator
EPC 312 record annotator
EPC 3200 graphic recorder
Hewlett-Packard 3968A 8-track analog tape recorder

Equipment performance:

All equipment performed extremely well, with the exception of intermittent problems with the Geopulse key pulse and the Megapulse receiver, both of which may have been due to excess heat.

Cruise Summary:

The cruise was very successful and was blessed with extremely good weather. A total of 378 nm (700 km) of tracklines were covered. The seismic-reflection records obtained were very good except in local areas where the sediments contained biogenic gas. Penetration achieved by the seismic signals was mostly 100 ms or more, and the records clearly show the entire Quaternary and upper part of the Tertiary sequence of deposits. Multiple overlapping channels and channel-fill deposits related to major fluctuations in sea level were observed. Several questions about the relations among the different generations of channels were resolved, and the channels were traced into the northern part of the bay. The cruise effectively completed the basic seismic-reflection grid between the mouth of the bay and the Annapolis Bridge.

Attachment: track chart

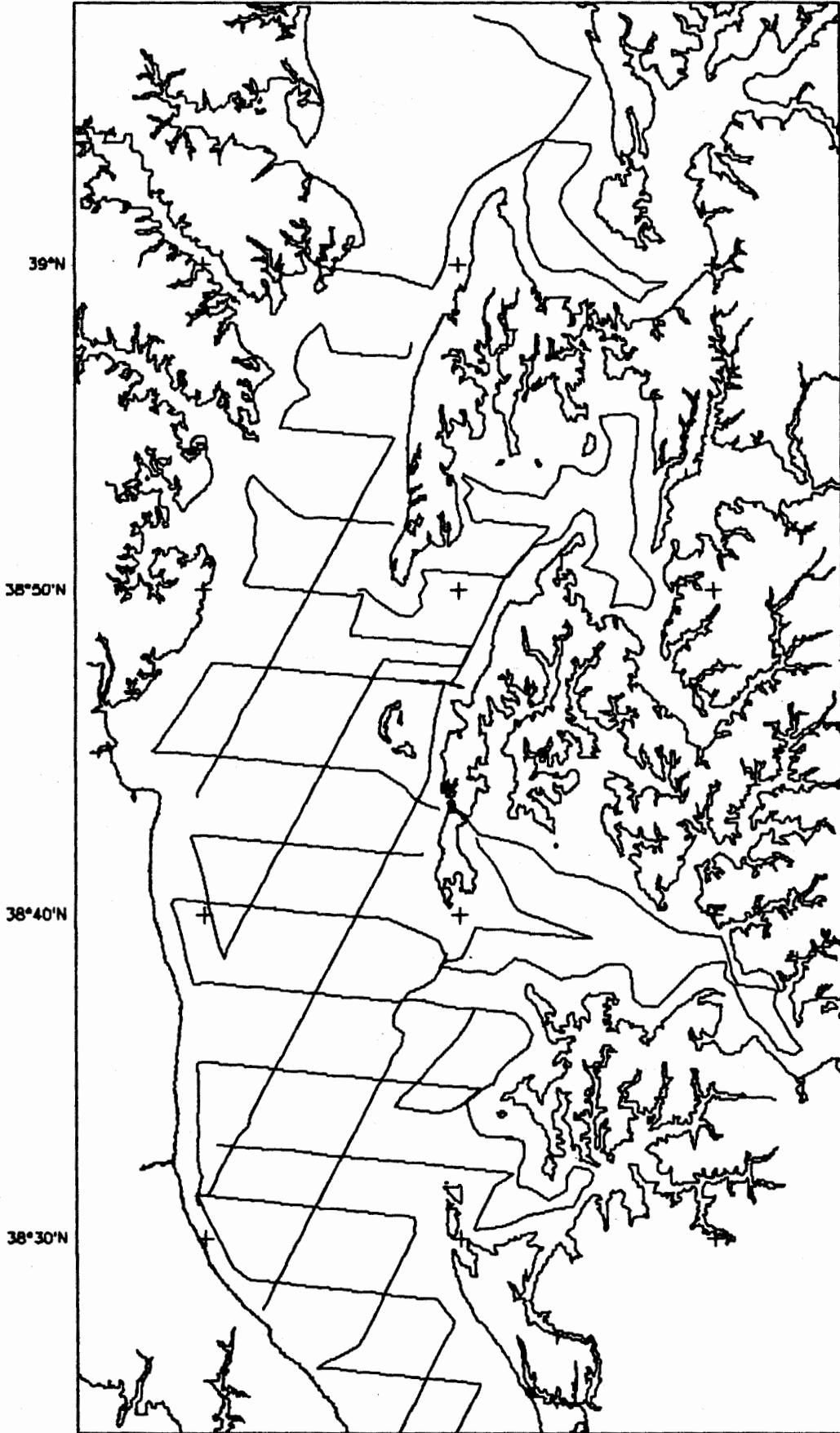
cc: R. Halley T. Aldrich
 H. Knebel T. O'Brien
 M. Bothner E. Winget
 ✓ N. Soderberg J. Williams

CHESAPEAKE BAY, Cove Pt--Sandy Pt

76°30'W

76°20'W

76°10'W



0 1 2 3 4 5 METERS
0 1 2 3 4 5 NAUTICAL MILES

Scale 1:50000

Show Current
IRI and Survey