



United States Department of the Interior

GEOLOGICAL SURVEY

GLORIA Survey 87-5
Cruise Report

Rec'd APR 19 1988
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#87018

Ship Name: R/V FARNELLA

Dates: 9-28 May 1987

Project Title: Gloria Survey

Area of Operation: Blake Plateau & Blake Escarpment within 200 miles of the Bahamas and southeastern United States.

Chief Scientists: William P. Dillon, U.S. Geological Survey
Kathryn M. Scanlon, U.S. Geological Survey

Other Participants: Page Valentine, geologist U.S. Geological Survey
Linda Sheetz, geologist "
Renato Diaz, geologist "
Michael Boyle, technician "
Quentin Huggett, geologist Inst. of Oceanographic
Derek Bishop, engineer Sciences, U.K
Christopher Flewellen, engineer "
Doriel Jones, computer specialist "
Graham Lake, technician "
Emma Woodward, geologist "

Operating Institution: United States Geological Survey, Branch of Atlantic Marine Geology, Woods Hole, MA 02543

Ports: 9 May 87 depart Norfolk, VA
28 May 87 arrive Nassau, Bahamas
30 May 87 depart Nassau, Bahamas

Clearance Countries: Bahamas

Cruise Objectives: This cruise was the fifth in a series of five cruises aimed at surveying the Exclusive Economic Zone (EEZ) of the eastern United States. Permission was granted by the government of the Bahamas to extend the survey south into Bahamian waters in order to map prominent geologic features more completely.

The main survey instrument was GLORIA II, a long-range sidescan-sonar system that is well-suited to deep-water reconnaissance mapping of large areas. A seismic-reflection profiler, magnetometer, and 3.5 and 10 kHz echo sounders were operated simultaneously with the GLORIA system throughout most of the cruise.

A large part of the survey area is covered by the Blake Plateau a broad, shallow (800-1200 m) carbonate bank that lies east of Florida and north of Grand Bahama and Great Abaco Islands. The eastern edge of the Plateau is bounded by a nearly vertical 3500 meter cliff called the Blake Escarpment.

Cruise Results: Superb weather conditions and minimum equipment down time combined to make a most successful cruise. About three days were spent surveying gaps in the previous cruise's coverage. Of the remaining 14 days, 12 were spent surveying the Blake Plateau and Escarpment within the U.S. EEZ and 2 were used to survey the southern extension of the Escarpment into Bahamian waters. The GLORIA system was run well into Northeast Providence Channel before docking at Nassau. Figure 1 shows the ship's tracks for the entire cruise. Preliminary mosaics of the overlapping GLORIA image data were built by hand onboard the ship. A photograph of the southern part of the mosaic, which includes all of the imagery collected in Bahamian waters, is shown in Figure 2. Further corrections and enhancements will be done at the shore facility in Woods Hole where a digital mosaic can be produced. United States Ambassador Hallett held a reception for the Governor General of the Bahamas onboard the Farnella at the Nassau dock. The guest list included:

Governor General, His Excellency Sir Gerald Cash
 His Excellency the British High Commissioner Mr. Mays
 Minister of Economic Affairs Alfred Maycock
 Commodore Leon Smith, Royal Bahamas Defense Force
 Mr. Francis Garraway, Dept. of Lands & Surveys
 Mr. Ronald Thompson - Dir., Dept. of Agriculture, Fisheries & Cooperatives
 Mr. Colyn Higgs - Dep. Dir., Dept. of Agriculture, Fisheries & Cooperatives
 Mrs. Judy Blair - College of the Bahamas, Natural Science Div.
 Ms. Joy Chaplin - College of the Bahamas, Natural Science Div.
 Mr. Peter Key - Government High School
 Mr. Gary Lawson - Bahamas National Trust
 Mr. Richard Kench - Ministry of Works
 Mrs. Camille Cartwright - Ministry of Economic Affairs

Information Address:

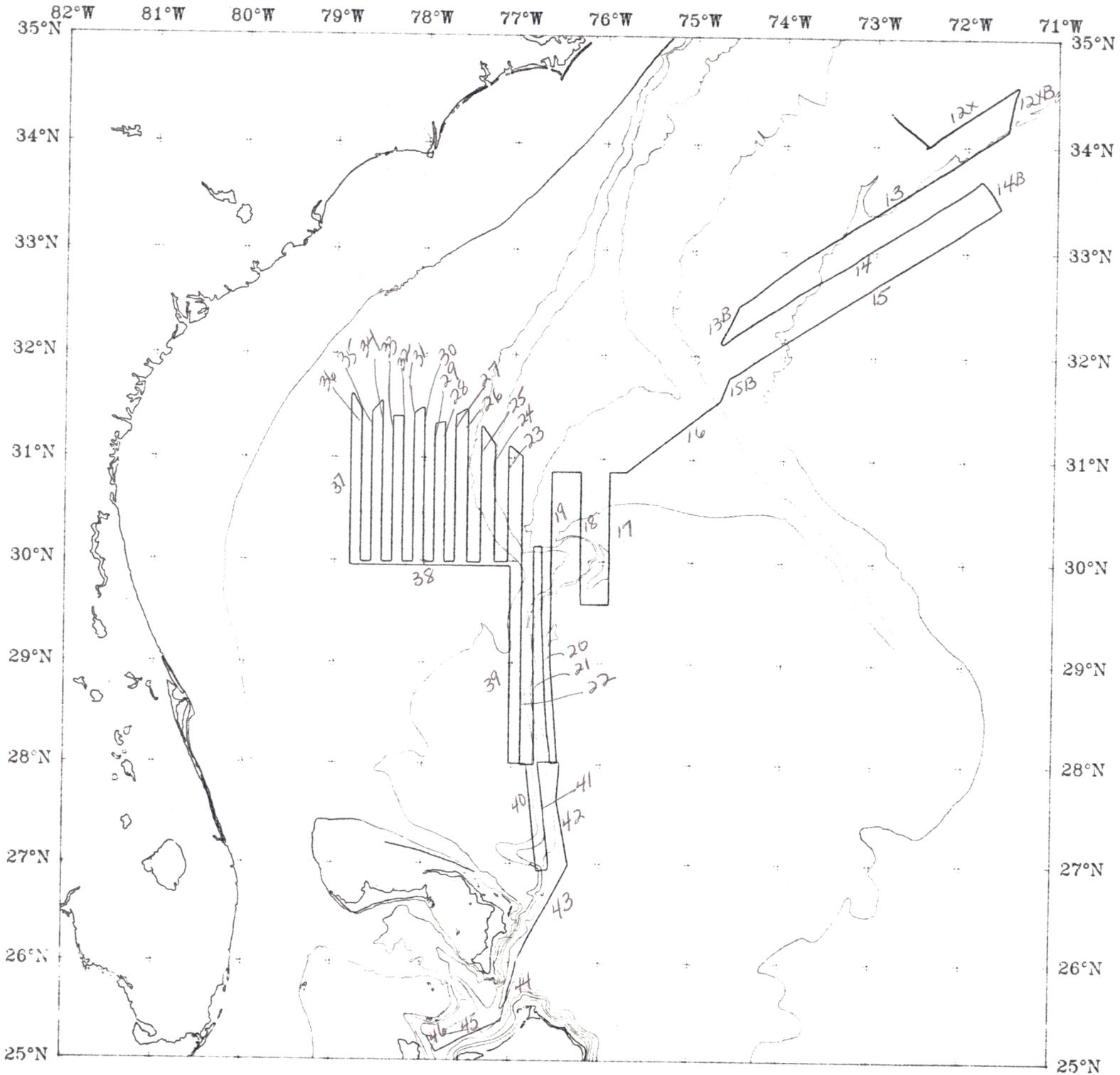
William P. Dillon
 U.S. Geological Survey
 Woods Hole, MA 02543 USA

Schedule of delivery for data

<u>Data</u>	<u>Delivery</u>
Preliminary GLORIA sidescan sonar mosaic	accompanies this report.
Computer enhanced GLORIA mosaic	March 1989
Seismic profiles collected with GLORIA data	March 1989

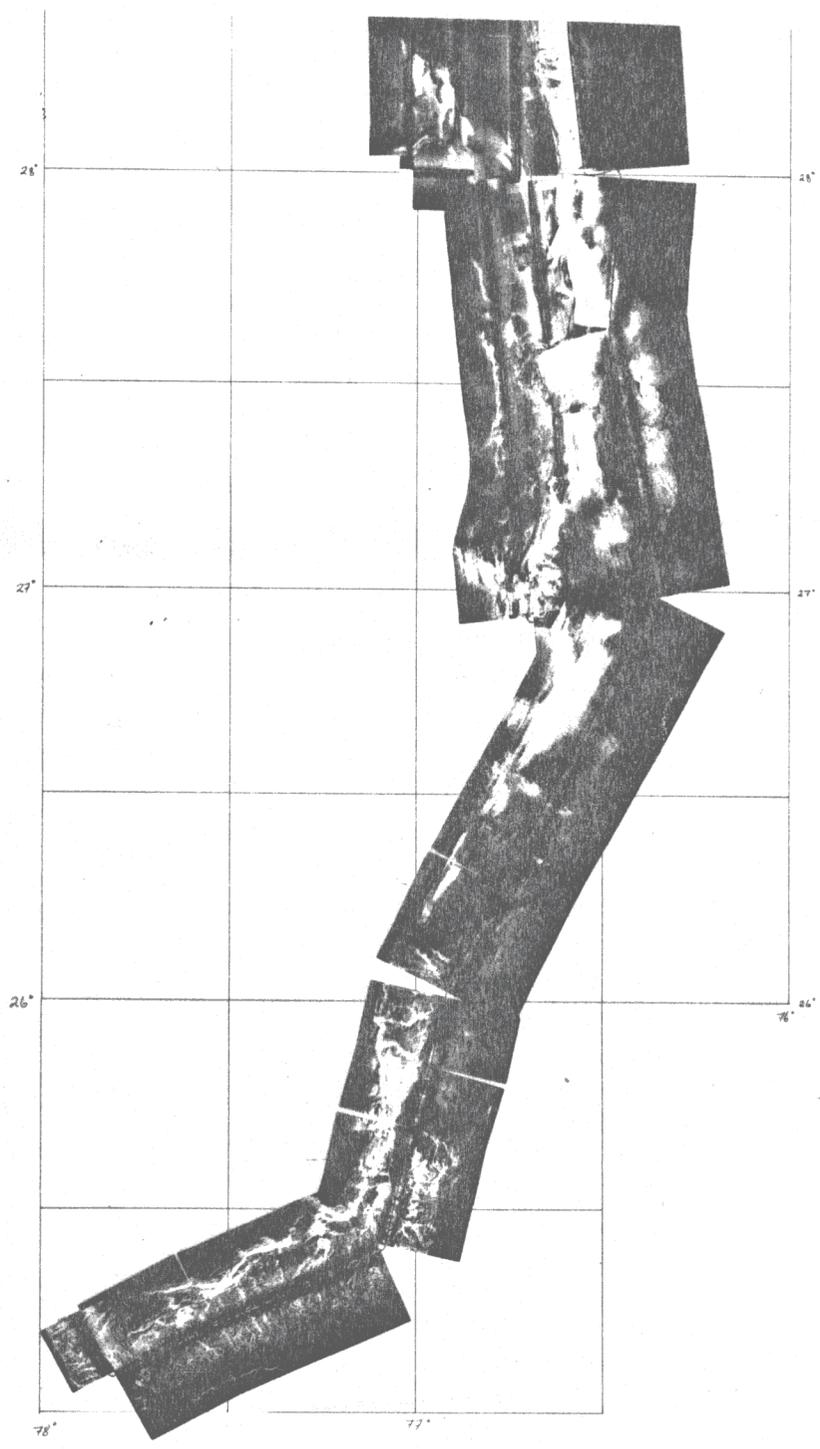
Line miles of data - GLORIA, 12KHZ and airgun seismic profiles, and total intensity of magnetic field were collected as follows:

- Northeastern cleanup	1362 km
- Northern Blake Escarpment	1511
- Blake Plateau	2858
- Southern Blake Escarpment	397
- Transit to Nassau (all data types continued to be collected)	291
	<u>6419 km total</u>



GLORIA FARNELLA 1987 LEG 5





15