UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

High-resolution seismic profile data from the U.S. Atlantic Continental Slope off New England, between Lydonia and Oceanographer Canyons

by

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Seismic profile data were collected on the R.V. GYRE during USGS cruise GYRE 80-7, from August 7-13, 1980, seaward of Georges Bank on the Continental Slope between Lydonia and Oceanographer Canyons (fig. 1). The survey was conducted as part of the BLM-supported USGS investigation of the geomorphology, shallow structure, and processes of mass wasting on the North Atlantic Continental Slope. The survey was designed to fill in data gaps in earlier reconnaissance surveys across the area (Bailey and Aaron, 1982a,b).

The area surveyed, from 67°20' to 68°15'W. longitude and from 40°01' to 40°22'N. latitude, ranged in depth from 200 m to 2,500 m, with locally greater depths in the axes of submarine canyons. Approximately 1,072 km of data were collected at a ship speed of about 4.5 knots (~8 km/hr). Most tracklines were oriented parallel to the trend of the slope and to earlier tracklines, and were spaced approximately 2 km apart; crossing diplines were oriented parallel to earlier diplines and spaced approximately 10 km apart.

Equipment included 5-in^3, 10-in^3, and 40-in^3 airguns, 800-joule minisparker, and a hull-mounted 3.5-kHz profiler. Seismic-reflection profiles collected using the airgun acoustic source and a low-frequency SEI streamer were recorded between 60-150 Hz on a nonprogrammable dry paper strip chart at 2-s sweep rate. Data acquired using the minisparker acoustic source and a 200-element streamer were recorded betweeen 150-600 Hz at a 1-s or 0.5-s sweep rate, which sweeps were also used to record the 3.5-kHz data.

The airgun records generally have a 12:1 vertical exaggeration. Quality of the records is good to fair. Records were annotated at 15 or 30-minute intervals, at beginnings and ends of lines, and at course and scale changes. All times given on the data and navigation plots are in GMT.

Preplotted survey lines were followed using Northstar 6000 LORAN-C receivers. Time delays (GRI-9960 network), signal-to-noise ratios, and calculated latitudes and longitudes were recorded on magnetic tape every 5 minutes and manually every 15 minutes. Navigation plotting was done on computer-generated latitude-longitude and time-delay charts at a scale of approximately 1:55,000.

Original seismic profile records may be viewed at the U.S. Geological Survey, Woods Hole, MA 02543. Microfilm or paper copies of the data and track charts can be purchased only from the National Geophysical Data Center, NOAA/EDIS/NGDC, Code E64, 325 Broadway, Boulder, Colorado 80303.

References cited

Bailey, N. G., and Aaron, J. M., 1982a, High-resolution seismic-reflection profiles from R/V COLUMBUS ISELIN CI 7-78-2, over the Continental Shelf and Slope in the Georges Bank area: U.S. Geological Open-File Report 82-607, 2 p.

_____1982b, High-resolution seismic-reflection profiles from R/V JAMES M. GILLISS Cruise GS-7903-3, over the Atlantic Continental Slope and Rise off New England: U.S. Geological Survey Open-File Report 82-718, 2 p.

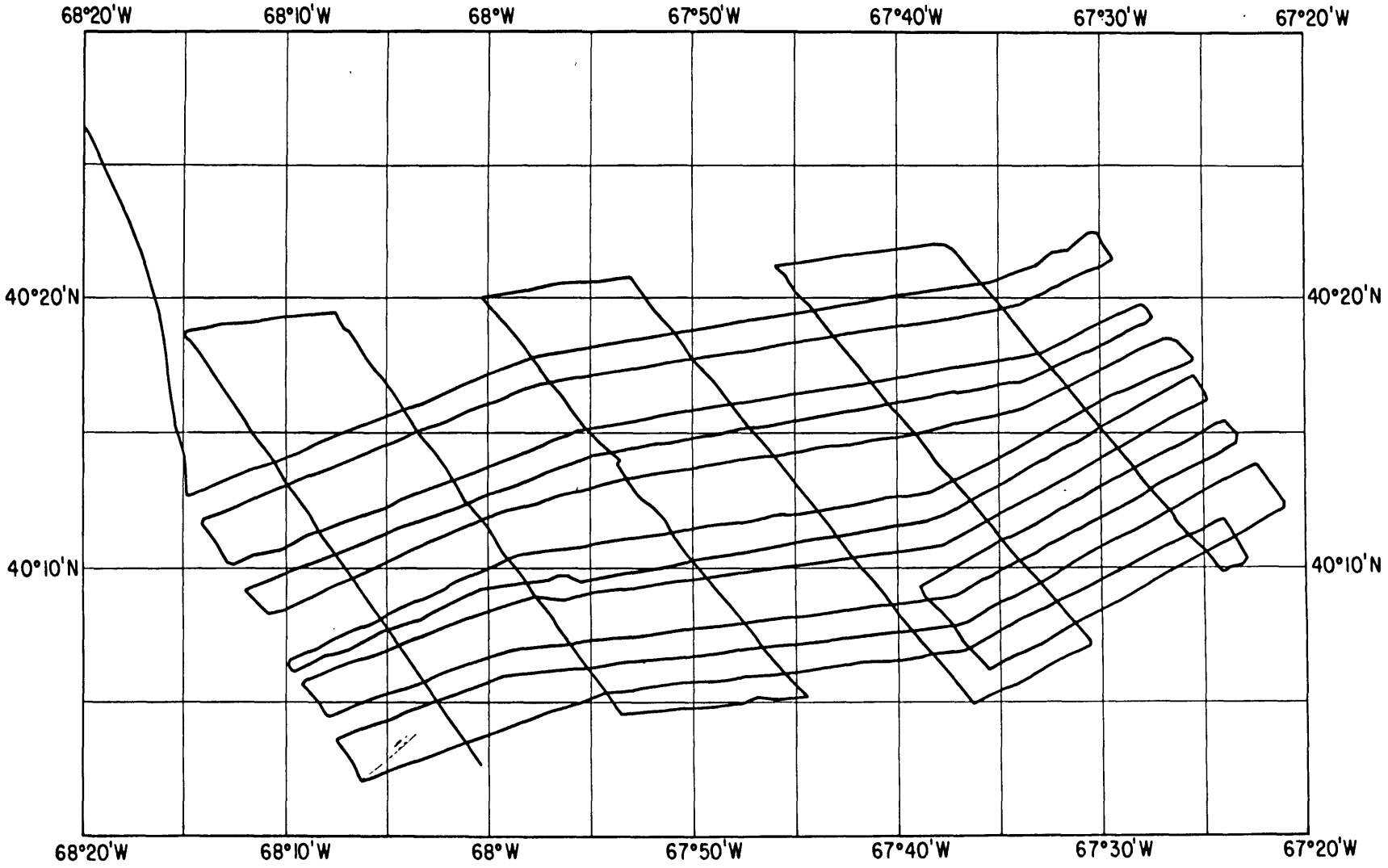

Figure 1. Trackline of GYRE 80-7 seismic-profile survey.