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High-Resolution seismic-reflection profiles collected aboard R/V JAMES M. GILLISS, Cruise GS-7903-3, over the Atlantic Continental Slope and Rise off New England

By

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During June 1979, the U.S. Geological Survey (USGS) collected 4,032 km of single-channel seismic-reflection data from the Atlantic Continental Slope and Rise off New England (fig. 1). The work was conducted aboard R/V JAMES M. GILLISS (cruise GS-7903-3). The purpose of the cruise was to determine the characteristics of mass sediment movement on the Continental Slope, and to study and correlate the stratigraphy of the Jurassic and Cretaceous strata lying north and south of the New England seamount chain.

Seismic instrumentation included 40-in^3, 160-in^3, and 500-in^3 airguns; a Teledyne 800-joule minisparker system; a 3.5-kHz to 7-kHz, hull-mounted tunable transducer; and a 7-channel analog tape recorder.

Navigation control during the cruise was provided by a Western Integrated Navigation System capable of integrating satellite, rho-rho Loran-C, hyperbolic Loran-C, gyro compass, and doppler speed-log position data. The prime navigation sensor was the rho-rho Loran-C automatically recorded at 20-second intervals and manually plotted every 15 minutes, backed up by hyperbolic Loran-C fixes automatically recorded every 5 minutes.

Of the 4,032 km of data collected, 3,257 km of 3.5-kHz, minisparker and 40-in^3 airgun were for the sediment-slump study and the other 775 km of 3.5-kHz, minisparker, 160-in^3 airgun and 500-in^3 airgun were for the deep stratigraphy study. Overall, the quality of the data is excellent with good resolution and penetration.

The original data may be examined at the U.S. Geological Survey, Woods Hole, MA 02543. Copies of the data can be purchased only from the National Geophysical and Solar-Terrestrial Data Center, NOAA/EDIS/NGSDC, Code D621, 325 Broadway, Boulder, CO 80303 (303-497-6338).

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards. Any use of trade names is for descriptive purposes only and does not imply endorsement by the U.S. Geological Survey.

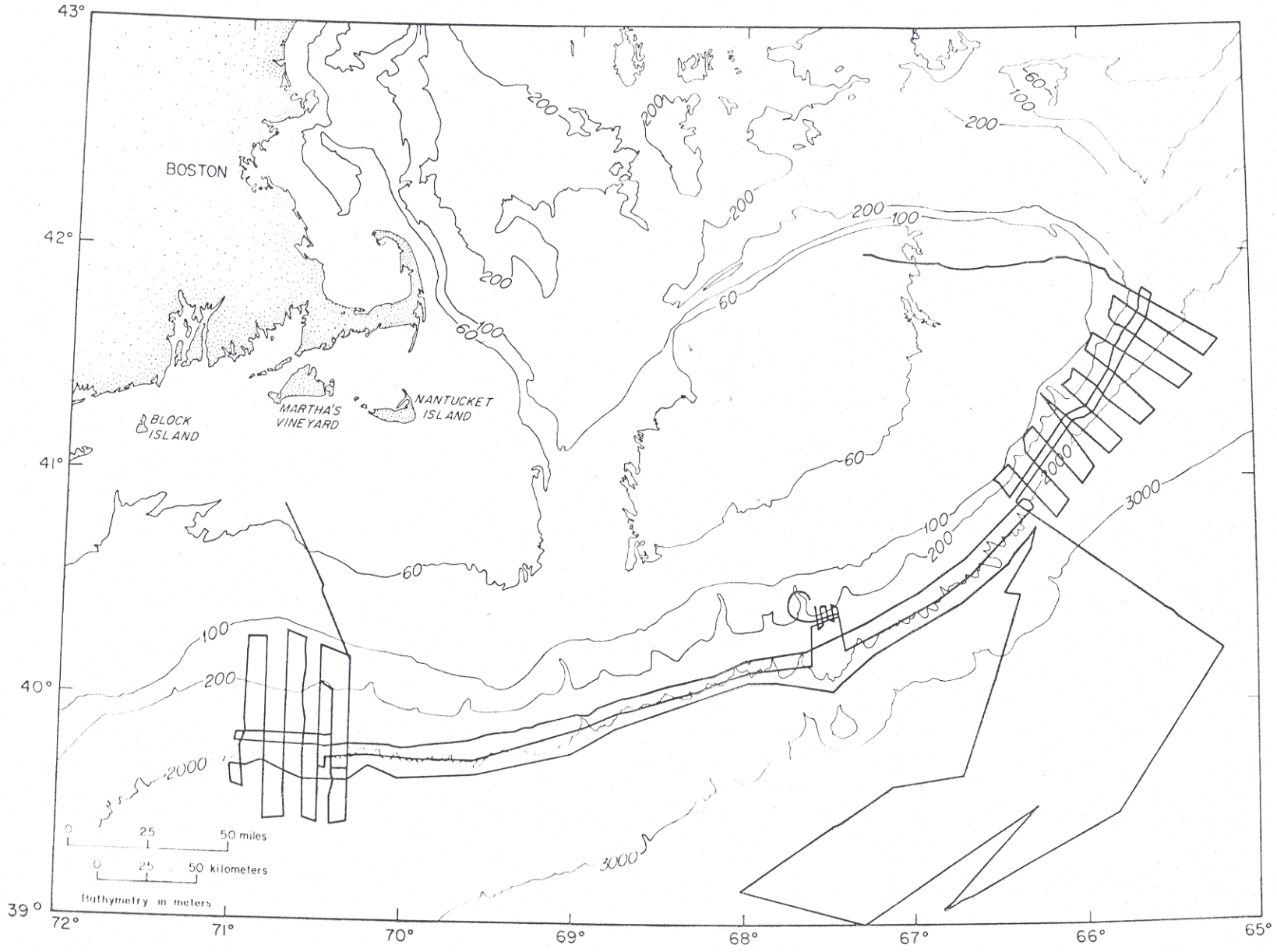

Figure 1. Map showing tracklines of GILLISS cruise GS-7903-3