

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DIGITAL MARINE GRAVITY DATA COLLECTED IN THE
BEAUFORT AND CHUKCHI SEAS IN 1977

By

Steven D. May¹, Byron D. Ruppel¹, and Arthur Grantz¹

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This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.

Any use of trade names is for descriptive purposes only and does not constitute endorsement by the U.S. Geological Survey

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¹U.S. Geological Survey, 345 Middlefield Road
Mail Stop 904, Menlo Park, California 94025

The U.S. Geological Survey (USGS) collected approximately 8,680 km of digital marine gravity data in 1977 over the shelf, slope, and rise in the United States Beaufort Sea and the shelf in the eastern Chukchi Sea (Figs. 1 and 2). The data were collected aboard the USGS research vessel S. P. Lee (cruise number L977AR). These data have been included in a free-air gravity anomaly map of the United States Beaufort and Chukchi Seas (May, 1985). Geology of the Beaufort shelf, slope and rise and Chukchi shelf is discussed in Grantz and May (1983 and 1984).

Data were recorded at 20 second intervals using La Coste and Romberg sea gravimeter S-53 mounted on a two-axis inertial platform (La Coste and others, 1967). Navigation of the survey was by satellite fixes integrated with bottom-tracking doppler sonar. Final smoothed navigation was used to make Eotvos corrections and final free-air anomaly values were determined from the 1967 reference ellipsoid (International Association of Geodesy, 1971).

Digital data available from this survey are gravity and navigation at one minute (100 to 300 meter) intervals. Copies of the data are available through the National Geophysical Data Center, NOAA/EDIS/NGDC, Code 64, 325 Broadway, Boulder, CO 80303; telephone (303) 497-6338.

References

- Grantz, Arthur, and May, S. D., 1983, Rifting history and structural development of the continental margin north of Alaska, in Watkins, J. S., and Drake, C. L., editors, Studies in continental margin geology: American Association of Petroleum Geologists Memoir 34, p. 77-100.
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- La Coste, L. J. B., Clarkson, Neal, and Hamilton, George, 1967, La Coste and Romberg stabilized platform shipboard gravity meter: Geophysics, v. 32, no. 1, p. 99-109.
- May, S. D., 1985, Free-air gravity anomaly map of the Chukchi and Beaufort seas, Arctic Ocean: U.S. Geological Survey Miscellaneous Investigations Series Map I-1182-E, 1 sheet, scale 1:1,000,000.

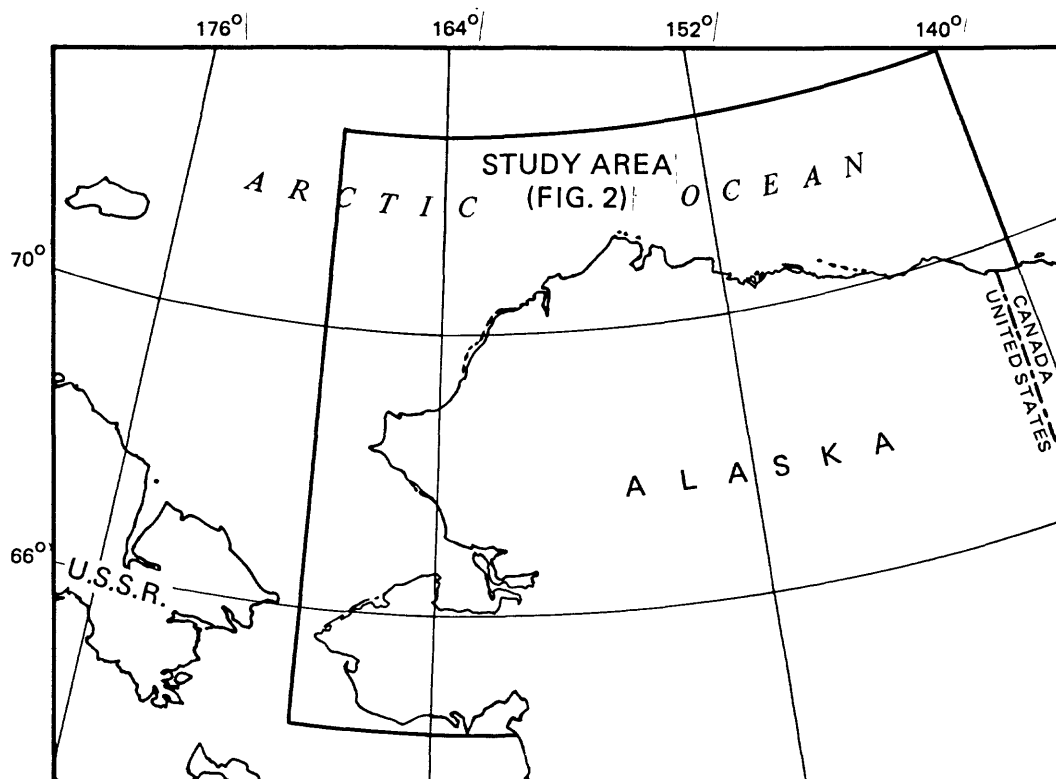


FIGURE 1: Index map showing location of trackline map, Figure 2.

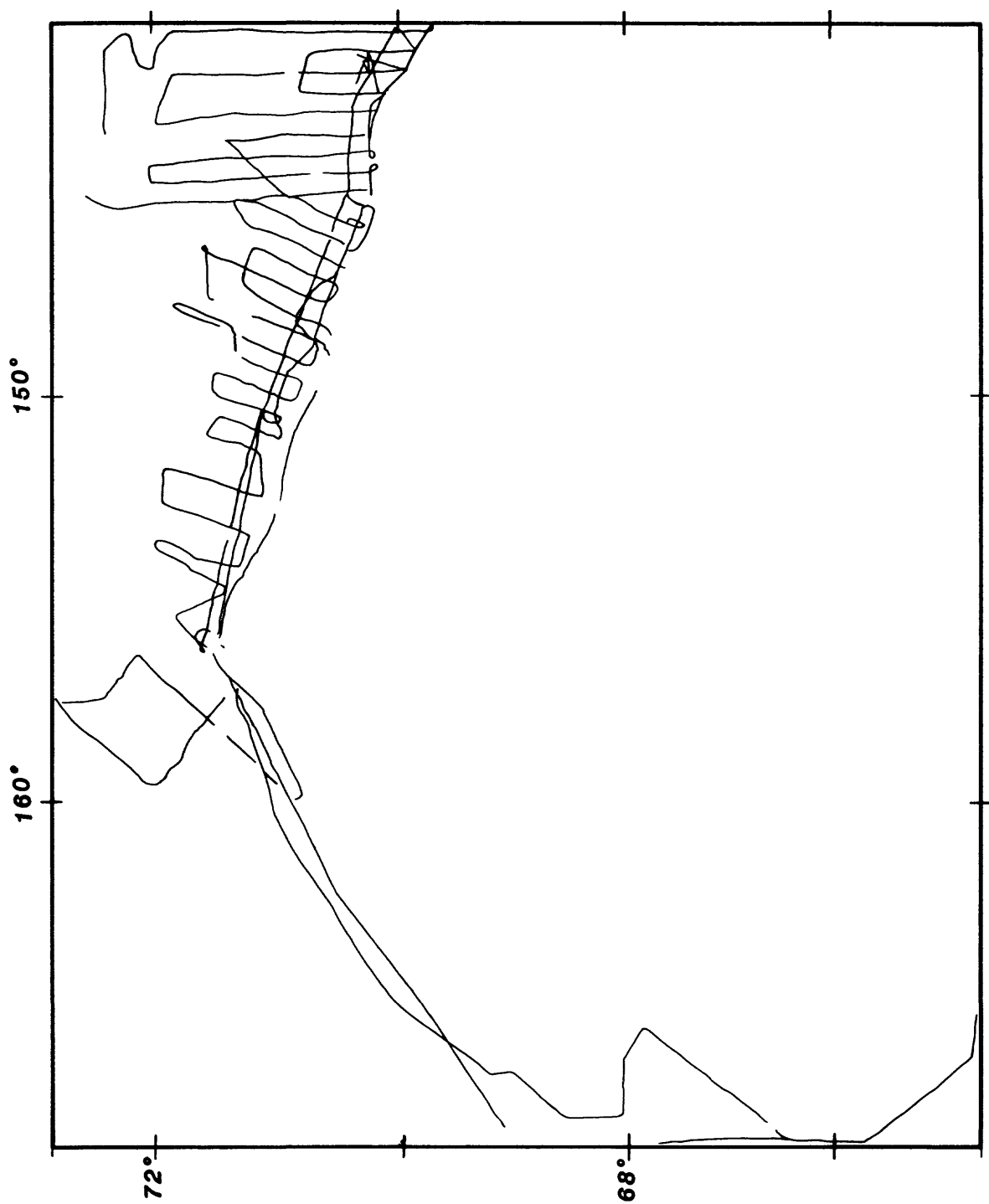


Figure 2.--Location of U.S. Geological Survey R/V S. P. LEE cruise L977AR digital marine gravity data collected in the Beaufort Sea and eastern Chukchi Sea in 1977.