

TWENTY-FOUR CHANNEL SEISMIC REFLECTION DATA  
ACQUIRED ON THE R/V S. P. LEE IN THE BERING SEA,  
SEPTEMBER 1975, AND STRUCTURE CONTOURS OF ACOUSTIC  
BASEMENT BENEATH THE SOUTHERN BERING SEA SHELF

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During September, 1975 approximately 600 km of 24-channel seismic reflection data were acquired on the R/V S. P. LEE in the southern Bering Sea. Tracklines with shotpoint numbers are shown on Figure 1 and are located between the Alaska Peninsula and the Pribilof Islands. Navigation was done by satellite, doppler Sonar, and radar. Microfilms present seismic reflection profiles (1-8), which are annotated with the type and size of the source array, the cable spacing, and recording modes. These seismic reflection profiles and data from an earlier study by Marlow and others (1976, Figs. 6, 7) were used in constructing the structure-contour map shown in Figure 2. Three sonobuoy stations (Lines 1, 2 and 3) and the interpreted velocity sections (velocities are in km/sec) are also shown in Figure 2. The structure-contours were used in constructing the oblique map of basement rocks shown in Figure 3.

#### References

- Hopkins, D. M., D. W. Scholl, and others, 1969, Cretaceous, Tertiary and early Pleistocene rocks from the continental margin in the Bering Sea: Geol. Soc. America Bull., V. 80, p. 1471-1480.
- Marlow, M. S., D. W. Scholl, A. K. Cooper, and E. C. Buffington, 1976, Structure and evolution of Bering Sea shelf south of St. Lawrence Island: Amer. Assoc. Petroleum Geol. Bull., V. 60, p. 161-183.
- Scholl, D. W., E. C. Buffington and D. M. Hopkins, 1968, Geologic history of the continental margin of North America in the Bering Sea: Marine Geology, v. 6, p. 297-330.

Scholl, D. W., and D. M. Hopkins, 1969, Newly discovered Cenozoic basins, Bering Sea shelf, Alaska: Amer. Assoc. Petroleum Geol. Bull., V. 53, p. 2067-2078.

Scholl, D. W., T. R. Alpha, M. S. Marlow, and E. C. Buffington, 1974, Base map of the Aleutian-Bering Sea region: U. S. Geol. Survey Misc. Geol. Inv. Map I-979, Scale 1:2,500,000.

#### Figure Captions

- Figure 1. Map showing location of tracklines and shotpoint tick marks. Transverse Mercator Projection.
- Figure 2. Structure-contour map of acoustic basement derived in part, from Scholl and others (1968), Scholl and Hopkins (1969), and Marlow and others (1976). Other lines not shown are from M. Holmes of the University of Washington (written commun., 1974). Lines marked lines 1, 2, and 3 correspond to sonobuoy-refraction stations shown in lower left of the figure (unnumbered top layer is sea water with an assumed velocity of sound of 1.5 km/sec). Dredge station in Pribilof Canyon is marked TT-1 and is discussed by Hopkins and others (1969). Base map from Scholl and others (1974).
- Figure 3. Oblique map of basement rocks beneath the southern Bering Sea shelf and margin. Derived from Figure 2.

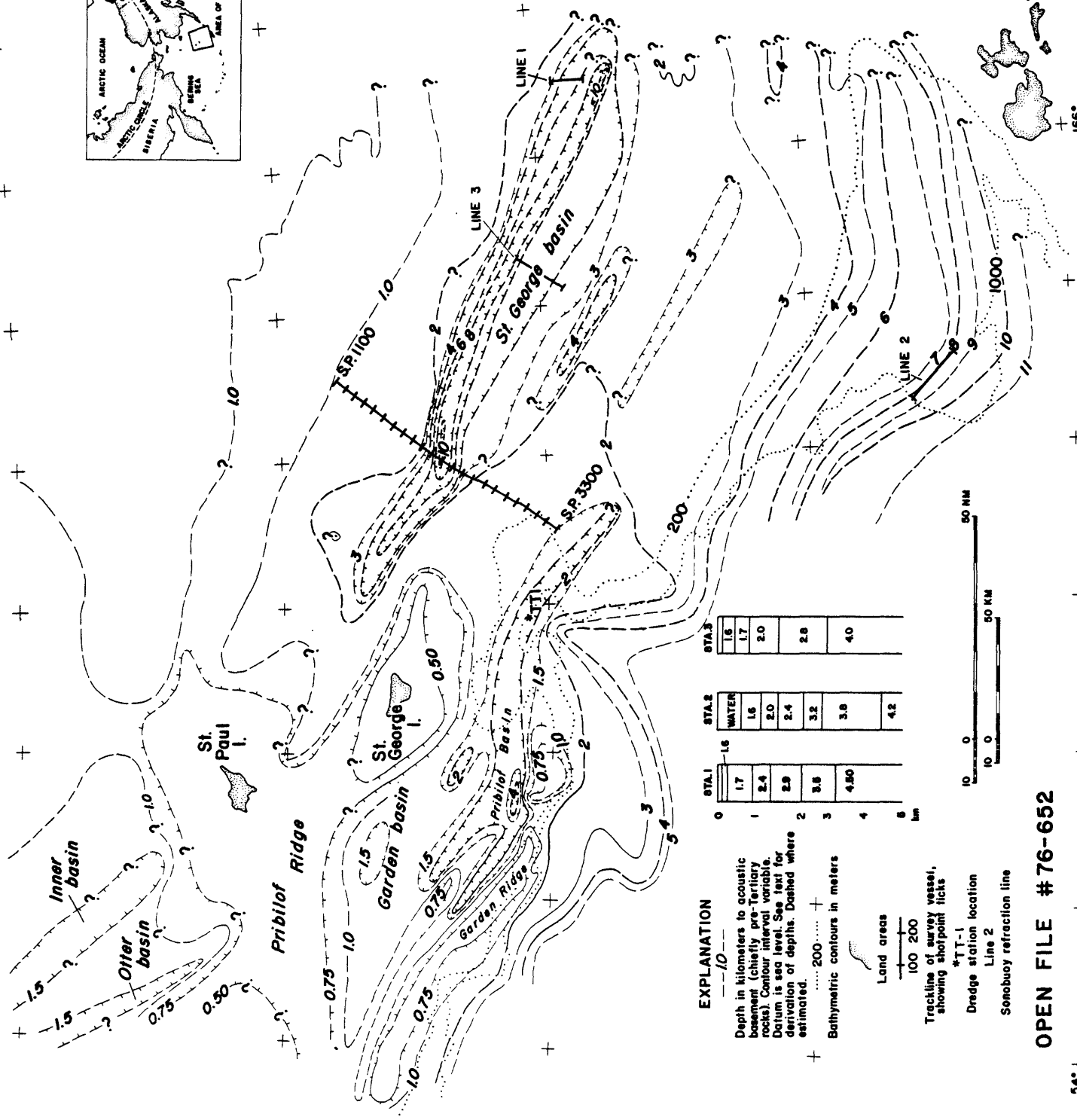
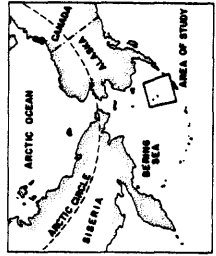
164° + 56°

+ 57°

+ 56°

+ 55°

+ 54°



**EXPLANATION**

— 10 —  
 Depth in kilometers to acoustic basement (chiefly pre-Tertiary rocks). Contour interval variable. Datum is sea level. See text for derivation of depths. Dashed where estimated.

..... 200 .....  
 Bathymetric contours in meters

Land areas  
 100 200

Tractlines of survey vessel, showing shotpoint ticks

\*TT-1  
 Dredge station location

Line 2  
 Sonobuoy retraction line

STATION	STATION	STATION
0	1	2
1.6	1.6	1.6
1.7	1.6	1.6
1.7	2.0	2.0
2.0	2.0	2.0
2.4	2.4	2.4
2.8	3.2	2.8
3.8	3.8	3.8
4.50	4.2	4.0



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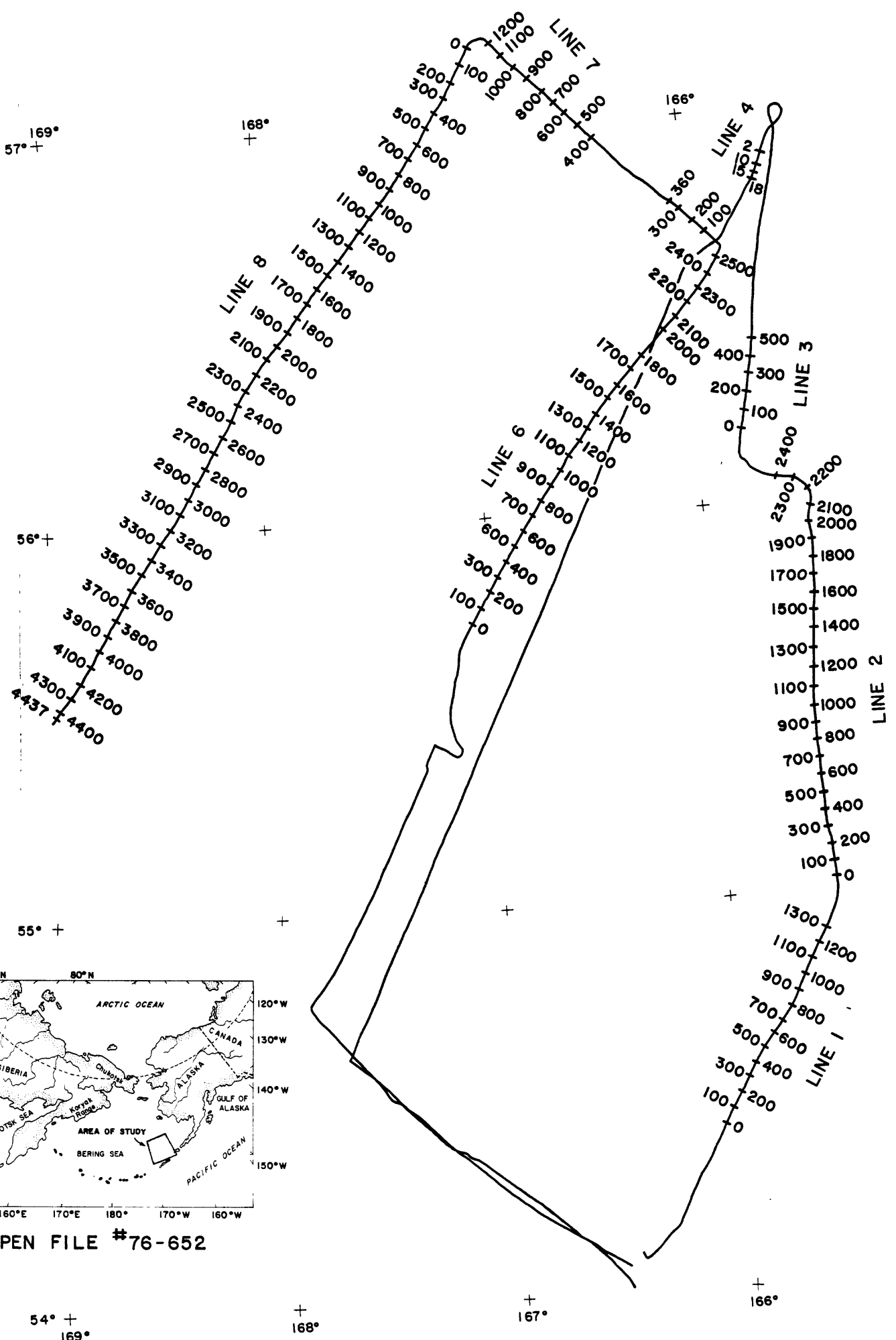
54° + 172°

+ 170°

+ 168°

+ 166°

+ 164°



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