

DISCUSSION

Free-air gravity data shown on this map are compiled from an earlier map by Burkhard and others (1980) and from previously unpublished data. The part of Burkhard and others' map that shows the area west of 155°W is incorporated here with only minor revision. See the text of their map for the description of data collection and processing that pertain to that part of our map. We have modified the part of the earlier map that shows the area west of 155°W, on the basis of new data.

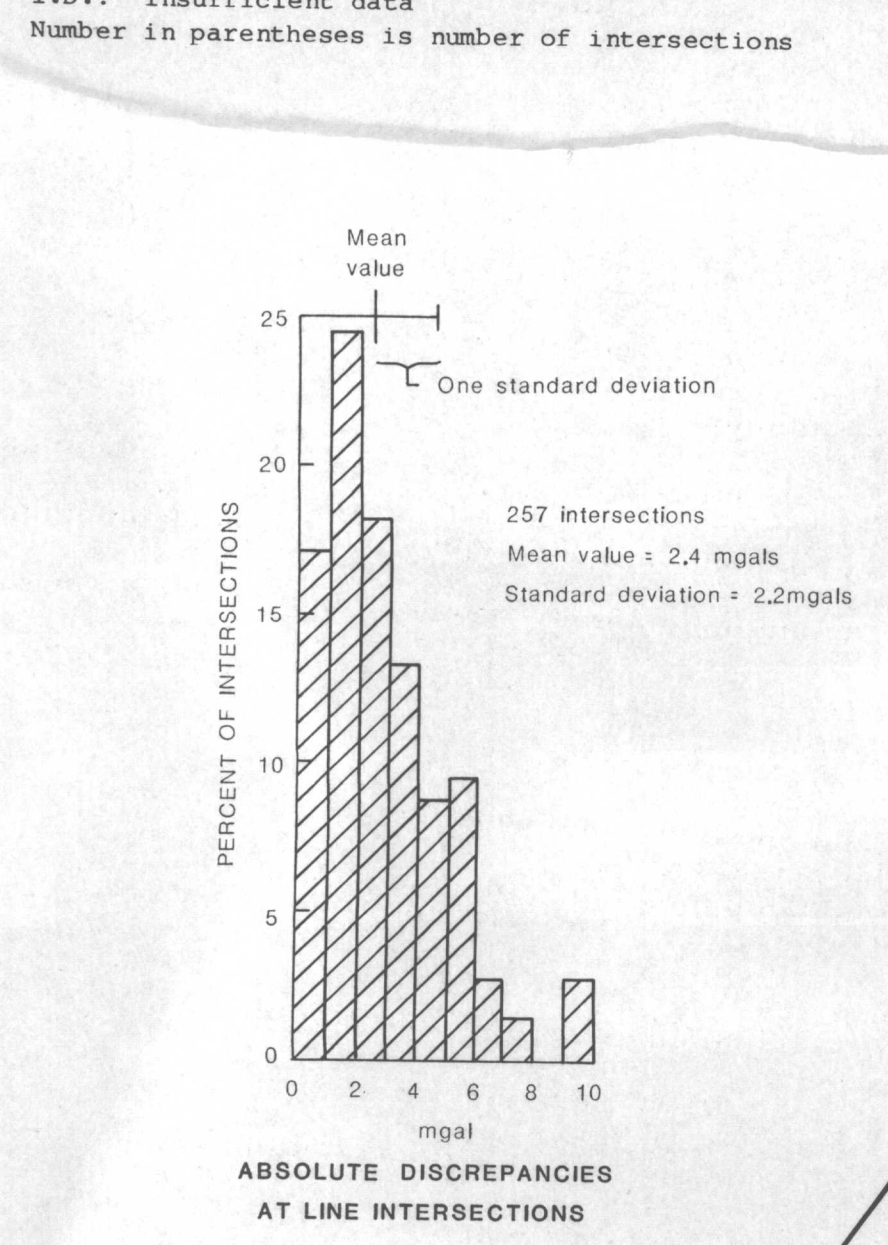
These new data were collected during cruises aboard the R/V S.P. Lee (17-77-00 and 17-81-00) and the R/V Sea Swallow (80-79-00), and we used data from 17-77-00 and 17-81-00 that lie outside of the area shown in Burkhard and others (1980). Furthermore, we reprocessed gravity data from cruises 14-76-00, as Burkhard and others reported that line intersection errors from this cruise were greater than 7 mgal. Reprocessing reduced these errors to between 0 and 4 mgal (Table 1).

Gravity data from cruises 17-77-00, 80-79-00, and 17-81-00 were collected using La Crosse and Hummel's marine gravity meters on towed platforms. The navigation system for the 17 cruises integrated a satellite navigation system with doppler sonar to calculate the ship's position. During the 80 cruise the system used during the 80 cruise was primarily a satellite navigation system. The gravity data were corrected for meter drift by measuring gravity before and after each cruise at a base station at Kodiak. Free-air gravity values were calculated reduced to the 1955 datum, and then they subtracted a constant 7 mgal from their data to correct for the difference between the 1955 and 1971 datum. Despite these different methods of reduction to datum, data from their map and ours compare well.

Absolute values of discrepancies at line intersections from all five cruises have a mean value of 2.4 mgal and a standard deviation of 2.2 mgal (Fig. 1). The mean and standard-deviation values for individual cruises are shown in Table 1.

TABLE 1. DISCREPANCIES AT LINE INTERSECTIONS

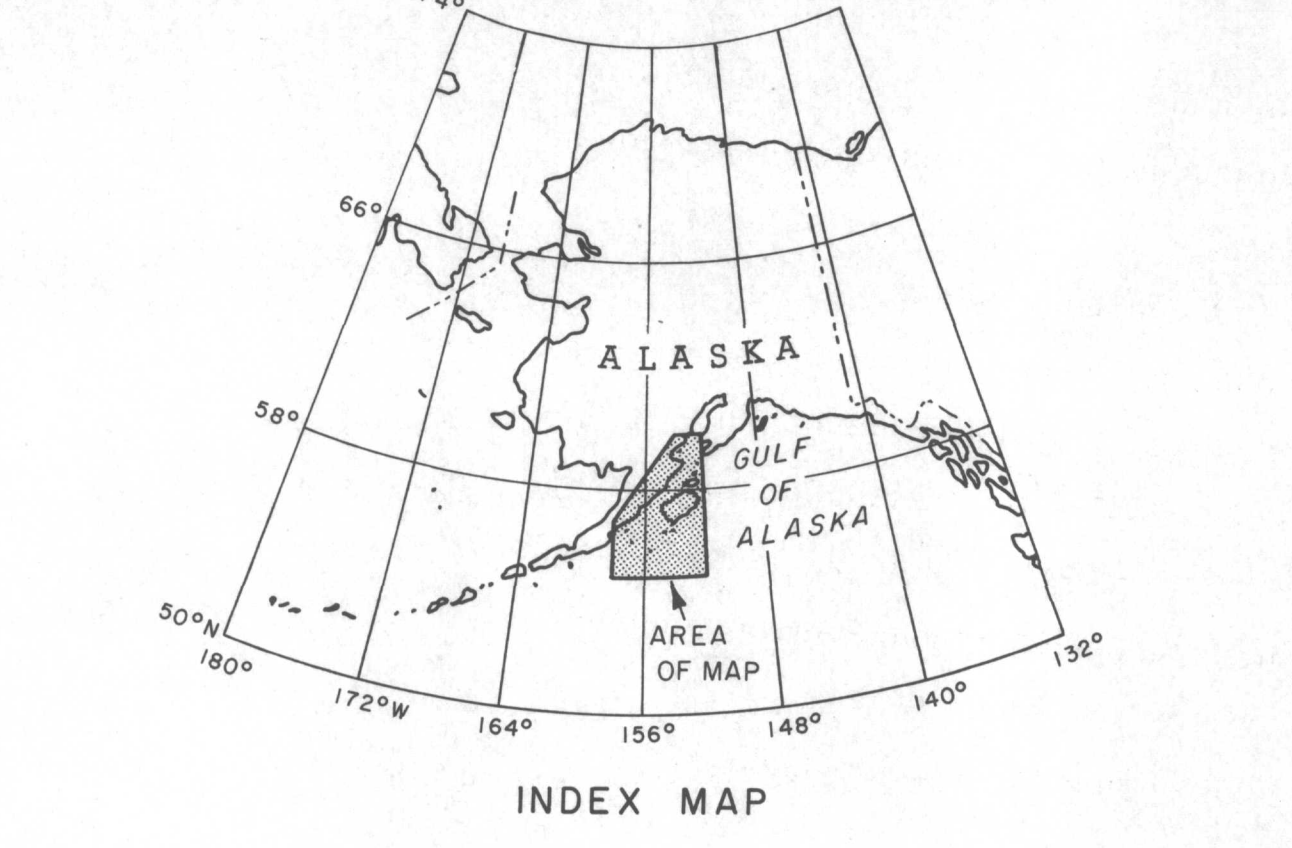
Cruise	17-81-00	80-79-00	14-76-00	17-77-00	17-81-00
Mean	2.4 ± 3.1	-1.8 ± 4.5	-0.5 ± 2.1	2.0 ± 1.6	2.8 ± 1.4
S.D.	2.2	2.2	2.2	2.2	2.2
Number of intersections	(20)	(11)	(53)	(9)	(7)



REFERENCE

Burkhard, W. von Huene, R., McInnis, G., Sippel, B., and Burns, T., 1980. Free-air gravity anomaly map, Western Gulf of Alaska. U.S. Geological Survey Miscellaneous Field Studies Map MF-173, 1 sheet, scale 1:500,000.

1. Use of trade names is for descriptive purposes and does not constitute endorsement by the U.S. Geological Survey.

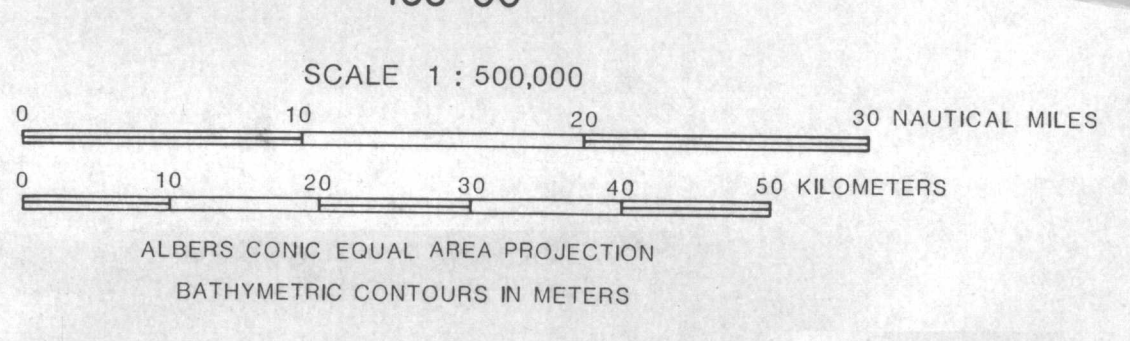
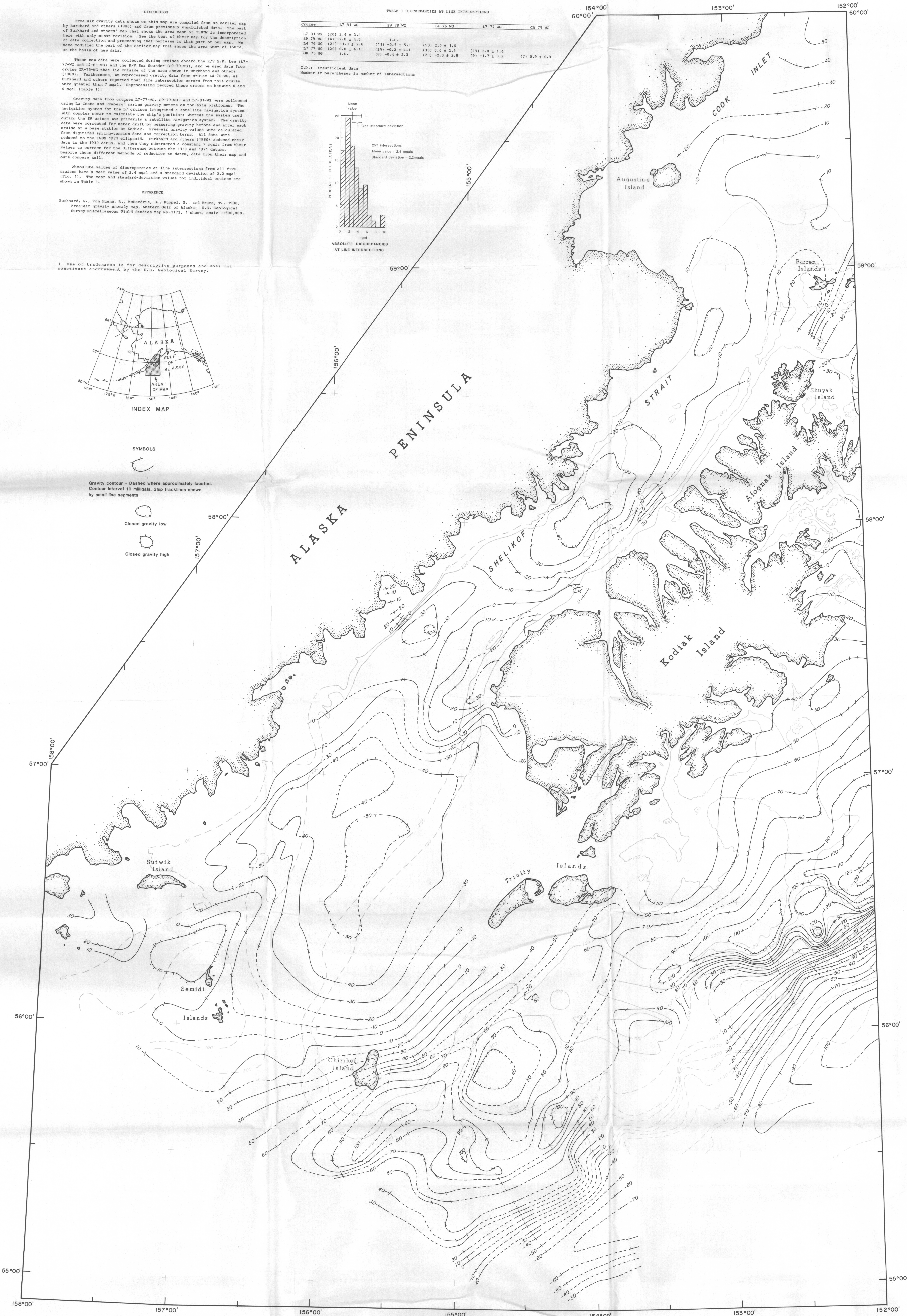


SYMBOLS

Gravity contour - Dashed where approximately located.
Contour interval 10 milligals. Ship tracks shown by small line segments.

Closed gravity low

Closed gravity high



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

MARINE FREE-AIR GRAVITY MAP OF THE WESTERN GULF OF ALASKA, LOWER COOK INLET, AND SHELIKOF STRAIT, ALASKA

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1983