

DISCUSSION

Marine magnetic data that are the basis of this map were obtained in 1975 by Geophysical Services, Inc. for the U. S. Geological Survey, and in 1976, 1977 and 1978 by the Survey. These data were collected using a Varian proton-proton magnetometer in 1975, and a Geometric proton-proton magnetometer in 1976 through 1978. Results are presented by computer-processed data reduction, was used during all surveys. Magnetic anomalies were computed from the field data by subtracting the International Geomagnetic Reference Field, epoch 1975. Line crossing discrepancies are generally less than 30 gamma (see graph below). These errors could be due to diurnal variations (20 to 40 gamma), to magnetic storms (20 to 50 gamma), or to location errors. A base-station magnetometer operated at the town of Kodiak during only the 1976 and 1977 surveys, and some tracklines are 350 km from the base station; consequently, the magnetic data have not been corrected for diurnal variation.

The large magnetic anomaly that lies along the northern coast of Kodiak Island and that trends southwest from Kodiak to beyond Sutwik Island is called the Shelikof anomaly. Aeromagnetic data obtained over Afognak and Shuyak Islands (U. S. Geol. Survey, 1980) show that the Shelikof anomaly, the Shelikof side of the Border Ranges fault on these islands. The Shelikof anomaly is part of a regional magnetic anomaly that extends for 1000 km from southeastern Alaska (Anderson and others, 1964; along Cook Inlet, Fisher and others, 1963) to Sutwik Island. This regional anomaly lies along the northern side of the Border Ranges fault, described by Anderson and Fisher (1961), and the peak of the Shelikof anomaly is within 10 km of the fault along the northern coast of Kodiak Island where the most likely source for the anomaly is lower Jurassic plutonic rocks. Fisher (in press) uses the location of the Shelikof anomaly between Kodiak and Sutwik Islands to determine a probable location for the Border Ranges fault there. Aeromagnetic data over the Alaska Peninsula and offshore areas near Sutwik Island are shown by U.S. Geol. Survey (1978) and by Case and others (in press).

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

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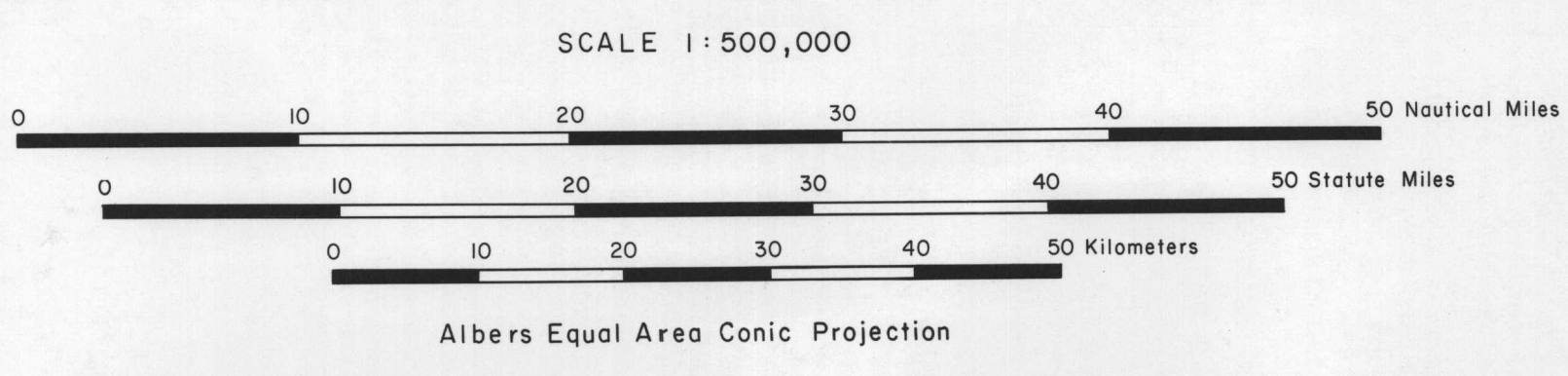
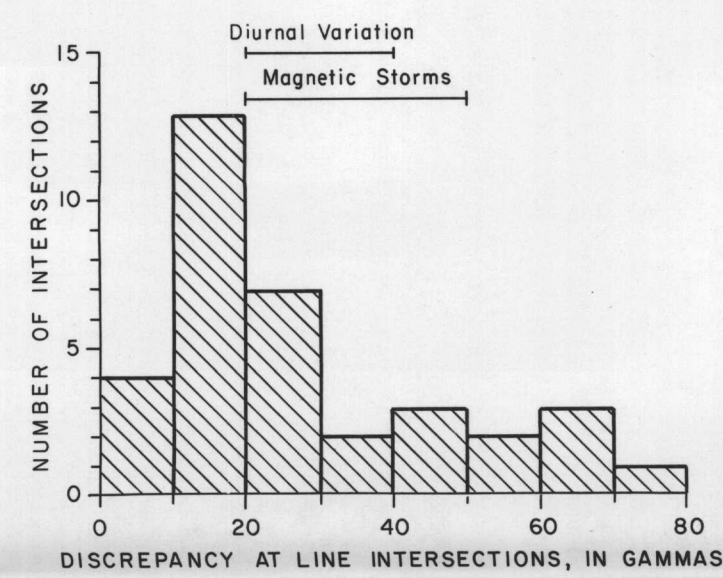
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CORRELATION OF MAP UNITS

Qs	Holocene and Pleistocene	QUATERNARY
Tq1	Pliocene to Pliocene	QUATERNARY and TERTIARY
Ts		
Khc	Upper Cretaceous	TERTIARY (?)
Kc		
Ku	Lower Cretaceous	CRETACEOUS
Kjh	Lower Cretaceous to Middle Jurassic	CRETACEOUS and JURASSIC
Ju	Lower Jurassic	JURASSIC
Jn		JURASSIC and TRIASSIC
Tss	Upper Triassic	TRIASSIC

DESCRIPTION OF MAP UNITS

Qs	Surficial deposits
Tq1	Igneous rocks
Ts	Sedimentary rocks
Tqm	Quartz monzonite
Khc	Hoodoo and Chignik Formations
Kc	Kodiak Formation and Cape Current terrane
Ku	Uyak Complex and ultramafic rocks associated with the Uyak
Kjh	Helderberg Limestone (Lower Cretaceous) and Stemkovian (Lower Cretaceous and Upper Jurassic), Nakhai (Upper Jurassic), and Shelikof (Middle Jurassic) Formations
Jn	Sedimentary and volcanic rocks
Ju	Afognak pluton
Tss	Shuyak Formation, sedimentary and volcanic members



MAP OF MARINE MAGNETIC DATA FROM SHELIKOF STRAIT TO SUTWIK ISLAND, ALASKA

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