

U.S. GEOLOGICAL SURVEY MARINE GEOLOGIC STUDIES IN THE BEAUFORT SEA,
ALASKA, 1977; DATA TYPE, LOCATION, AND RECORDS OBTAINED

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Under the Bureau of Land Management, Outer Continental Shelf Environmental Assessment Program in the Beaufort Sea, the U.S.G.S. vessel KARLUK ran approximately 1450 km of track line on the inner shelf of the Beaufort Sea from July to September, 1977. Data acquired consist of approximately 1415 km of bathymetry, 710 km of side-scan sonar record, and 470 km of high resolution seismic data. Four maps, plates 1 through 4, show the locations of tracklines, observational SCUBA dives, and vibracore sampling sites where cores up to 2 m in length were taken. Besides the location maps included with this report the data include 34 rolls of bathymetry, 30 rolls of side-scan sonar, 10 rolls of high resolution seismic data, and the ship's log; all available for inspection at U.S. Geological Survey, Room B-164, Deer Creek Facility, 345 Middlefield Rd., Menlo Park, Ca. 94025. The ship's log contains information on systems in use on each line, system settings (scales used, filter, etc.), and navigational data used in plotting the lines. Copies of the above data are available only from the National Geophysical & Solar-Terrestrial Data Center, NOAA, Boulder, CO. 80302.

Navigation was controlled using a Del Norte range-range system accurate to ± 5 m and limited to line-of-sight distances. Where there was not adequate coverage with the Del Norte system, radar ranges were taken from available targets usually with an accuracy of ± 200 m. Dead reckoning probably accurate to ± 1 km was used on some lines extending offshore beyond the range of both systems.

Bathymetry was recorded on a Raytheon RTT 1000 dry paper recorder using a hull-mounted 200 kHz transducer with an 8° beam width, and on some lines a 200 kHz narrow (4°) beam transducer was towed below the surface. All records are corrected for draft of vessel and tow depth.

A 7kHz transducer used in conjunction with the RTT 1000 recorded sub-bottom reflectors up to 20 m below the sea floor. Deeper penetration high-resolution seismic data were recorded on an EPC Model 1400 recorder at 1/4 second sweep, the signal filtered to 600-1600 Hz. The sound source was an EG&G Model 234 Uniboom activated at 200 joules. The side-scan sonar records were taken using a Model 259-3 EG&G system and a Model 272 sonar fish operated with a 105 kHz, 1/10 milli-second pulse at a 20° beam angle depression.

Barnes and others, 1978, and Reimnitz and Maurer, 1978, have published reports using 1977 data and further study is presently being undertaken using the data presented here. The authors may be contacted for a bibliography of publications using the above data and data from previous years.

BIBLIOGRAPHY

- Barnes, P. W., McDowell, D. E., and Reimnitz, Erk, 1978, Ice gouge characteristics: their changing patterns from 1975 to 1977, Beaufort Sea, Alaska, in: Marine Environmental Problems in the Ice-covered Beaufort Sea Shelf and Coastal Regions, Annual Report RU-205, 1978, Attachment B.
- Reimnitz, Erk, and Maurer, Douglas, 1978, Stamukhi shoals of the Arctic: some observations from the Beaufort Sea: U.S.G.S. Open File Report #78-666, 16 p.