XII. PRELIMINARY RESULTS OF REMANENT MAGNETIZATION MEASUREMENT ON GRAVITY CORE SAMPLES

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Depositional remanent magnetization of sediment of deep sea floor was measured on five gravity cores obtained in this cruise. The sampling stations are located 200 km westward from the sampling stations of the last GH76–1 cruise, being also near the equator. Therefore from these positional condition, declination changes oppositely of 180° were expected to exist, enabling us to know the ages of the cores from the pattern of normal and reverse.

Measurement

The long cores longitudinally cut were available for measurement. Sampling interval was 2.2 cm and the sampling case was of 2.2 cm cube chloride vinyl. And an interval of measurement was 6.6 cm by means of the Shornsted type spinner magnetometer which rotates a sample at 300 rpm. Every measured sample was demagnetized by AC field of 75 Oe and we measured natural remanent magnetization (NRM) and remanent magnetization after 75 Oe AC demagnetization (RM75). Anhysteretic remanent magnetization (ARM) and isothermal saturated remanent magnetization (ISRM) were measured on some of them for normalizing the quantity of magnetic minerals. Partial demagnetization curves were also obtained on some of them.

Results

The results obtained from the above measurement are shown in Fig. XII–1 on respective cores. The magnetic stratigraphy of the five cores is summarized in Fig. XII–2 and the depth of the top of first reverse is shown in Table XII–1, together with locations and water depth of the cores.

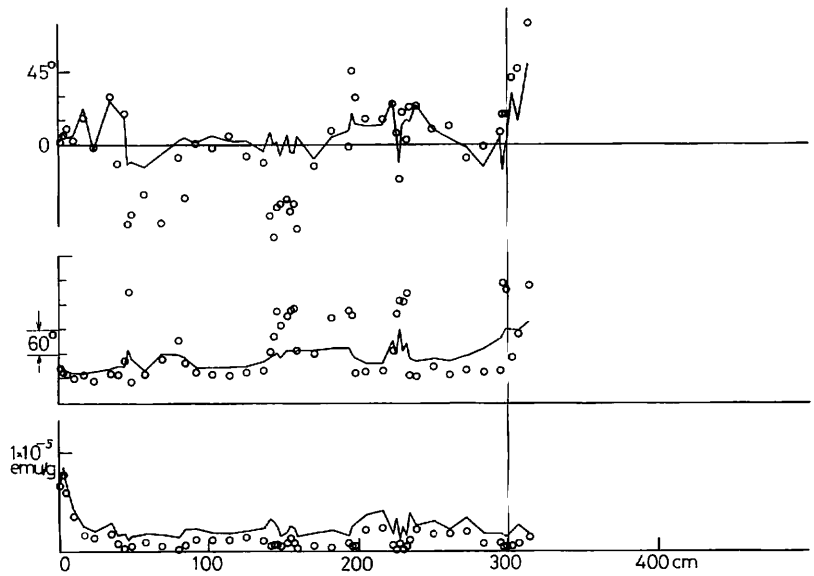
P97 has an abrupt change of intensity at approximately 20 cm from the top, where the demagnetized curve of upper part is of a usual pattern but that of the lower part shows more abrupt decrease at weak AC demagnetization field (Fig. XII–3), suggesting a discontinuity. The lower part has many reverses by approximately several tens of centimeter. If we assume the frequency of reverse as several hundred thousand years on an average, the period of the lower part is several million years. According to NAKAO (Chap. IX, in this report), radiolarians of early to middle Miocene type occurs at the bottom of P97. Because of the fact that the estimate of age by the above method is younger than Miocene, a discontinuity seems to be confirmed.

P98 and P99 have the similar pattern and the first reverse appear at about 2 meter below the top. These patterns are similar to those of P69 and P71 of the cores obtained in GH76–1 cruise (JOSHIMA, 1977).

P100 and P101 have much fluctuation both in declination and inclination, and we cannot detect the change of declination which corresponds to reverse. It is not clear

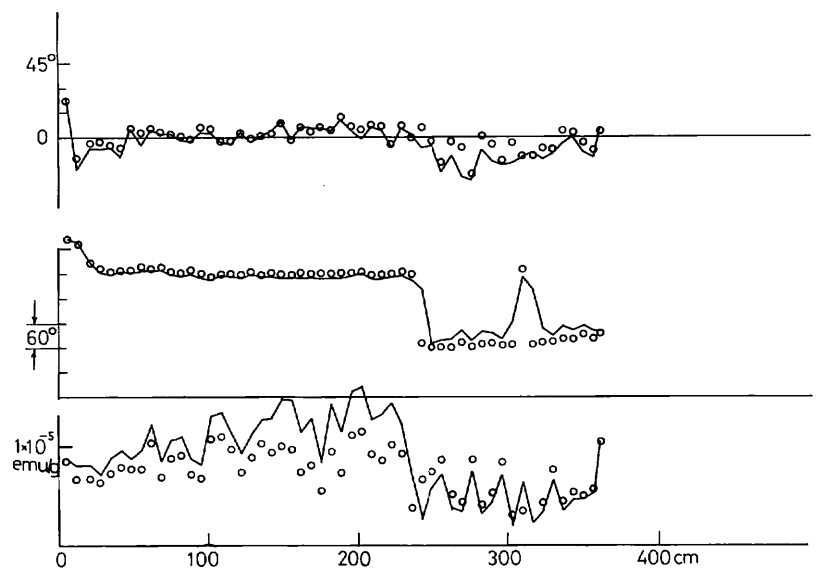
Fig. XII-1(1-5) Results of remanent magnetization measurement of P97, P98, P99, P100, and P101. Solid lines show NRM and open circles show remanent magnetization after 75 Oe AC demagnetization.

ST728 P97



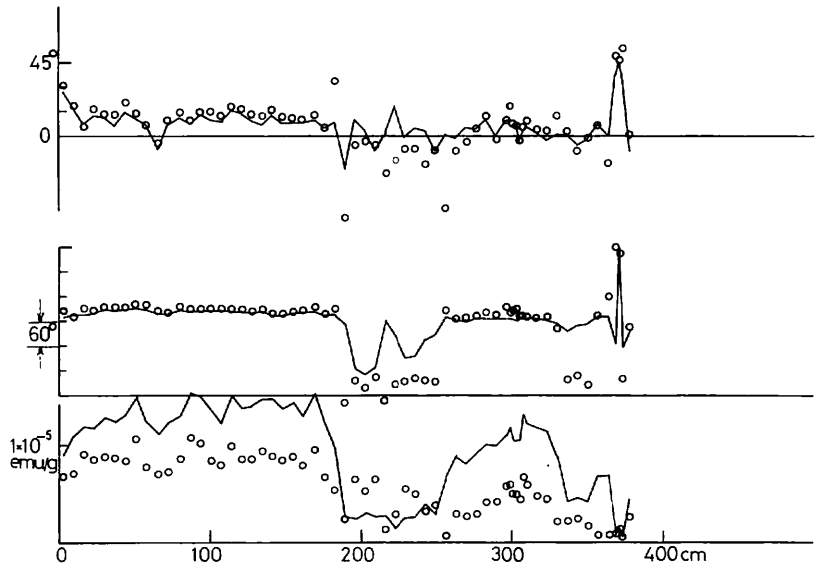
(1)

ST729 P98



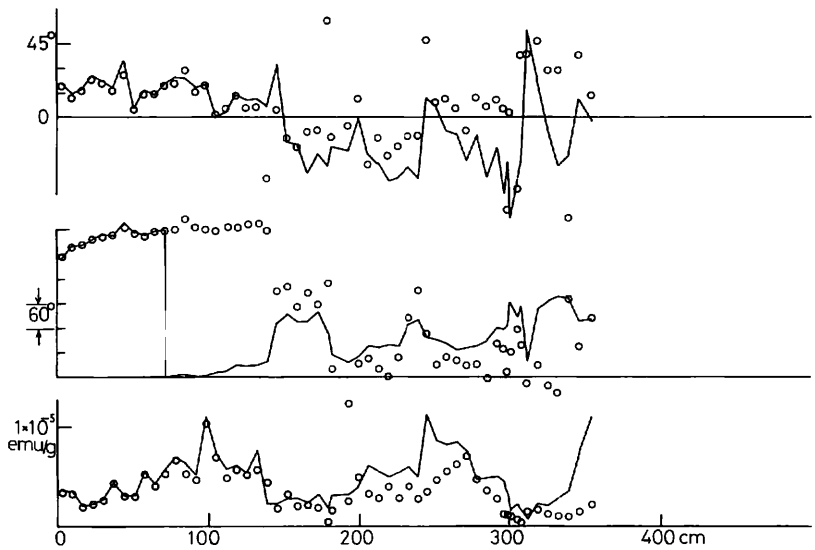
(2)

ST730 P99

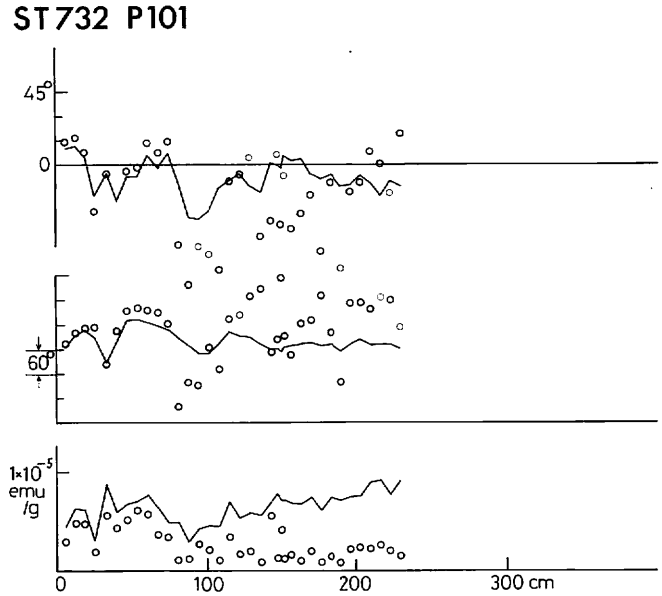


(3)

ST731 P100



(4)



(5)

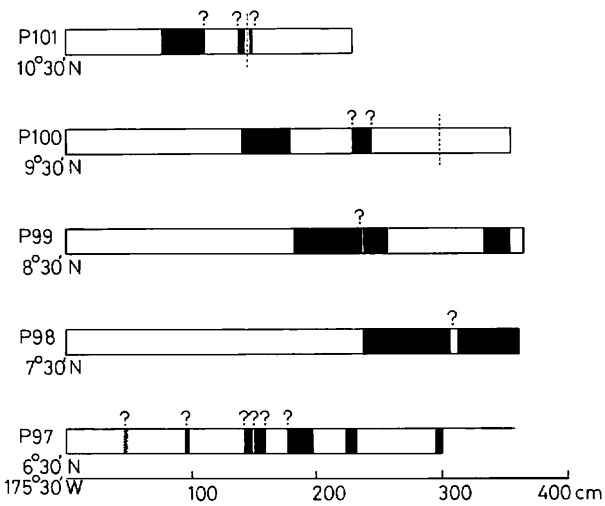


Fig. XII-2 Summarized magnetic stratigraphies of gravity cores, P97, P98, P99, P100, and P101. P100 and P101 do not show reverses clearly and some lower part of P97 also shows obscure reverses.

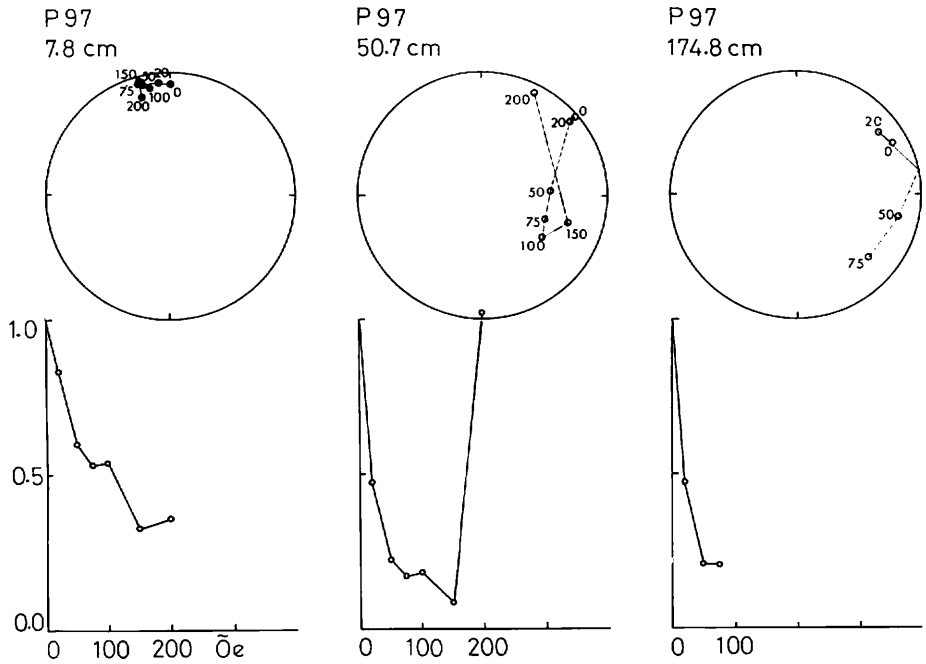


Fig. XII-3 The typical demagnetized curves of the cores. Vertical axis is linear scale and normalized to 1.0. Horizontal axis is the value of peak intensity of AC demagnetization field. Numeral at the upper part of respective figure shows the depth and the name of the core.

whether too slow sedimentation rate may have caused the fluctuation of declination, bioturbation may have remained, or magnetization may not have been stable. The typical demagnetized curves are shown in Fig. XII-3 as the examples.

Table XII-1 First reverse and location.

Core	First reverse (m)	Location		Water depth (m)
P97	0.45	6°29.2'N	175°28.5'W	5,560
P98	2.83	7°29.3'N	175°26.5'W	5,795
P99	1.88	8°32.8'W	175°30.2'W	5,865
P100	1.42	9°30.0'W	175°29.9'W	6,136
P101	0.78	10°30.7'N	175°30.5'W	5,690

Reference

JOSHIMA, M. (1977) Preliminary results of remanent magnetization measurement on piston core samples. *In* A. MIZUNO and T. MORITANI (*eds.*), *Geol. Surv. Japan Cruise Rept.*, no. 8, p. 118–124.