

MAGNETIC STUDY OF CORE MD972148 FROM NORTHERN SOUTH CHINA SEA AND ITS PALEO-ENVIRONMENT IMPLICATION

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Magnetic Study of Core MD972148 from Northern South China Sea and its Paleo-Environment Implications LEE TEH-QUEI (Institute of Earth Sciences, Academia Sinica, Taipei, Taiwan, ROC) CHOU, HAN-CHIANG and HUANG, CHI-YUE (Department of Geology, National Taiwan University, Taipei, Taiwan, R.O.C.) Paleomagnetic secular variation pattern and results of several magnetic proxies of a deep-sea sediment core MD972148 taken from northern South China Sea during the IMAGE III cruise in 1997 will be presented. These data will be used to study the paleo-environment and paleo-climate changes in the area studied. Paleomagnetic results suggest the existence of the Jamaica Event and the Blake Event, which appeared at depths of about 45.0-46.5 m and 31.8-34.9 m, respectively. The age intervals of these two events are of about 185-195 ka and 133-141 ka. Such assignments are in very good agreement with the results of oxygen isotope analysis. And it reveals that this core could provide a record for the last 220 ka, which implies the sedimentation rate at the neighboring of the site locality is about 22-23 cm/ky in average. Magnetic parameters including χ_{L} , χ_{H} , $\chi_{fd}\%$, NRM, ARM, SIRM, and the soft and hard components of SIRM were analyzed. Comparing the patterns of these magnetic proxies with oxygen isotope data and variation pattern of carbonate content, intervals of stage 1 to stage 7 could be clearly defined. The boundaries of these stages appeared at 5.5m, 12.5m, 21.5m, 24.5m, 32m and 46m from young to old, respectively. Generally, relatively low values could be clearly observed at the glacial time periods for most of the magnetic parameters and high values appeared at the inter-glacial time periods. The mechanism to form these patterns is thought to mainly relate to the sea-level changes in the past. When sea level fell during the glacial time, much more terrigenous sediments with less magnetic minerals delivered from continent, which revealed low values of magnetic signals. Also, it is characterized by very low S-ratio in glacial periods. This phenomenon proposed that more oxidized and weathered magnetic minerals such as hematite and goethite were transported and deposited near the coring site area. In addition, values of S-ratio in stage 6 are generally lower than those values in stage 2. Longer duration of stage 6 than stage 2 might be an important factor. Alternatively, the S-ratio results of this study might indicate another important phenomenon about global sea-level change that sea level might be shallower at the second last glacial maximum than at the last glacial maximum. Thus, these results bring important implications on the relative magnitude of sea-level falls in the past two major glacial periods.