

HISTORY OF THE SOUTH CHINA SEA IN SEDIMENT RECORD

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ODP Leg 184, the first deep-sea drilling campaign to the South China Sea(SCS), recovered continuous sequences of hemipelagic sediments from 6 sites(1143-1148), totaling 5463 m in length and spanning the past 32 million years. Preliminary core analyses enable us to outline an environmental history of this Western Pacific marginal sea. Magnetic anomalies indicate that sea floor spreading in the SCS took place between 32 and 16 Ma. Site 1184 on the lowermost continental slope off southern China, near the continent-ocean crust boundary, penetrated a sedimentary sequence that covers almost the entire spreading and post-spreading history. The highest sediment accumulation rates occur in the Oligocene section, correlative with the incipient sea floor spreading. The bathyal nature of the Oligocene fauna implies that rifting occurred in the Eocene or earlier. Faunal changes from the early to late Oligocene are indicative of basin deepening, a trend that is even more evident in the Miocene section. Sediment deformation, abrupt lithologic changes, and a hiatus occur near the Oligocene/Miocene boundary, representing one of the most significant events in the tectonic and environmental history of the SCS. The Miocene and early Pliocene sections display much lower sediment accumulation rates and high carbonate contents. The sites in the northern SCS(off Hong Kong) and the site in the southern SCS (Dangerous Grounds) show a conspicuous similarity in carbonate content (over 50%) in the late Miocene section, underlining the basin-wide character of changes in productivity and/or preservation. A general increase in terrigenous sediment accumulation rates after 2-3 Ma at the northern sites suggests a tectonic activation of the source areas, or increased sensitivity to sea level changes.