

SCG086-P06

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Vector magnetic anomalies in the Natal Valley and the Mozambique Ridge, off South Africa

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The break-up of Gondwana is the important geological event to have affected the southern hemisphere in the past 200 Myr. The spreading history revealed by the geophysical survey around the Southern Ocean is one of the vital key to understanding the timing and geometry of early Gondwana break-up. However there are only few constraints on the detail of the opening history. Especially, marine magnetic anomalies are not well developed because of that the ship track based database is rarely dense enough to resolve the magnetic pattern of this time period.

The shipboard three components magnetic survey were carried out in the Natal Valley and the Mozambique Ridge, off South Africa, during the AISTEK-III expedition, using the R/V Pelagia operated by the Nederlands Institute voor Onderzoek der Zee (NIOZ) from 9th April to 1st June 2009, to reveal more detailed seafloor spreading history in this region during the initial break-up of Gondwana. Vector magnetic data were systematically acquired along the N-S observation lines with spacing of 36km in the southern Natal Valley and 18km in the northern Natal Valley. Additional data along the E-W lines were acquired in the northern Natal Valley with spacing of 36 km. In the south of the Natal Valley, magnetic anomaly variations are not clear. On the other hand, the magnetic anomalies most likely originated from magnetic anomaly lineations are obtained just in the north of the Natal Valley. We will present vector magnetic anomaly features in the Natal Valley and the Mozambique Ridge, and discuss the seafloor spreading process in this region.

Keywords: vector magnetic anomalies, magnetic anomaly lineations, Gondwana, continental breakup, off South Africa