

## **Possible fossil ridge and seafloor evolution between the Conrad Rise and the Del Cano Rise in the Southern Indian Ocean**

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Seafloor evolution in the Southern Indian Ocean is crucial to understanding the fragmentation process of Gondwana. Seafloor spreading history is estimated mainly by using the identification of magnetic anomaly lineations and fracture zone trends. Satellite gravity anomalies revealed seafloor structures such as mid-ocean ridges and fracture zones, and also help to understand seafloor spreading history. On the other hand, structural lineaments of unknown origin have also been detected from satellite gravities. There is one of the unknown WNW-ESE trending seafloor lineament considered to be a fossil ridge between the Conrad Rise and the Del Cano Rise in the Southern Indian Ocean.

Vector magnetic anomaly measurements have been carried out onboard R/V Hakuho-maru across the unknown WNW-ESE trending seafloor lineament considered to be a fossil ridge between the Conrad Rise and Del Cano Rise. Magnetic boundary strikes are derived from vector magnetic anomalies. Obtained magnetic anomaly profiles are almost symmetric with the unknown seafloor lineament detected by satellite gravity anomalies. Besides, WNW-ESE trending magnetic anomaly lineations are inferred from strikes of magnetic boundaries between the Conrad Rise and the Del Cano Rise that are parallel to unknown seafloor lineament trend. These show that the unknown WNW-ESE trending seafloor lineament is most likely an extinct spreading center. Magnetic anomaly C24 are identified just in the north of the Del Cano Rise but seafloor age identification using magnetic anomaly patterns are difficult on the Del Cano Rise because of ambiguous magnetic anomalies. Although magnetic anomaly C31 is identified the northern conjugate part of SWIR. These suggest that the oceanic floor between the Conrad Rise and the Del Cano Rise have been formed and seafloor spreading terminated before the magnetic anomaly between C31 and C24. This does not contradict that the obtained magnetic anomaly profiles on the possible extinct segment imply the seafloor spreading ceased around the magnetic anomaly C33. We will discuss the possible fossil ridge and seafloor spreading evolution in the Southern Indian Ocean.