

地磁気3成分異常から推定される四国海盆の海底拡大史

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Seafloor spreading history in the Shikoku Basin inferred from vector magnetic anomalies

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Magnetic anomalies associated with paleo-arcs and backarc basins provide the information on the paleo-latitude and/or rotation of the Philippine Sea Plate, as well as magmatism in the transitional phase from arc volcanism to backarc volcanism. Shikoku Basin, located in northeastern part of the Philippine Sea Plate, was considered to be formed as a back-arc basin during Late Oligocene to Middle Miocene. Analysis of the magnetic anomalies in the Shikoku Basin has been conducted since 1970s. Recent study (Okino, 2015) identified the clear NNW-SSE oriented magnetic lineations north of 25-degree-north. In the south, the almost N-S oriented magnetic lineations in the Parece Vela Basin were also identified, suggesting that two basins were linked ca. 22 Ma. However, there is a missing piece of backarc evolution between 25-degree-north and 21-degree-north, where the amplitude of magnetic anomalies is too low to identify the magnetic isochrons. The area is a key to understand when and how the paleo Izu-Bonin-Mariana arc was completely separated and two basins started to evolve as one system.

To tackle this question, vector magnetic survey based on the shipboard three component magnetometers (STCM: Isezaki, 1986) was carried out in the southwestern part of the Shikoku Basin during KH-18-02 cruise of R/V Hakuho-maru. The total magnetic data were also obtained by using the ship-towed Proton magnetometer. Vector magnetic anomalies and magnetic boundary strikes are calculated from vector magnetic data. We will present the identification of magnetic anomalies and structure of magnetic basement, and will discuss the detailed seafloor spreading history during the joint phase of two basins.