

## オントンジャワ海台周辺海盆のテクトニクス

## Tectonics of the abyssal basins surrounding the Ontong Java Plateau

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We present the tectonics of the abyssal basins that abut the Ontong Java Plateau using the recent geophysical investigations.

Ontong Java Plateau (OJP) is the largest of the major oceanic plateaus in the Pacific Ocean basin. OJP rises about 2 km above the surrounding deep ocean floor and has an area within the 4.5 km contour of about  $1.8 \times 10^6 \text{ km}^2$ . A depth to the Moho discontinuity is more than 30 km (Gladchenko, 1994; Miura et al., 2004). The evidences from drilling samples indicate that most of the OJP formed rapidly about 122 Ma at mid-southern latitude in the Pacific Basin (Mahoney et al., 1993; Tejada et al., 1996, 2002). The widely accepted hypothesis of the formation of OJP is an emergence of a plume head (e.g., Coffin and Eldholm, 1993; Neal et al., 1997). The competing hypotheses are the mantle upwelling as the result of bolide impact (Ingle and Coffin, 2004) and the entrainment of dense fertile mantle by rapid seafloor spreading (Korenaga, 2005). Taylor (2006) proposed that the Ontong Java Plateau formed as a single large volcanic province together with the Manihiki and Hikurangi plateaus ca. 120 Ma, called Ontong Java Nui (Chandler et al., 2012). The OJP formation has been a major enduring problem of marine geology over the past more than 40 years. For settlement of the argument about the OJP formation, the tectonic setting of the abyssal basins around the OJP must be revealed.

Abyssal basins are contiguous with the OJP: the Lyra Basin to the west, the East Mariana and Pigafetta basins to the north, the Nauru Basin to the northeast, and the Stewart and Ellice basins to the southeast. Tectonic histories of the Nauru, East Mariana, and Pigafetta basins, were revealed using the Mesozoic magnetic anomaly lineations (Nakanishi et al., 1992). Those of Lyra and Stewart basins are, however, still unknown because of lack of magnetic anomaly lineations. In at least three of these basins, the Nauru, East Mariana, and Pigafetta, Lower Cretaceous flood basalts overlie older oceanic crust (Abrams et al., 1993; Shipley et al., 1993; Nakanishi and Winterer, 1998).

To expose the tectonics of the abyssal basins around OJP, we conducted geophysical investigation in Nauru, Ellice, Stewart, and Lyra basins by R/Vs *Mirai*, *Kairei*, and *Hakuho-maru*. Our geomagnetic measurement western margin of Nauru Basin exposes the extension of magnetic anomaly lineations identified in Nauru Basin by Nakanishi et al. (1992). Our geophysical investigation in the Stewart Basin show the northeast-southwest rifting in the formation of the basin.

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