Japan Geoscience Union Meeting 2015
(May 24th - 28th at Makuhari, Chiba, Japan)
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SIT07-02 会場:A03 時間:5 月 25 日 09:15-09:30

Rethinking spreading model of the northwestern West Philippine Basin (WPB): 39Ar/40Ar dating and geochemical constraints

Rethinking spreading model of the northwestern West Philippine Basin (WPB): 39Ar/40Ar dating and geochemical constraints

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We report 40Ar/39Ar dating results of basalts from the northwestern West Philippine Basin (around the Urdaneta Plateau area), with petrological/geochemical characteristics. Our samples are mostly from ROV KAIKO dives conducted in 2003.

Our dating results range from ~40 to ~32 Ma. These ages are younger than previously estimated seafloor ages based on studies for topography and magnetic anomaly lineations. In addition, geographical distribution of obtained ages appears to be incompatible with previous models. Therefore, if our dating results are correct, it requests rethinking about the spreading history of northwestern part of WPB.

Geochemical data revealed that basalts around the Urdaneta Plateau have OIB-like characteristics (as also reported in Ishizuka et al., 2013, Geology), confirming that plume activity involved in the spreading process of this part of basin.