A seamount on top of Ontong Java Plateau was created by remelting of plateau lithosphere by plate flexure

A seamount on top of Ontong Java Plateau was created by remelting of plateau lithosphere by plate flexure

*羽生 毅[1]、Tejada Maria Luisa[1]、清水 健二[1]、石塚 治[2]、木村 純一[1]、常 青[1]、仙田 量子[1]、宮崎 隆[1]、後藤 孝介[2]、石川 晃[3]
*Takeshi Hanyu[1], Maria Luisa Tejada[1], Kenji Shimizu[1], Osamu Ishizuka[2], Jun-Ichi Kimura[1], Qing CHANG[1], Ryoko Senda[1], Takashi Miyazaki[1], Kosuke T. Goto[2], Akira Ishikawa[3]

1.海洋研究開発機構、2.産業技術総合研究所地質調査総合センター、3.東京大学
1.Japan Agency for Marine-Earth Science and Technology, 2.Geological Survey of Japan, AIST, 3.The University of Tokyo

The Ontong Java Plateau (OJP) was formed by a main volcanism occurred at ca. 120 Ma, followed by several pulses of the late-stage volcanism on and along the margins of the plateau. The origin of the late-stage volcanism is poorly understood because of limited rock sampling. We present the age and geochemical composition of basalts dredged from Nuugurigia Atoll that stands on the plateau basement, possibly erupted in the late-stage volcanism. The $^{40}Ar/^{39}Ar$ age of dredged basalts is ca. 20 Ma, younger than any other known late-stage volcanism on OJP (down to 34 Ma), and is coincided with the collision of the plateau with the proto-Solomon arc. These basalts have enriched isotopic signatures pointing towards EM1 distinct from any other rocks thus far collected from OJP. Moreover, they show unusual trace element composition with Sr enrichment and Zr-Hf depletion relative to the elements with similar incompatibility. Such isotopic and trace elemental feature are shared with quartz-bearing garnet pyroxenite xenoliths rarely found from Solomon Islands (Ishikawa et al., 2007). Ishikawa et al. inferred that such pyroxenite was derived from delaminated granulitic lower crust and was part of the OJP lithosphere underplated beneath the plateau lithosphere via the mantle upwelling responsible for the main plateau-forming volcanism. We suggest that the basalts in the late-stage volcanism at Nuugurigia were products of rejuvenated melting of such pyroxenite. Melt transport through the lithosphere may have been facilitated by plate flexure occurred just south of the atoll when the plateau collided with the proto-Solomon arc around 20 Ma.

キーワード：海台玄武岩、リソスフェア、リサイクル物質
Keywords: oceanic plateau, lithosphere, recylced material

