

## The high water content of the OIB-like basanite in the volcanic front of northern Izu-Bonin arc system

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The finger-print characteristics of the volcanic rocks in arc is strong depletion in high field strength elements (HFSEs) relative to the nearby light rare earth elements (LREEs), which is frequently explained by the incorporation of fluids or sediments released by the subducting slab. Distinguishing from the other dominant rocks (tholeiitic and calc-alkalic rocks) in the northern Izu-Bonin volcanic arc, the Nanzaki basanites show OIB-like trace element patterns (enriched in LREE and Nb, Ta). Slightly different to the typical OIB, these rocks also have positive Pb and Sr anomaly in spider diagram. Whole-rock have narrow variation ranges as follows: SiO<sub>2</sub> (41.5-44.1%), MgO (10.2-13.1%)[1]. Here, we report the water contents of Nanzaki basanites by a clinopyroxene-based approach [2,3], in which the water of the magma is calculated by the water concentration in clinopyroxene phenocrysts (measured by FTIR) and the water partitioning coefficient between clinopyroxene and basaltic melt. Most of the clinopyroxene phenocrysts contain >300 ppm water, which implies that the water content of the parental magma would be >3wt.%. This result indicates that the mantle source for Nanzaki basanite is as hydrous as other typical island arc magma. Together with the high Nb and Ta content, and positive anomaly in Pb and Sr, our result calls for a special trace element carrier in the subduction zone (e.g. supercritical fluid), or a arc-front-toward mantle flow from the back-arc region, which has been metasomatized by fluids derived from the mantle transition zone [4].

[1] Oshika et al. (2014), *J. Vol. Geo. Res.* 270, 76-89.

[2] Xia et al. (2013). *Earth Planet. Sci. Lett.* 361, 85-97.

[3] Liu et al. (2015). *J. Petrol.* 56, 681-702.

[4] Kuritani et al. (2017). *Lithos.* 282-283, 98-110.