An estimation of chemical variation of altered oceanic crsut: implocation for isotoic heterogeniety of recycled materials

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Chemical composition of altered oceanic crust (AOC) should be important to constrain chemical heterogeneity of the mantle. Accordingly, many studies have been conducted to evaluate effect of alteration on chemical composition of oceanic crust [e.g., 1-3]. These studies carefully estimated bulk chemical composition of AOC, but they were mainly based on three drill site, i.e., old oceanic crust from the western Atlantic Ocean (Site 417/418) and the western Pacific ocean (Site 801), and young oceanic crust from the eastern Pacific Ocean (Site 504) [e.g., 1-3]. These studies revealed common geochemical feature of alteration, such as, strong enrichment of U and alkalis, but it needs to further consideration to apply reported AOC compositions to discuss mantle heterogeneity [3].

It is obvious that effect of alteration varies widely. In addition, effect of alteration was reported to be linked with crustal spreading rates [4]. As the speeding rate can affect chemical composition of MORB, it would be meaningful to examine effect of alteration on chemical composition MORB using their global chemical variation [e.g., 5-6]. In this presentation, we will provide a possible chemical variation of AOC based on literature data and discuss effect of recycling of AOC on chemical heterogeneity of the mantle.

[1] Staudigel *et al* (1996) *Geophys. Monogr. Ser*., vol. 96, pp. 19–38. [2] Kelley *et al.,* (2003) *Geochem. Geophys. Geosys*t. **4**, 8910. doi:10.1029/2002GC000435. [3] Bach *et al.* (2003) *Geochem. Geophys. Geosyst.* **4**, 8904, doi:10.1029/2002GC000419. [4] Kuo *et al.* (2016) *Goldschmidt Conference Abstracts*. [5] Jenner & O'Neill (2012) *Geochem. Geophys. Geosyst*., **13**. Q02005, DOI:10.1029/2011GC004009. [6] Gale et al. (2013) *Geochem. Geophys. Geosyst.* **14**, 489-518. doi:10.1029/2012GC004334.