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## Volcanic stratigraphy and evolution of extrusive layers in the Oman ophiolite

Yuki Kusano<sup>1\*</sup>, Sumio Miyashita<sup>1</sup>, Susumu Umino<sup>2</sup>

<sup>1</sup>Niigata University, <sup>2</sup>Kanazawa University

Oman ophiolite is one of the best ophiolites in the world because of their excellent outcrop conditions without a serious structural disruption. Since we can usually obtain the samples only from the surface of oceanic crust, it is very difficult to get samples in terms of three-dimensional space from ocean bottom. Petrological studies of the three dimensional crustal to mantle succession are only available in ophiolite. However, ophiolites might be underwent not only ridge magmatism but also off-ridge magmatism and later stage magmatism before the final emplacement to present position.

The magmatic history has been reconstructed from survey of plutonic in the Oman ophiolite. Adachi and Miyashita (2003) explored gabbroic section and sheeted dike complex in the Wadi Fizeh area and showed the complexed magmatic history accompanied with ridge axis propagation. The complexed magmatic history shown by intrusive relations in the plutonic rocks must be recorded in the extrusive section. When magmatism ceased and melt ascent stopped, the extrusive layers must be overlain by sediments. But magmatic history based on the volcanic stratigraphy in the Oman ophiolite is still seriously under debate.

The volcanic stratigraphy is separated to five units, V1/Geotimes, Lasail, V2/Alley, Cpx-phyric and V3/Salahi in ascending order of the volcanic sequence (Alabaster et al., 1982; Ernewein et al., 1988; Umino et al., 1990). Lasail unit, the secondly magmatism in the stratigraphy, exhibits limited distribution and is often interbedded within the V1 (Umino et al., 1990; A'Shaikh et al., 2005). Therefore some authors claim that Lasail unit is included in the Geotimes unit. While another authors classified the Lasail unit as V2. Recently, on the basis of trace element compositions of lava succession, Lasail unit has been regarded as early V2 volcanism (Godard et al., 2003; 2006). This definition is mainly based on geochemical signatures, but actual stratigraphic relations are not clear in these studies.

We have explored extensive area and established precise volcanic stratigraphy from the basal part of the extrusives to V2 volcanics for 50 km in the northern Oman ophiolite. Then, geochemical variations are examined using XRF and ICP-MS. We discuss on the volcanic stratigraphy and magmatic history of the Oman ophiolite based on detailed vertical geochemical variation in the extrusive layers.

Keywords: MORB, Volcanic stratigraphy, Segment structure, Geochemistry, Oman ophiolite