REE and Nd isotope Geochemistry of Dhofar 700 diogenite

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Geochemical data of HED meteorites offer important information to understand the differentiation history of Vesta like the processes that generated igneous activity during the early history of a small body. Recently, Barrat *et al* [1] and his colleagues[2, 3] reported about geochemistry of diogenites like Dhofar 700 meteorite. Dhofar 700 is one of the rare unbrecciated diogenites. Especially, Barrat *et al* [1] mentioned spurious LREE enrichments in Dhofar 700 meteorite from residues after leaching and interpreted it due to the terrestrial weathering. Here we show our new REE and Nd isotopic data for unleached Dhofar 700 and discuss geochemical evolution of Dhofar 700. LREE of Dhofar 700 was measured by ID TIMS and ICP-MS. Our data also show that Dhofar 700 has a spurious LREE enrichment and v-shaped REE pattern. Nd isotopic data with highly positive ε_{Nd} value indicates that they might not receive the terrestrial weathering. Our data suggest that Dhofar 700 diogenite should be derived by fractional crystallization processes from highly depleted source magma.

[1] Barrat *et al* (2008) *Meteor. Planet. Sci.* **43**, 1759-1775. [2] Barrat *et al* (2010) *GCA* **74**, 6218-6231. [3] Yamaguchi *et al* (2011) *JGR* **116**, E08009.