

## Dunite channel swarm in the Horoman peridotites: Examinations on magma channeling in the upper mantle

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Dunite channel swarm was found in harzburgite of the Horoman peridotite complex. The channels vary from 1 cm to more than 3 meters in width, cross-cutting obliquely to the wall harzburgite with a branching. The boundary between dunite and harzburgite is sharp, in terms of modal composition and textural relationships. The dunite contains numbers of huge olivine crystals, of which max size attains more than 1.6 m long. A small amount of spinel-rich dunites and chromitites and a spinel-rich websterite are observed in close associations with the channels. The modes of occurrence indicate that a channeling of an olivine-saturated basaltic melt and an interaction of the melts against silica-rich melts generated along the wall are significant processes for formation of the dunite channels.

Samples for magma channels formed in the upper mantle have been known as spinel dunite (SDW: Takahashi, 1991, 1992), mafic rock-type GB I (Niida, 1984; Shiotani and Niida, 1997), and websterite dyke (Niida and Shiotani, 1997) from the Horoman peridotite complex. Recently, a dunite channel swarm was found in harzburgite of the Lower Zone at the quarry of TOHOH OLIVINE. The dunite channels vary from 1 cm to more than 3 meters in width, cutting the pre-existent layering of the wall harzburgite with a small oblique angle, and often with a branching of channels. The boundary between the dunite and the wall harzburgite is sharp, in terms of modal composition and textural relationships. The dunite contains a number of huge olivine crystals, of which maximum size attains more than 1.6 meters long. A small amount of spinel-rich dunites and chromitites, and a websteritic assemblage rich in spinel, are observed in close associations with the dunite channels. All the modes of occurrence mentioned above indicate that a channeling of an olivine-saturated basaltic melt and an interaction of the melts against silica-rich melts generated along the harzburgite wall are significant processes for formation of the dunite channels.