

## Origin of fertile lherzolitic peridotites from the basement lithosphere of Izu-Ogasawara-Mariana arc and the backarc basin areas.

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A number of serpentinized peridotites derived from the upper mantle have been sampled from the Izu-Ogasawara-Mariana arc and the backarc basin areas. The rocks represent those of the deep-seated lithosphere. It is suggested from the following recent reports that the lithospheric upper mantle beneath the areas is widely composed of lherzolitic peridotites having a fertile signature with a lower degree of partial melting.

1. lherzolites from the Ohmachi seamount (Yuasa et al., 1999; Niida et al., 2001, 2003)
2. lherzolites from the Hahajima seamount (Azuma et al., 2007)
3. lherzolites from the southern Mariana Trench (Yanagida et al., 2007)
4. plagioclase lherzolite from the southern Mariana Trench (Sato, 1998; Niida and Ishii, unpublished data)
5. peridotites from the Parece Vela basin (Ohara et al., 2003)
6. peridotites from the Mariana Trough (Stern et al., 1996; Ohara et al., 2002; Chiba et al., 2008)

The basement lithosphere beneath the Izu-Ogasawara-Mariana arc contains fertile lherzolitic peridotites in association with highly depleted harzburgites. It seems to be originated from a fertile mantle beneath the continental margin, which has existed prior to opening of the backarc basins, and then modified partly into depleted mantle during island-arc magmatism. On the other hand, the lithospheric mantle beneath the backarc basins of Parece Vela and Mariana Trough has rather uniform composition of fertile peridotite. It is explained to have been originated as a mantle plume peridotite with a fertile signature, in relation to slow lifting generated during opening of the backarc basins.