

## Serpentinization and marine weathering process of peridotite -Example at Atlantis Bank, Southwest Indian Ocean-

# Atsushi Hamadate[1], Tsutomu Sato[2], Shoji Arai[3], Onboard Scientific Party of ABCDE Cruise Matsumoto Takeshi

[1] Earth Sci., Kanazawa Univ, [2] Global Environ. Sci. Engineer., Kanazawa Univ., [3] Dept. Earth Sci., Kanazawa Univ.

[http://earth.s.kanazawa-u.ac.jp/Environmental\\_Mineralogy/](http://earth.s.kanazawa-u.ac.jp/Environmental_Mineralogy/)

Cannat et al(1995) proposed that about 20% of the slowly spread oceanic crust is composed of serpentinized peridotite. This means that alteration of the serpentinized peridotite may play a much larger role than previously thought in determining the chemical composition of seawater and the budget of subducted material. However, the sea weathering process of serpentinized peridotite is not well known. Compared with a peridotite, serpentinite has strong resistance to weathering. When considering magnesium circulation of the ocean, it is necessary to know the distribution of peridotites and the degree of serpentinization.

Investigation of Atlantis Bank was done by SHINKAI 6500 from December, 2001 to January, 2002. Many serpentinized peridotites which greatly altered by marine weathering were collected. Serpentinized peridotites were classified according to the difference among colors, such as red, light green, brown, and black. These samples were analyzed by optical microscopy, XRD, SEM, EDS, and TG/DTA. These analysis showed that weathering process of serpentinite and the amount of magnesium reduction by marine weathering are mainly determined by degree of serpentinization.