Carbon geochemical cycle in the mantle

Yoshiro Nishio [1], Yuji Sano [2]

[1] Geological Insit., Univ. of Tokyo, [2] Earth and Planetary Sci., Hiroshima Univ.

http://www.geol.s.u-tokyo.ac.jp/~nishio/index.html

In order to reveal the carbon geochemical cycle, we measure the chemical compositions of matrix glasses and volatile (C-N-He-Ar) isotopic and elemental ratios of abyssal basalt glasses, recovered from back-arc basin and mid-ocean ridge. The results of back-arc basin basalts support that carbonate can be transported into the mantle through the subduction zones. Furthermore, the results of mid-ocean ridge basalts suggest that most (65~95%) carbon in the mid-ocean ridge basalt is the recycled carbon (carbonate and organic matter) in origin. This may be one clue of the carbon recycling in the mantle.