

## Importance of the study on biomineralization for the material cycle in the ocean and the development of good proxies.

# hodaka kawahata[1]

[1] ORI, U of Tokyo

Stable isotopes such as oxygen ( $\delta^{18}\text{O}$ ) and carbon ( $\delta^{13}\text{C}$ ) isotope ratios of biogenic carbonate have been widely used for the reconstruction of earth's surface environments. At modern condition most of the production of the carbonate is dependent on biogenic activity, not on inorganic precipitation. However, biogenic carbonate contains more or less of heavy isotopes such as  $^{18}\text{O}$  and  $^{13}\text{C}$  than expected for isotopic equilibrium with ambient seawater, which sometimes complicates paleoenvironmental reconstruction.

In biogenic carbonate,  $\delta^{18}\text{O}$  is known to be controlled mainly by seawater temperature and salinity while in some oceanic settings, annual fluctuations of  $\delta^{18}\text{O}$  in coral skeletons are more related to annual extension rate. This is also found in the  $\delta^{13}\text{C}$  record. Therefore the study on the quantitative analysis of biomineralization by foraminifera, coccoliths, corals and others are quite important for carbon cycle in the earth's surface environments and developing quantitatively good proxies for the paleoenvironments.