# Substantial changes in the dissolution kinetics of calcium carbonate induced by trace amount of rare earth elements

# Hiroyuki Kagi[1], Natsumi Kamiya[2], Hiroshi Tsuno[3]

[1] Lab. Earthquake Chem., Grad. School Sci. Univ. Tokyo, [2] Lab. Earthquake Chem., Univ. Tokyo, [3] Agricultural Sci., The United Graduate School, Tokyo Univ. of Agri. & Tech.

http://www.eqchem.s.u-tokyo.ac.jp

Trace elements affect the dissolution and crystal growth of calcium carbonate minerals. For example, the stabilization of vaterite, the inhibition of crystal growth of calcite, the decrease in dissolution rate of calcite, etc. have been reported. These phenomena are closely related to the behavior of impurity element on the crystal surface. In this study, dissolution kinetics was investigated for calcium carbonates (calcite and vaterite) in the presence of trace amount (5 uM) of lanthanum ion. Furthermore, surface structure of calcite in the dissolution process was observed in-situ using an atomic-force microscope.