

624th ASRC Seminar

Date: 10:30 ~ 11:00 Friday, February 26

Location: Conference Hall, ASRC Building

Speaker: Dr. Yoshio Takahashi
(University of Tokyo)

Title: Incorporation of anions into calcite and barite

Abstract: In this study, we have conducted experimental studies on the incorporation of selenite/selenate, arsenite/arsenate, and other ions into calcite or barite

Calcite is known as a mineral which can play a role as an effective scavenger of toxic elements in the surface environment. Our coprecipitation experiments and X-ray absorption near-edge structure (XANES) measurements revealed that calcite selectively incorporated arsenate rather than arsenite and selenite was selectively incorporated rather than selenate. In the system consisting of barite and the oxyanions, we found that the distribution behaviors of redox-sensitive elements between water and authigenic minerals can provide information on the oxidation state of the element in the coexistent water during the deposition of the mineral. As a result, it was shown that barite-selenium oxyanion system can be used as a redox indicator for oxic-suboxic boundary because the selenate/selenite (Se(VI)/Se(IV)) ratio in barite was primarily correlated with that of the ratio in water.

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