

## Biom mineralization of Aragonite on the Electrode Surface

# Kazuhiro Sato[1], Kazue Tazaki[2]

[1] Natural Sci., Kanazawa Univ., [2] Dept. Earth Sci., Kanazawa Univ.

Bacteria suspended in the water possess a negatively charged surface and, consequently, the cells migrate towards the anode or cathode when an electrical field is applied. In this study, the experiment which gave bacteria electrical field by using electrode was constructed. Study samples, mainly under ground water and brownish yellow biomats were collected from the flume which flows into the controlling pond at the Kakuma Campus of Kanazawa University. Since brownish yellow biomats was formed with iron-oxidizing bacteria such as *Gallionella* sp., *Leptothrix* sp., *Toxothrix* sp., iron electrode was used in both anode and cathode. After 9 days of experiments, iron mineral were formed on the anode and, calcite and aragonite were on the cathode. Furthermore, aragonite is formed on the cathode surface at normal temperature and atmospheric pressure by the participation of a iron-oxidizing bacteria as identified *Leptothrix* sp.. It is suggested that the material which mainly compose of Mg, Ca and Mn that cover surface of bacteria and cathode relate to the formation of aragonite crystals.