

海氷内部における炭酸カルシウム結晶(イカイト)の析出メカニズム

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Mechanism of CaCO₃ (ikaite) precipitation in sea ice

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In order to understand the mechanisms of the precipitation of CaCO₃ (ikaite) crystals in sea ice, freezing tank experiments were carried out in the low temperature room. Natural seawater collected in the Southern Ocean was kept in the low temperature room at -25°C for 1, 7, and 21 days to make sea ice, and after melting of the sea ice at +4°C, amount of ikaite crystals was counted. Results indicated that no ikaite crystals were found for 1 day sample while 565 and 4998 crystals for 1 L of seawater were found for 7 and 21 days samples, respectively. We also examined the effect of the seawater pH on the precipitation for ikaite crystals to add the NaOH in seawater (0.1–0.9 mmol) in the low temperature room at -25°C. The amount of the ikaite crystals increased with increase the addition of NaOH in seawater. Present results suggested that the ikaite precipitation was depended on the time and chemical properties of seawater.