

Iodine distribution in pore fluids associated with methane plumes in the Sea of Japan

H. TOMARU¹, U. FEHN¹, G. SNYDER²
AND R. MATSUMOTO³

¹Earth and Environmental Sciences, University of Rochester,
Rochester, NY, USA (hitoshi@earth.rochester.edu,
fehn@earth.rochester.edu)

²Earth Science, Rice University, Houston, TX, USA
(gsnyder@rice.edu)

³Earth and Planetary Science, University of Tokyo, Tokyo,
Japan (ryo@eps.s.u-tokyo.ac.jp)

Very large methane plumes were observed in echograms during UT04 Cruise (Aoyama et al., 2004; Matsumoto et al., 2004; Snyder et al., 2004) in the eastern margin of the Sea of Japan. A large set of pore water samples was recovered together with several chunks of gas hydrates using piston cores on a small ridge in this area. We measured I, Br and Cl concentrations in all the pore waters and are working on the determinations of $^{129}\text{I}/^{127}\text{I}$ ratios in a subset of the samples.

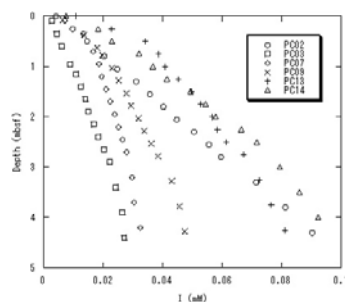


Figure 1:
High-resolution
depth profiles of
dissolved iodine in
pore fluid samples
from the Sea of
Japan.

Iodine concentrations in the pore fluids are at least ten times higher than in seawater even in the shallowest section of the cores, and progressively increase with depth (Fig. 1). Iodine concentrations are not correlated with those of bromine and chlorine, suggesting that the iodine distribution reflects the methane delivery at the ridge. $^{129}\text{I}/^{127}\text{I}$ determinations are in progress to determine the origin of iodine in these fluids and to assess their potential contribution to the development of gas hydrates.

References

- Aoyama et al., (2004), EOS Trans. AGU, 85 (47), Fall Meet. Suppl., Abstract PP11B-0576.
Matsumoto et al., (2004), EOS Trans. AGU, 85 (47), Fall Meet. Suppl., Abstract PP11B-0575.
Snyder et al., (2004), EOS Trans. AGU, 85 (47), Fall Meet. Suppl., Abstract OS21A-1197.