
[JJ] Evening Poster | M (Multidisciplinary and Interdisciplinary) | M-IS Intersection

[M-IS17]Gas hydrates in environmental-resource sciences

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An increasing number of researches focusing on natural gas hydrates has recently been conducted from the environmental, material, and resource scientific viewpoints. This session aims to share and discuss the latest research results to understand and examine the nature and potential of gas hydrates in the past-present-future of the Earth. Because the researches on gas hydrates are interdisciplinary, broad topics from field and experimental researches, modeling, etc. will be presented in this session.

[MIS17-P13]X-ray fluorescence analysis of Japan Sea sediments around gas chimney structures

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Keywords:Shallow gas hydrates, Gas chimney structures, Marine sediments, X-ray fluorescence analysis, Barium front

We conducted X-ray fluorescence analysis of marine core sediments to clarify the geochemical relationship for the paleoceanographic and paleoclimate changes in offshore Joetsu (Torigakubi spur and Umitaka spur), the eastern margin of Japan Sea. Moreover, we investigate the presence and/or past methane discharges within sediments. We analyzed 104 sediment samples using four piston cores (PC1704, PC1706, PC1709 and PC1713). The cores were taken from gas chimney mound (PC1704, PC1706) and pockmark site (PC1709, P1713), offshore Joetsu, during the 1K17 cruise in 2017. X-ray fluorescence analysis of sediments at core PC1706 and PC1709 show barium fronts are developed above the sulfate/methane transition (SMT) due to precipitation of BaSO_4 , which is controlled by the upward flux of Ba^{2+} from sulfate depleted to sulfate enriched zone across the SMT. A barium front has conventionally been interpreted as an indicator of paleo-SMT zone (e.g. Dickens et al., 2001; Riedinger et al., 2006; Glen et al., 2007).