Type distribution and composed area of “gas chimney structure” around Japan Island

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Distributions of shallow gas hydrates often correlate with “Gas chimney structure”, characterized by well-developed acoustic blanking in the eastern part of Japan Sea. Matsumoto et al. (2015MS) confirmed 971 gas chimneys during the RV MBES & SBP survey in 2013-2014, identified three morphological types (Single, Composite, related with inversion structures) based on the occurrence and distribution pattern. Continuously, 2015 survey was performed from eastern part of Japan Sea to the north Pacific and southern part of the sea of Okhotsk, south of Hokkaido and off Abashiri. This survey was performed in 75 days from May 6th to July 19th. In order to find the existence of “gas chimney structure”, we firstly extracted topographic anomalies from the initial survey based on depth profiles and back-scatter images by MBES (Multi-Beam Echo Sounder) EM302, secondary evaluated the presence of acoustic blanking, “gas chimney structure” from detailed SBP (Sub-Bottom Profiler) TOPAS PS18 survey on the topographic anomalies.
“Gas chimney structures” were identified in all the survey areas from around Oki islands, Toyama trough, Mogami trough, off Nishi-tsugaru, off Okushiri islands, off Hidaka, off Tokachi, and off Abashiri, counting up to 771. The total number of “gas chimney structures” has become 1742 throughout. In this presentation, we introduce the features with morphological types of “gas chimney structure” in each area, focus the number and size distribution.
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Reference

Matsumoto et al. (2015MS), Types and distribution of gas chimneys: host structure of shallow gas hydrates, Japan Geoscience Union Meeting 2015.

Keywords: shallow gas hydrate, gas chimney structure, number and size distribution

