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The distribution of BSR related to methane hydrate, offshore Japan.

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A comprehensive research into methane hydrate (MH) in the eastern Nankai Trough has started since 2001 through implementation of 3D seismic survey and drilling of many exploratory wells. These activities have brought important knowledge especially on the seismic attributes related to the concentration of MH as well as the observation of unreported subtle BSR in the area.

Based on this new understanding, the research consortium MH21 organized by METI has decided that the BSR map published in 2000 by a group comprised of JNOC (at present, JOGMEC) and 10 private sectors should be revised during the Phase-1 of this national MH research program. The resources assessment group supported by JOGMEC has completed the investigation of BSR for the archived marine seismic data acquired by the Government since 1971, in the light of advanced knowledge about the appearance of it on the seismic sections.

Detailed velocity analysis with extensive high density has indicated that BSRs in the Sea of Okhotsk and in the Sea of Japan may represent so called Gas Hydrate Stability Zone (GHSZ), though they appear at very shallow depth as 200 msec below the sea floor, comparing to the deeper depth as 500 msec to 700 msec in the Pacific side. It is proposed that the difference of terrestrial heat flow caused by the geotectonic setting of Japanese Islands may bring the remarkable disparity in GHSZ, which will be important for the future exploration of MH in Japan. The current study has revealed that the areal extent of BSR in offshore Japan is 122,000 sq. km, revising the figure 44,000 sq. km. reported in 2000, and has categorized the interpreted BSR into 4 according to the magnitude of delineated characteristics.

Keywords: BSR, methane hydrate, 3D seismic survey, geotectonic setting