

Identification of shallow methane hydrate concentrated intervals by LWD within the gas chimney-mound structure, eastern margin of Japan Sea.

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Two LWD, Logging While Drilling, survey cruises were carried out in 2014 and 2015 summer season in the eastern margin of Japan Sea in order to explore the geological characters of the shallow methane gas hydrate within the gas chimney-mound structure, which is well developed in this area. 2014 summer cruise hires natural gamma ray, resistivity, sonic and CMR loggings. Clear anomalies of low natural gamma, high resistivity, high sonic velocity, low NMR porosity were detected at the gas chimney structures in off-Joetsu and Mogami Trough area. Thus, it was interpreted that the methane hydrate concentrated intervals show these anomalies. In 2015, gas chimney structures were explored in more detail with natural gamma ray, resistivity, sonic, CMR and neutron logging tools. The hydrate concentrated intervals were clearly identified with high neutron porosity, low neutron gamma density and low sigma (neutron capture cross section) anomalies in addition to the previously recognized logging anomalies. We will report the detailed methane hydrate distribution within the gas chimney-mound structure according with the correlation of LWD and coring results. This study was conducted as a part of the shallow methane hydrate exploration project of METI. We express sincere thanks to Mr. Tetsuya Fujii, Mr. Tokujiro Takayama, Mr. Takashi Kotera, JOGMEC and Dr. Shusaku Goto, AIST, for their support and advices.

Keywords: shallow methane hydrate, gas chimney mound structure, Logging While Drilling