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# Hydrate content estimated from Chlorinity and insitu temperature anomalies at IODP Site C0008

KINOSHITA, Masataka[1*], Fukase, Hiroaki[2]

[1]JASMTEC, [2]Kochi Univ.

During the IODP Expedition 316 (NanTroSEIZE Stage 1) in 2007, significant negative anomalies in the pore fluid chlorinity were reported from the core samples taken 100m below the seafloor at IODP Site C0008 in the slope sediment seaward of the mega-splay fault zone. We estimated the total contents of methane hydrate from this Cl anomaly and the porosity measured for core samples. The maximum content percentage is 40% at a horizon with strong reflectivity, suggesting a sandy interval.

In the vicinity of Cl anomaly interval, we discovered a negative temperature anomaly of up to 1K, measured insitu using the APC-T tool attached to the shoe of the hydraulic piston corer. Although our preferred interpretation for this negative excursions is a dissociation of hydrate at the time of coring, the amount of dissolved hydrates estimated from the latent heat of fusion is only at most 2% (total content). This may be due to the localized distribution of hydrate.

We will propose a hypothetical model that the methane gas was originally formed beneath the base of hydrate stability when the mega-splay fault uplifted, and was transferred to Site C0008 through the fault zone and the sandy horizon.

Keywords: NanTroSEIZE, methane hydrate, splay fault, submarine landslide