

Estimation of Gas Hydrate Saturation at Nankai Trough Site C0002 in IODP Exp. 314.

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IODP Expedition 314 was conducted at Nankai trough accretionary prism for 21 September to 16 November 2007. In that operation, we drilled six sites and observed gas hydrates in one of the sites Site C0002. Gas hydrates beneath sea floor is promising energy source and potentially hazardous material during drilling. Estimation of gas volume is useful to prevent dulling problems during the next stage at Site C0002. In this study we estimate gas hydrate saturation with LWD logging data which obtained during Expedition 314.

To estimate the saturation of gas hydrate in sandstone layer at Site C0002, we used the Archie relation. In the Archie relation, we need to estimate the formation water resistivity. The sea water resistivity was calculated from temperature gradient from porosity log data and heat flow at the site. The heat flow was estimated from the Pressure-Temperature boundary of gas hydrate.

The result shows that the saturation peak and hydrate layer which determined from borehole image are well correlated. The saturation trend with depth shows coherent to the hydrate thickness ratio.