

Application of 3D seismic technology for Methane hydrate exploration

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Aiming commercialization of methane hydrate production to be examined as one of future energy resources, the Research Consortium for Methane Hydrate Resources in Japan (MH21) has been executing the geological and geophysical survey around the eastern part of the Nankai Trough since 2001. 2D and 3D reflection seismic surveys, a multi-well drilling campaign and geological interpretation have been conducted to evaluate methane hydrate resource potential in the target area.

Both of seismic and well data suggest that turbidite sand bodies can be good reserves of methane hydrates as same as conventional oil and gas reserves in the deep sea. 3D seismic reflection data is the powerful tool to visualize and classify various geological sedimentation patterns including turbidite channels and fans.

The detailed seismic interpretation was applied to three areas covering 'the Tokai offing', 'the Dai-ni Atsumi knoll' and 'the northern part of the Kumano basin' in which 3D seismic data were acquired, and the relationship between turbidite sand bodies and methane hydrate high-concentrated zones were revealed.