

3D seismic visualization of methane hydrate bearing subsurface in the deep water southwest of the Sado Island

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Offshore 3-dimension reflection seismic data and their attributes can provide us detailed and visual underground images on and below the sea floor, therefore, those have been widely utilized for the oil and gas industry to explore hydrocarbon resources. The Research Consortium for Methane Hydrate Resources in Japan (MH21) delineated successfully methane hydrate concentrated zones of which reservoirs are turbidite sand bodies above BSRs, by using 3D seismic volumes obtained in the eastern Nankai trough area. The workflow developed above was applied to the METI 'Sado-oki Nansei' 3D seismic survey, acquired in 2001 in deep sea southwest off the Sado Island (or offshore the Joestu-oki), in order to interpret the outer-frame and internal structure of the possible methane hydrate concentrated zone delineated (ref. Furukawa et al., 2010).

On the other hand, the METI 'Sado-oki Nansei' 3D seismic volume have been also useful for imaging specific characters which might suggest geological and/or geochemical phenomenon relating methane hydrate and fluids in shallow subsurface. In Saeki et al.(2009), the authors indicated that the P-wave velocity structure suggest occurrence of methane hydrate below mounds and pockmarks and existence of surrounding low velocity area. In this report, the authors will introduce 3D visual images about the above phenomena again, and also add new figures (local topographic anomalies of BSR closed to fault zone, distribution of low velocity layers below BSR and so on).

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Keywords: methane hydrate, BSR, reflection seismology