

## Detailed internal structure of a channel type methane hydrate concentrated zone in the eastern Nankai Trough

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To evaluate resource potential of methane hydrate, high resolution 3D seismic survey was conducted in the eastern Nankai Trough by METI in 2002. Studies on these seismic data combined with the results of multi-well drilling surveys delineated more than 10 areas with methane hydrate concentrated zones. The methane hydrate concentrated zones were developed in turbidite sand bodies of channels or lobes.

In this study, we attempted to characterize one of the methane hydrate concentrated zones which is comprised of sand bodies within a channel complex. Generally, a channel complex is recognized by reflectors of erosion surface and internal sand bodies. This channel complex which contains methane hydrate is vertically divided into upper and lower parts bounded by BSR which is the deepest limit of methane hydrate existence. It is difficult to interpret the internal structure of the lower part due to the less continuous reflectors. To reveal the internal structure of channel type methane hydrate concentrated zone, we focused on erosion surfaces and high amplitude reflectors which are related to sand bodies saturated with methane hydrate. We could obtain the detailed internal structure by picking the high amplitude reflectors and interpreting them in the seismic-geomorphology point of view.

The distribution of high amplitude reflector patches suggested that the conduit of the channel complex was shifted little by little. The original direction of the channel complex was from northeast to southwest. Later, the complex bended to west gradually, and finally the direction was from northeast to west. By delineating shape of reflector patches and grasping the distribution of them within channel complex in this way, we can discuss the 3D feature of the channel development.

Additionally, by comprehensive interpretation of the amplitude characters, the relative position and their continuity, reflector patches were grouped within each channel. From the shape and amplitude information, we can pick up reflector patches of sand bodies with high concentration of methane hydrate. Such evaluation of the properties of the sand bodies will contribute to the future precise volume estimation of methane hydrates, and also to the detailed geological model construction for production simulation.

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