

## Property assessments of methane hydrate sediments by microfocus X-ray computed tomography

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Natural-gas hydrates are widely distributed in ocean and permafrost sediment. Gas production from natural-gas hydrate sediment is currently being developed using such methods as depressurization, thermal stimulation, and injection of hydrate inhibitors. Structural properties and permeability of sediment are very important for gas production.

A X-ray computed tomography (CT) is useful tool to understand sedimental structures non-destructively. We measured artificial and natural methane-hydrate sediments using a microfocus X-ray CT system, which has a high-spatial resolution (SMX-225CTS-SV, Shimadzu co.), As a result, we developed the assessment methods of porosity and hydrate saturation in methane hydrate sediment. Moreover, we clarified the correlation between sedimental structure and absolute permeability in natural methane-gas hydrate sediments.

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