



## **Development of the Pressure-core Nondestructive Analysis Tools (PNATs) for Methane Hydrate Sedimentary Cores**

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Potential of methane hydrate reservoir as a methane gas resource depends on the physical and chemical properties of geological structure. Seismic, logging and coring are very important information and data to understand these properties. Pressure core analysis is an advanced way to characterize reservoir properties such as the porosity, methane hydrate saturation, permeability, mechanical properties and so on. However, the quality of core samples should be guaranteed, which will be confirmed from the seismic and logging data in advance. Pressure core can be minimized the dissociation of methane hydrate. The AIST introduced the Pressure-core Nondestructive Analysis Tools (PNATs), in which pressure core is handled without depressurizing the pore pressure until setting up core samples into the tools. The PNATs can evaluate the permeability, hydrate saturation, X-ray CT image, p-wave response, mechanical properties and so on, under the full pressurized operation and provide essential reservoir parameters. In this presentation, we will introduce the details of developed PNATs and several results for pressured cores obtained in the eastern Nankai Trough off Japan. This study is financially supported by METI and Research Consortium for Methane Hydrate Resources in Japan (the MH21 Research Consortium).