

## Exploitation of methane hydrate using exothermic heat of CO<sub>2</sub> hydrate formation -CO<sub>2</sub> performance by experiments-

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Methane hydrate is found in marine sediments and permafrost. But methane hydrate is solid and it doesn't flow. Then some dissolution methods of methane hydrate are necessary such as thermal stimulation or depressurization.

If carbon dioxide (CO<sub>2</sub>) can be used for dissolving methane hydrate in marine sediments, we could obtain natural gases with less impact for the global warming.

Thus we focus on exothermic heat of CO<sub>2</sub> hydrate formation to dissolve methane hydrate, and also we proposed CO<sub>2</sub>/water emulsion to disperse CO<sub>2</sub> homogeneously into the sediments.

An experiment and its numerical estimation shows that the performance of CO<sub>2</sub>/water emulsion as warming material was about 9 degree Celsius to rise the temperature of Toyoura sand. Toyoura sand is an index of sand layer of marine sediments. This performance is effective to dissolve methane hydrate in marine sediments.