Are gas hydrates a source of environmentally friendly energy?

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USGS

Gas hydrates are also known as ice that burns. Credit: USGS

Gas hydrate is also known as the ice that burns. And everything that burns releases energy. A lot of energy is stored in hydrates: a cubic meter of methane hydrate, for example, compresses as much as 168 m^3 of natural gas. And there are gigatonnes of it stored in the sediments of the oceans.

Several countries are therefore interested in developing technologies that can take advantage of this energy resource.

Japan, USA in the race for exploitation

Gas hydrate accumulations in continental shelf sediments are considered a promising resource for future gas supply by several non-European countries, including the U.S., Japan, China, India, South Korea, and Taiwan. In 2013, the Research Consortium for Methane Hydrate Resources in Japan produced gas during a successful offshore field test.

Recently, a European Concerted Research Action (COST) was established, designated to research marine gas hydrates. A European organization, MIGRATE, will examine the potential of gas hydrates as an economically feasible and environmentally sound energy resource. Stefan Bünz, associate professor at Centre for Arctic Gas Hydrate, Environment and Climate (CAGE) at UiT, the Arctic University of Norway, was elected the vice chair.

European inventory

MIGRATE aims in particular to to determine the potential European inventory of exploitable gas hydrates, to assess current technologies for their production, and to evaluate the associated risks.

"With the wide spectrum of gas hydrate research undertaken in CAGE, we will significantly contribute to three of the working groups in MIGRATE: resource assessment; exploration, production and monitoring technologies; and environmental and geohazard challenges," says Bünz.

CAGE will contribute with a large seismic database from the Norwegian and Arctic margins and development of seismic-based technologies.

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