



# Following the trail of methane

The existence of methane hydrate, or methane ice, in the seabed is a relatively new and revolutionary discovery. In fact, these reserves could be the answer to a possible worldwide energy crisis, and countries such as Japan and South Korea are already trying to achieve its extraction.

However, the liberation of methane hydrate could have unexpected consequences both for the environment and for life in coastal areas. Considering this, Dr. Iván Vargas Cordero, researcher for the Faculty of Engineering at the Viña del Mar Campus of the Universidad Andrés Bello, is working on the detection of methane hydrate and the emission of gas from the Chilean seabed.

“Our line of research aims, through indirect measurements such as marine geophysical methods, to identify the areas with methane hydrate and gas emissions associated with the destabilization of these deposits,” explains Dr. Vargas Cordero.

Dr. Vargas Cordero’s team is formed by Lucia Villar, Paz Toledo, and Carolina Cárcamo from Universidad Andrés Bello; Umberto Tinivella from the Istituto Nazionale di Oceanografia e di Geofisica Sperimentale in Trieste, Italy; and Mario Veloso, from GEOMAR Helmholtz Centre for Ocean Research in Kiel, Germany. The goals of this research group are to map gas emission zones in the water column, to estimate the possible escape routes of methane into the atmosphere, and to identify geo-environmental risk areas along the Chilean coast since the uncoupling of hydrates can give rise to underwater mudslides that could potentially cause a tsunami.

“Being able to detect and estimate the amount of hydrate and gas along the Chilean coast is highly relevant as this information would allow us to determine at-risk coastal areas. Chile is a very active seismic country, and earthquakes could result in hydrate destabilization, which could lead to a tsunami,” adds Dr. Vargas Cordero.

Finally, Dr. Vargas Cordero highlights additional motivations to control and identify these hydrates. “Beyond acting as an energy reserve, methane is a greenhouse gas, 24 times more potent than carbon dioxide, due to which these emissions could have an important impact on global warming.”

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