

Measurement and mapping of dissolved methane distribution in the Sea of Japan: Influence of shallow gas hydrate deposits.

\*Glen Snyder<sup>1</sup>, Ryo Matsumoto<sup>1</sup>, Shinsuke Aoki<sup>3</sup>, Adrian Bodenmann<sup>4</sup>, Sangekar Mehul<sup>4</sup>, Blair Thornton<sup>4</sup>, Hitoshi Tomaru<sup>2</sup>, Satoko Owari<sup>2</sup>, Minori Chikada<sup>2</sup>, Robert Brant<sup>6</sup>, Daniel Doolittle<sup>7</sup>, Stefan Williams<sup>5</sup>, Oscar Pizarro<sup>5</sup>

1.Gas Hydrate Research Lab, Meiji Univeristy, 2.Dept. Earth Sciences, Chiba University, 3.Graduate School of Agriculture, Meiji University, 4.Institute of Industrial Science, The University of Tokyo, 5.Australian Centre for Field Robotics, The University of Sydney, 6.CSnet International Inc., 7.Fugro GeoConsulting Inc.

Active methane seeps and shallow methane hydrate deposits are found in along the margins of the Sea of Japan. In this study, we installed several types of methane sensors on an ROV to determine dissolved gas concentrations in the water column as well as to map the distribution of concentrations near the seafloor. We first compare the performance of sensors from different manufacturers, then compare the results to actual water samples collected in vacuum bottles and in Niskin bottles. The recorded sensor data is then calibrated and compared with seafloor features recorded using the SeaXerocks mapping system developed at the University of Tokyo. The results show that high methane concentrations near the seafloor correspond to observed areas of microbial mats and exposed gas hydrate. The authors wish to acknowledge the crew and scientific staff of JAMSTEC that provided technical support during the 2014-2015 research seasons. This study was conducted as a part of the 2013-2015 shallow methane hydrate exploration project of the Ministry of Economy, Trade and Industry.

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