



Geochemical Anomalies of Pore Water of Cored Sediments in Offshore Southwestern Taiwan

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According to the previous geochemical studies, the venting gases mainly consist of methane. As we know, the gas hydrate may be formed when gases migrate upward through the gas hydrate stability zone. Besides, the previous geophysical data shows that BSRs (Bottom Simulating Reflection) distribute widely in this area. These evidences imply that there would be a methane hydrate reservoir in Offshore Southwestern Taiwan. Since some of the general surveys have been done in this area, we focus on one of the ridges - the Good Weather Ridge for detail studies.

As other ridges in this area, abundant methane concentrations had been found in the pore space of cored sediments. The analytical result shows that the methane concentration at some sites can reach $9 \times 10^3 \mu\text{L/L}$. Meanwhile, the shallow depth of SMI infers the high methane flux underneath the seafloor. These high methane fluxes may represent a great amount of methane hydrates existing in the marine sediments.

In addition to the methane concentrations, the chloride ion in the pore water can be another indicator for hydrate surveys. On Good Weather Ridge, the clear chloride concentration decreases with depth has been observed from Core 9 and other sites, and it is lower than the average value of seawater in this area. However, the pore space methane concentration is up to around $7 \times 10^3 \mu\text{L/L}$ at the same cored sediments. It indicates that in-situ gas hydrates may have dissociated during core recovering. Therefore, the amount of gas hydrates in the cores can be estimated.