

The discovery of chemosynthetic *Calyptogena* in the high methane activity area off Hidaka, Hokkaido.

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Methane seeps has been reported so far off the southeast of Hokkaido (off Hiroo) (Fujikura et al., 2012, etc.). There is a possibility that there is methane seep also off the southwest of Hokkaido (off Hidaka) from the interview survey of the fishery cooperative, and from August 1 to 7, 2016 in the ocean survey by the TR/V Umitaka maru (UT 16 Leg. 2) was carried out. The survey was conducted at four stations in the Hidaka trough using Okean grab sampler, piston corer, CTD. We report were collected *Calyptogena* bivalve is a chemosynthetic organism by Okean grab sampler at one station.

In this survey, sediments were collected by the Okean grab sampler at three stations (depths of 692 to 988 m) off Hidaka. Three empty conjoined valves (dead specimens) and fragments were collected from St. G1603 (depth of 970m). Sediment in the sand and mud, polychaetes and ophiuroids were collected along *Calyptogena*.

In the northern wall of the Hiroo Submarine Canyon off the southeast of Hokkaido (water depth 1240 m), methane seep and habitat of *Calyptogena* species have been confirmed (Fujikura et al., 2013).

Comparison of Hidaka' s specimens and Hiroo' s specimens showed that the shell shape was similar, but the form of the hinge was different and considered to be a different species. It is known that there are species differentiation due to difference in inhabitant depth (Fujikura et al., 2000). The habitat depths of off Hidaka and off Hiroo is almost the same depth, but the districts are about 260 km apart. But, Hiroo' s species occurs in the north wall of the Hiroo Submarine Canyon, where the subduction activity is much higher than the locality of Hidaka' s species which was collected from the immediate west of Hidaka Trough (970-1300 m depth). The occurrences of these two species from nearby localities must be considered from viewpoints of geological setting comparing tectonical characteristics of both localities. In the place where Hidaka' s specimens were collected, gas chimneys and plumes were observed at the flat bottom of the central northern part of the Hidaka trough, and gas hydrate was confirmed by the piston corer at the same place. According to this discovery, it can be said that in the waters of the Pacific Ocean side of Hokkaido, it is found that *Calyptogena* species can be a clue to the detection of the surface gas hydrate, which is also an important discovery from the resource exploration.

References:

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