

## Subvent biosphere in hydrothermal active area on Yonaguni knoll IV

# Takuro Nunoura[1]; Uta Konno[2]; Urumu Tsunogai[3]; Fumiko Nakagawa[4]; Miwako Nakashima[5]; Junichiro Ishibashi[6]; Fumio Inagaki[7]; Hisako Hirayama[8]; Ken Takai[9]

[1] XBR, JAMSTEC; [2] Earth and Planetary Sci., Hokkaido Univ; [3] Division of Earth and Planetary Sciences,

Grad. School Sci., Hokkaido Univ.; [4] Earth & Planetary Sci., Hokkaido Univ.; [5] Earth and Planetary Sci., Graduate School of Sci., Kyushu Univ.; [6] Earth and Planetary Sci., Kyushu Univ; [7] DEEP-STAR, JAMSTEC; [8] SUGAR PJ, JAMSTEC; [9] SUGAR Program, JAMSTEC

We conducted geochemical and geomicrobiological surveys for hydrothermal active area on Yonaguni Knoll IV that located on southeast end of Okinawa Trough by Shinkai 6500 in 2003 and 2004. As we know, hydrothermal active area on Yonaguni Knoll IV is the most active hydrothermal system in Okinawa Trough. In this hydrothermal active area, dozens of hydrothermal vents were observed and the active center of hydrothermal activity may be a large sulfide mound called Tiger chimney mound that had both black and clear smoker vents. The temperature of hydrothermal fluids was usually more than 100 C and those of around active center were more than 300 C. In addition, the presence of large amount of liquid or hydrate of CO<sub>2</sub> also arose our interests for this hydrothermal system.

We investigated the microbial community in chimney structure, hydrothermal fluids and in situ colonization system (ISCS) by both culture-dependent and -independent molecular microbiological methods. As a result, the microbial community structures were very similar to each other though the varieties of geochemical properties were observed in each hydrothermal vent. The situation of microbial communities is in contrast with that of in Iheya North hydrothermal active area at mid Okinawa Trough. We suspect that aging of hydrothermal active area is the one reason of the difference of microbial community between Yonaguni Knoll IV and Iheya North. Hydrothermal activity in Iheya North has gradually decreasing by age. On the other hand, that in Yonaguni Knoll IV is very active and the heat source may be shallow. Thus, it is too hot to develop subvent biosphere in Yonaguni Knoll IV.