

Microbial community in the subseafloor around the hydrothermal system at the southern Mariana trough

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The microbial communities in the subseafloor around two hydrothermal points, on- and off-axis of the spreading center at the southern Mariana trough were investigated. We have carried out subseafloor drilling around the hydrothermal systems at back-arc spreading center in the southern Mariana trough. In this study, the hydrothermal fluids were collected from the drilled holes. We also analyzed a natural vent fluid and ambient seawater. Bacterial and archaeal species in the fluid samples were analyzed by PCR clone analysis. Our data suggest the presence of an ecosystem depended on aerobic iron-oxidizing bacteria and sulfur-oxidizing bacteria as the primary producers in the subseafloor on- and off-axis of the spreading center. 16S rRNA gene sequences recovered from these fluids suggest the existence of a candidate proteobacteria subdivision “zeta proteobacteria” and novel archaeal clone groups. Furthermore, we show the temporal change of microbial habitat in the same point in the subseafloor on-axis site after one and a-half years, although repeated sampling/analysis is needed for the conclusion.

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