

## Hydrothermal regime of Iheya-North hydrothermal field, Mid-Okinawa Trough, inferred from heat flow and samples obtained using NSS

# Masataka Kinoshita[1]; Takuro Nunoura[2]; Juichiro Ashi[3]; Masataka Kinoshita KY05-14 cruise Shipboard Scientific Party[4]

[1] JAMSTEC; [2] XBR, JAMSTEC; [3] ORI, Univ. Tokyo; [4] -

In the Iheya-north hydrothermal system, mid-Okinawa Trough, dense heat flow measurements were carried out through three research cruises. 1m-long heat flow probes were used to measure heat flow by ROV Hyper-Dolphin of JAMSTEC. During the KY05-14 cruise conducted in Jan. 2006, the Navigable Sampling System (NSS) at Ocean Research Institute, University of Tokyo was used to take 4m-long piston core samples with heat flow at shimmering sites as well as biological communities. As opposed to the background heat flow value ( $\sim 0.1 \text{ W/m}^2$ ), the heat flow around the active venting area is higher than  $1 \text{ W/m}^2$ . It either suggests that the knoll complex in this area is relatively young, or that hydrothermal activities are blanketed by the surface impermeable sediment. Locally, very low heat flow is observed next to the active venting, suggesting a local, secondary hydrothermal circulation. Through NSS piston coring from a tube-worm field, we found a linear thermal gradient for the upper 1m below seafloor and an isothermal structure beneath it. Since the core sample taken includes a massive pumice section at 0.7-0.9m below seafloor, we believe this pumice interval acts as a caprock for the underlying hydrothermal reservoir.