Chemical and isotopic compositions of interstitial water from the Izena hydrothermal field

*Tomohiro Toki[1], Tsubasa Otake[2], Jun-ichiro Ishibashi[3], Yohei Matsui[4], Hirokazu Kato[3], Shigeshi Fuchida[5], Rena Miyahara[3], Akihi Tsutsumi[3], Shunsuke Nakamura[2], Ryuhei Kawakida[2], Hirotaka Uza[1], Riki Uehara[1], Ryuichi Shinjo[1], Tatsuo Nozaki[4], Hidenori Kumagai[4], Lena Maeda[4], CK16-05 on-board member

1. University of the Ryukyus, 2. Hokkaido University, 3. Kyushu University, 4. JAMSTEC, 5. NIES

In the previous SIP cruises, several hydrothermal sites have been drilled in the Iheya North Knoll, and distribution of sulfide ore deposits and hydrothermal fluids have been unraveled. However, the sulfide ore deposits in the Iheya North Knoll are relatively small to understand detailed formation processes of a massive hydrothermal ore deposits, particularly factors controlling the scale and grade of the deposits, which will be useful for exploration of large and high-grade deposits. In the Izena Hole, two hydrothermal active fields have been reported, and they have been called Hakurei and JADE sites (Halbach et al. 1989). At Hakurei site, several mounds up to tens of meters in height lie in lines. A potential sulfide ore body has been also pointed out beneath the mound of sulfide by JOGMEC (http://www.jogmec.go.jp/news/release/news_06_000130.html). In this study, coring was conducted around the massive hydrothermal ore deposits at Hakurei site, and chemical compositions of interstitial water and headspace gases from sediments or volcanic rocks were investigated. The purposes of this study are (1) to investigate the influence of hydrothermal activities on the chemistry of interstitial water and headspace gas and (2) to understand how the distribution of hydrothermal fluids below the seafloor is related to the growth of massive hydrothermal ore deposits.

Keywords: Izena Hole, hydrothermal system, interstitial water, chemical and isotopic compositions

