

Deployment of logging while drilling at hydrothermal fields in Okinawa Trough: Preliminary results of CK16-01 Cruise

*Saneatsu Saito¹, Yohei Hamada¹, Takeshi Tsuji², Kazuya Shiraishi¹, Kan-Hsi Hsiung¹, Chandoeun Eng², Keita Yoshimoto³, Yukari Kido¹, Yoshinori Sanada¹, Hidenori Kumagai¹, Tatsuo Nozaki¹, Jun-ichiro Ishibashi², Lena Maeda¹, CK16-01 Shipboard Party

1.Japan Agency for Marine-Earth Science and Technology, 2.Kyushu University, 3.Yamaguchi University

A scientific drilling cruise CK16-01 was conducted by D/V Chikyu at the active hydrothermal fields on Iheya-North Knoll and Iheya Minor Ridge in the Okinawa Trough in February-March of 2016, as a part of the Cross-ministerial Strategic Innovation Promotion Program (SIP). During the former half of the cruise logging while drilling (LWD) was deployed to investigate subseafloor stratigraphy and hydrogeology. The long-term monitoring apparatus, "Kuroko-ore cultivation apparatus", was also installed, that is equipped with sensors to monitor the secular variation of pressure, temperature, flow rate, and precipitation weight within the apparatus on artificial hydrothermal vents. In succession to the operations, coring were conducted in the later half of the cruise.

The LWD tools acquire natural gamma ray, resistivity, borehole images, and annular pressure and temperature data. Based on the results from the CK14-04 cruise in 2014 at the Iheya-North Knoll, LWD was useful to identify and characterize the submarine hydrothermal deposits and the LWD survey enhanced the successful recovery of sulfide samples. In this presentation, we report the preliminary results of LWD deployed during the CK16-01 Cruise.

Keywords: Okinawa Trough, Cross-ministerial Strategic Innovation Promotion Program (SIP), Logging While Drilling, Seafloor hydrothermal Deposit, Iheya-North Knoll, Iheya Minor Ridge