
Press Releases



March 4, 2014
JAMSTEC

Two New Hydrothermal Fields Discovered in the Central Okinawa Trough ~Effectiveness of an investigation method for hydrothermal vents confirmed~

The Japan Agency for Marine-Earth Science and Technology (JAMSTEC: Asahiko Taira, President) carries out research and development in order to understand the genesis of submarine resources as well as to develop methods for the exploration of these resources so as to contribute to submarine resource development being advanced by government policy. As part of the research and development activities, the Submarine Hydrothermal System Research Group of the Submarine Resources Research Project has been carrying out the research and development of efficient methods for searching of unidentified deep-sea hydrothermal fields, which are believed to be promising hosts of submarine mineral resources. During our recently designed fast-easy exploration scheme using a multibeam echosounder ([*1](#)), we discovered two new hydrothermal fields in just a total of 4.5 days of investigation, a very short period. The results of our observation and measurements of hydrothermal water from these fields suggest the presence of a massive hydrothermal field encompassing these two new fields and one previously known field (stretching 3 km horizontally, making it one of the largest hydrothermal activity fields in the Okinawa Trough).

These results confirm that the recently designed fast-easy exploration scheme is effective in locating hydrothermal fields more efficiently than do conventional schemes. We expect to contribute to understanding the distribution and scale of submarine hydrothermal deposits and their genesis by improving the completeness of an overall scheme of deep-sea hydrothermal research through the results of further scientific research and verification.

This research project was partially funded by a research grant awarded to a theme entitled "In search of supergiant submarine hydrothermal deposits in the deep sea of Okinawa" by the Canon Foundation in its 3rd "Pursuit of Ideals" grant program.

***1 Multi-beam echo sounder**

A device which determines the depths of an entire subject sea area by the transmission time of a directional acoustic beam sent from the transmitter under a vessel and received as it is reflected back from the seafloor.

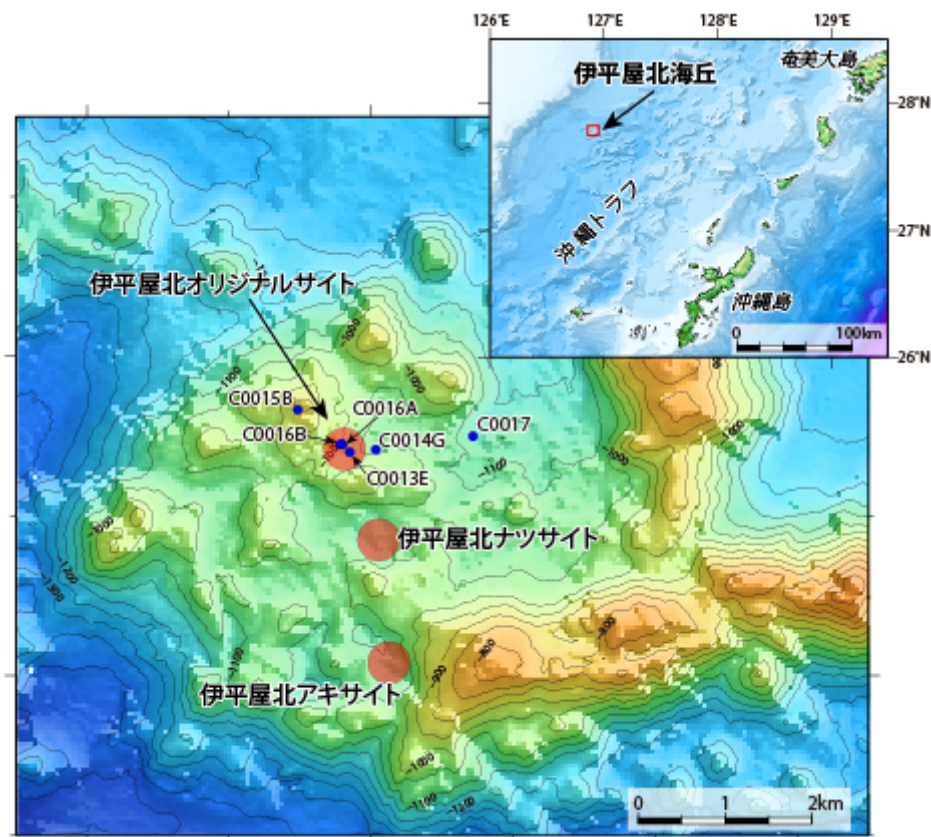


Fig. 1 Sea area surveyed (blue dots represent the sites of scientific drilling by Deep Sea Drilling Vessel Chikyu in September, 2010)

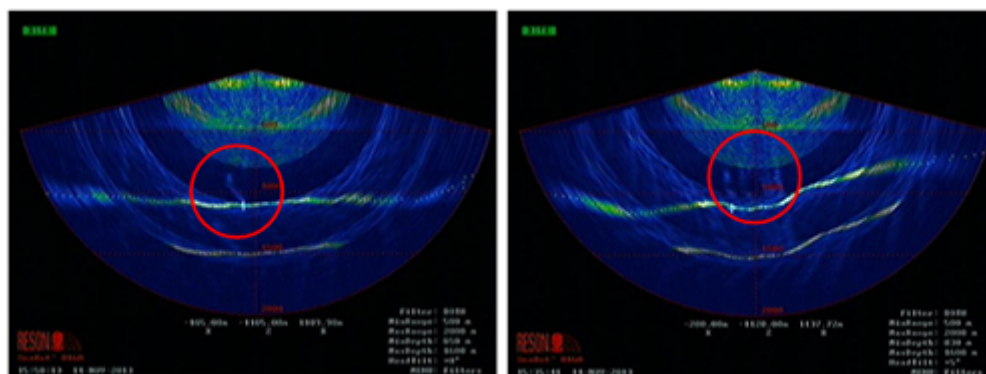


Fig. 2 Hydrothermal plumes detected by the echosounder onboard Research Vessel Natsushima (shown in red circles) Left: Iheya North Natsu (Summer) site; Right: Iheya North Aki (Autumn) site

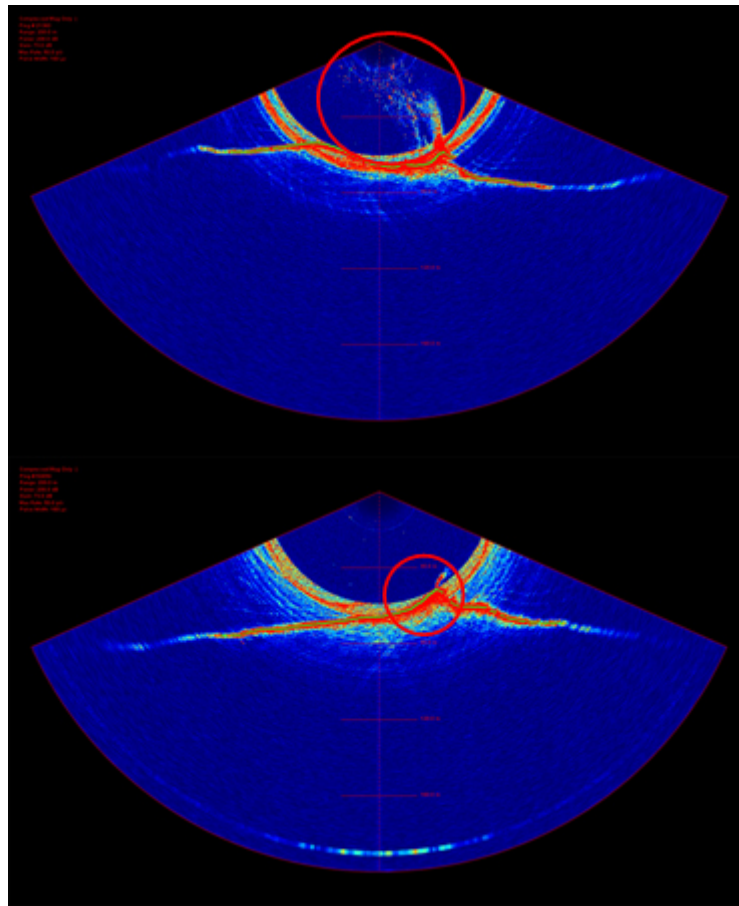


Fig. 3 Hydrothermal plume detected during echosounding by AUV Urashima
Top: Iheya North Natsu (Summer) site; Bottom: Iheya North Aki (Autumn) site

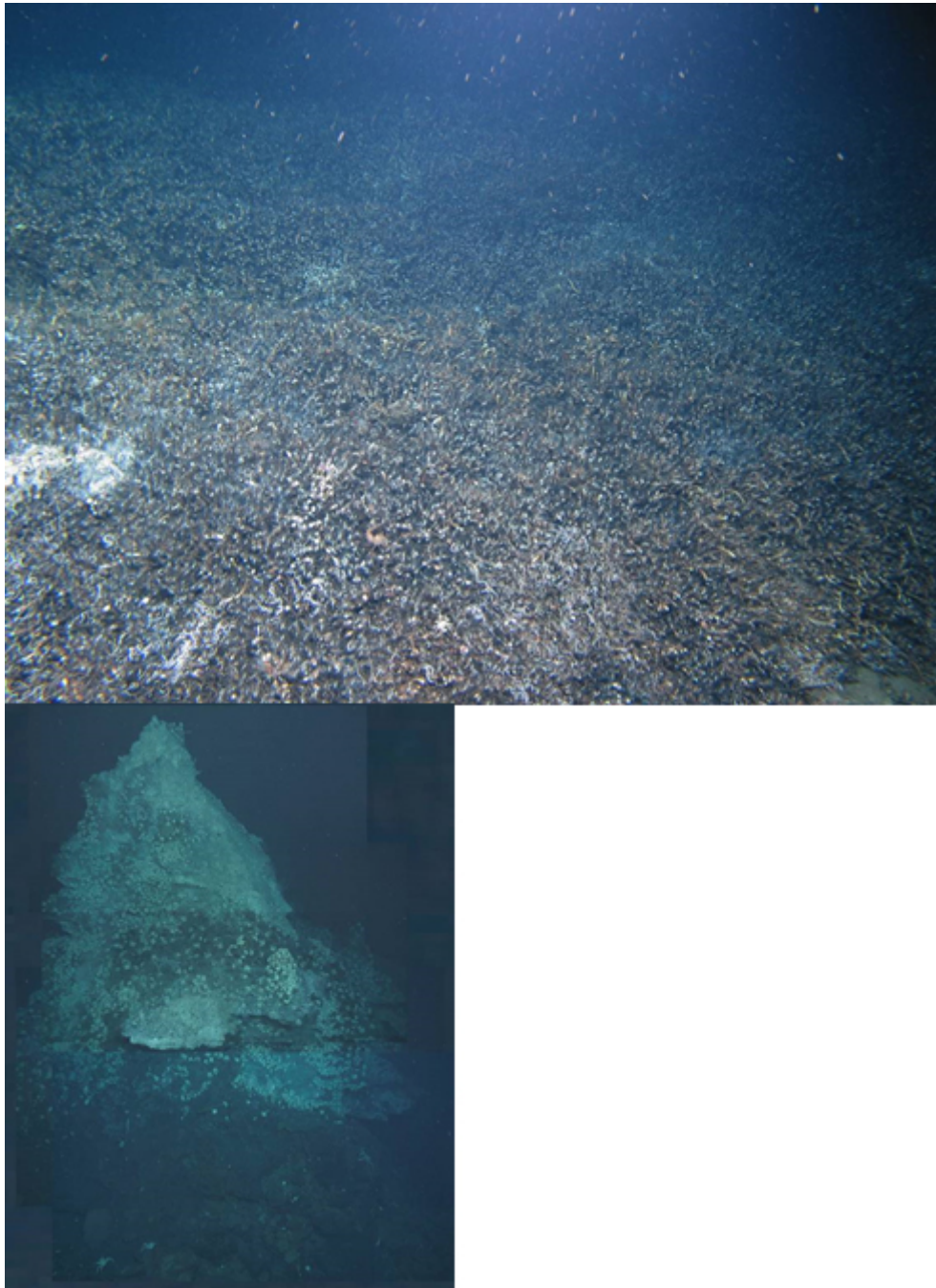


Fig. 4 Iheya North Natsu (Summer) site

Located in lowland area 1.2 km south by southwest of the Iheya North Original site, this hydrothermal field contains extensive communities of diverse chemosynthetic organisms and numerous hydrothermal vents, including a large hydrothermal mound spouting hydrothermal fluid heated to a maximum recorded temperature of 305°C.

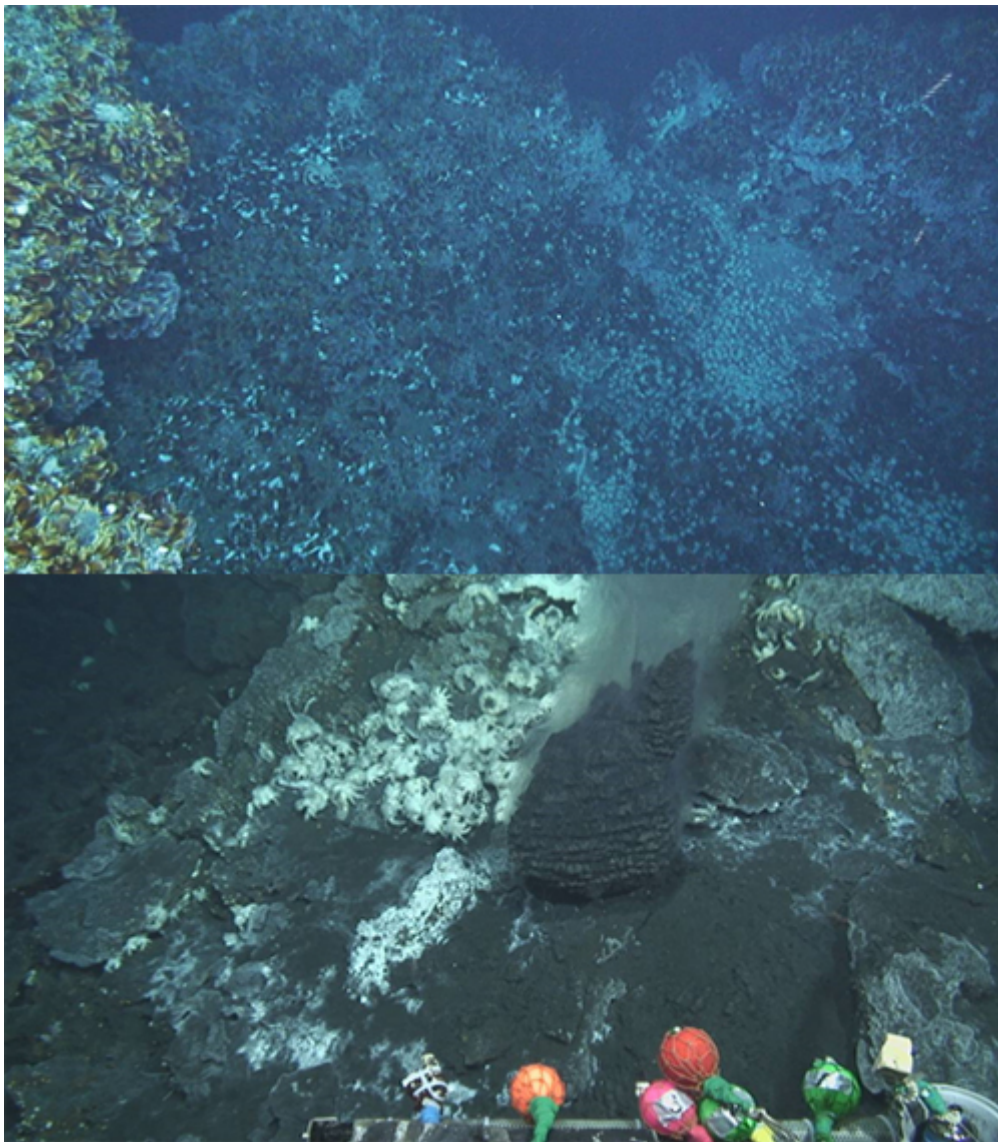


Fig. 5 Iheya North Aki (Autumn) site

Located in depression area 2.6 km south by southwest of the Iheya North Original site, this hydrothermal field is an active hydrothermal field comparable in area to Iheya North Original site. The field contains extensive communities of diverse chemosynthetic organisms common to both Iheya North Original and Iheya North Natsu sites, and numerous hydrothermal mounds gushing blackish smokers heated to a maximum recorded temperature of 317°C.

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