

Discovery of several new seafloor hydrothermal deposits by the regional survey, such as Gondou Site, in central part of the Okinawa Trough, Japan

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JOGMEC conducted the regional survey by use of the research vessel Hakurei and chartered vessels from fiscal year 2014 for seas around Japan. Firstly, Multibeam Echo Sounder (MBES) on vessel can conduct a bathymetric mapping to reveal topographical details (such as caldera, seamount, ridge, etc.). Then, Autonomous Underwater Vehicle (AUV) can acquire higher resolution bathymetry than vessel by onboard the echo sounder closer to seafloor.

JOGMEC confirmed new 4 sites (Noho, Gondou, Dana, Higa) of seafloor hydrothermal deposits by the Remotely Operated Vehicle (ROV). In either sites, a lot of active hydrothermal chimneys and more widely distributed inactive mounds consists of various sulphide minerals.

Especially in Gondou site, the mineralogical composition of sulfide ores is dominated by chalcopyrite, sphalerite, wurtzite, pyrite, marcasite and galena with minor tetrahedrite. Chalcopyrite is the most abundant copper mineral at Gondou site (1-40 modal %). Six samples taken by manipulator arm of ROV from mounds and chimneys averaged 13.0 % copper, 12.3 % zinc, 5.2 % lead, 1.7 grams/tonne gold and 326 grams/tonne silver.

And otherwise, as for Noho site, pyrite/marcasite and sphalerite were abundant. In addition, as for Dana site, pyrite, sphalerite and chalcopyrite were abundant. On the other hand, as for Higa site, low porosity and large grains of sulfide ores is dominated by sphalerite and galena.

Currently, the drill core samples at Hakurei site in the Izena cauldron, pyrite/marcasite and sphalerite were abundant and found to be porous.

These discoveries has enhanced the possibility to secure further mineral resources for seas around Japan.