Microtopographies around southwestern ridge of Takuyo-daigo seamount obtained by AUV "Urashima"

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It has been aware of that existence of ferromanganese crusts are closely concerned to microtopographies of seamounts. However, there are insurmountable geographical "scale gap" between bathymetry obtained by ship's multi-beam echo sounder (MBES, ~100m grid data) and observation records of Remotely Operated Vehicle (ROV, description of few meter-scale outcrop). A research cruise YK15-15, Strategic Innovation Program (SIP), New-generation Technology for Ocean Resources Survey (ZIPANG in ocean), "Research on formation process and mechanism of cobalt-rich ferromanganese crusts covering over seamounts in the northwestern Pacific - precise bathymetric survey and seawater sampling by AUV -", was carried out in 2015, to obtain detailed seafloor topography and side scan sonar (SSS) images using Automonous Underwater Vehicle (AUV) "Urashima", for realizing a relationship between distribution of the crusts and microtopographies around southwestern ridge of Takuyo-daigo seamount, where we researched as a typical field of ferromanganese crusts since 2009. Here we report some of the results about detailed topographies and SSS images obtained by AUV "Urashima", comparing with dive logs and photographs obtained by past ROV dives. This project has been implemented as part of “Scientific Research on Genesis of Marine Resources” for “Next-generation Technology for Ocean Resources Exploration,” an initiative that is part of the “Cross-ministerial Strategic Innovation Promotion Program (SIP)” by the Japanese government.

Keywords: ferromanganese crust, Takuyo-daigo seamount, MBES, AUV, Urashima

