

New development of seafloor surveys by new icebreaker

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The bathymetry is fundamental information for marine study. However, detailed bathymetry in the Southern Ocean has not generally been understood yet. Especially, seafloor topography around Antarctica covered by sea ices has been unknown. Single beam echo soundings have been conducted by icebreaker Shirase, but multi-narrow beam echo-sounder is required to elucidate detailed bathymetry. Multi-narrow beam echo-sounder will be installed in new icebreaker that will go into services from the 51st Japanese Antarctic Research Expedition (2009-2010). Seafloor topography with width of 3-4 times to the depth will be revealed by multi-narrow beam echo-sounder, and detailed bathymetry in the Southern Ocean will be obtained along the ship track. Moreover, sub-bottom profiler will also be equipped in the new icebreaker. Sub-bottom profiles under sea ices will be also obtained. Unknown seafloor topography and sub-bottom profiles under sea ices around Antarctica such as continental shelf and sloop will be cleared, and those data will be used as basic data for paleoenvironment study as well as determination of drilling sites in the future and so on. Those data combined with magnetic and gravity anomalies will also contribute to the study related to the continental breakup. But there is a limit to observations by the icebreaker. The surveys under sea ices using ROV and/or AUV should be considered. We introduce multi-narrow beam echo-sounder and sub-bottom profiler installed in new icebreaker and show future development of research using those.