

## Initial Report of the Japan-Russian Cooperative Cruise at the Knipovich Ridge in the Arctic Ocean

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A Japanese-Russian joint research cruise (Kinpovich-2000 Cruise) was successfully conducted at the Knipovich Ridge, a little known ultraslow-spreading system in the Arctic Atlantic Ocean from August 30, 2000 (Bergen, Norway) to September 23 (Bergen, Norway). Deep tow sidescan profiling, 10 CTD, 4 TV Grab sampling and bottom observation, 5 dredge rock sampling, 3 sediments core sampling and 6 heatflow measurement sites were conducted along the axis of the Knipovich Ridge.

A Japanese-Russian joint research cruise (Kinpovich-2000 Cruise) was conducted at the Knipovich Ridge, a little known ultraslow-spreading system in the Arctic Atlantic Ocean from August 30, 2000 (Bergen, Norway) to September 23 (Bergen, Norway). R/V Logachev of Polar Marine Geosurvey Expedition, St. Petersburg was used for the Knipovich-2000 Cruise. 37 scientists participate the cruise from Japan, Russia, UK, USA, Norway, Vietnam, China, Taiwan, and Korea. Kensaku Tamaki (Ocean Research Institute, University of Tokyo) and Georgy Cherkashov (Institute for Geology and Mineral Resources of the Ocean (VNIIOkeangeologia), St.-Petersburg,) were co-chief scientists of the cruise. The multi-country scientist party consists of tectonist, petrologists, biologists, sedimentologists, water-chemists, and geophysicists. The homepage of the Knipovich-2000 cruise is at <http://www2.ori.u-tokyo.ac.jp/~asada/k2k/>.

For the first 6 days, the ORE sidescan sonar system (30 kHz) attached with LSS (Light Scattering System) of UK, CTD, Japanese proton magnetometer, and Japanese pH meter was towed along the axis of the Knipovich Ridge from the southern end toward the northern end with a swath width of 2.5 km. The along axis deep-tow covered 60% along-axis of the Knipovich Ridge. The ORE deep tow sonar images confirmed intensive volcanic activity at most of the topographic highs in the center of the rift. Specifically four large seamounts in the rift valley of the Knipovich Ridge all appeared as active volcanoes with abundant fresh lava flows and pillow mounds. They are identified as the centers of four fundamental segments of the Knipovich Ridge. The scale of each segment is about 100 km. Smaller order segmentation with a length of about 20 km was also identified. The correct identification of segmentation provided the basis to devise a sampling plan for the cruise. Based on the onboard analyses of sidescan data, 10 CTD, 4 TV Grab sampling and bottom observation, 5 dredge rock sampling, 3 sediments core sampling and 6 heatflow measurement sites were conducted. Preliminarily, it can be suggested that hydrothermal sites related to basalt magmatism (as at TAG, Snake Pit, etc.) can be expected in the northern part of the ridge, where there is more volcanic activity, whereas in the southern part, the hydrothermal activity related to ultramafic rocks (as at Logachev and Rainbow sites) is more likely. 8 Japanese OBSs were deployed at the largest volcanic segment at 76.5 degree north to observe seismic activities and 7 of them were recovered by another cruise by R/V Haakon Mosby of Norway in October 2000. The detailed report will be submitted to 2001 Spring issue of InterRidge News.