

Rock and sediment sampling on the Piip submarine volcano

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The sampling of volcanic and subvolcanic rocks was carried out using the "Okean" rectangular dredge. Sediment sampling was carried out by use of a hydrostatic core HSS-2. Results of our geological sampling over and adjacent to the Piips Volcano are depicted in Table 1.

Table 1. List of stations (Leg 1, RUSALCA-2004)

Date	Stat. No	Instrument	Latitude, N	Longitude, E	Water depth, m	Short description
31.07.2004	A03	grab	55° 25,5	167° 16,6	798	Pieces of dacite
31.07.2004	A03	grab	55° 25,5	167° 16,7	798	Fragment (50x40x30 cm) of andesite
31.07.2004	A04	grab	55° 24,8	167° 16,5	390	Pieces of dacite
31.07.2004	A05a	dredge	55° 24,6	167° 15,85	554	Pieces of dacite with manganese crust
31.07.2004	A05b	grab	55° 24,873*	167° 16,094*	380*	Fragment (40x40x30 cm) of black andesite
31.07.2004	A05c	dredge	55° 25,04 55° 25,03*	167° 16,2 167° 16,5*	395	Fragment and pieces of dacite
31.07.2004	A07	dredge	55° 24,8 55° 25,0*	167° 16,2 167° 16,5*	600 400*	Pieces of pumice with manganese crust, carbonate-siliceous concretion.
31.07.2004	A07	dredge	55° 22,44 55° 22,9*	167° 15,4 167° 16,2*	697 550*	Muds and diatom oozes, 2.45 m.
01.08.2004	A08	core	55° 20,652	167° 18,09	1890	Pieces of pumice, dropstones, manganese crust
01.08.2004	A09	dredge	55° 22,8 55° 21,1*	167° 15,51 167° 16,1*	470 660*	Pieces of pumice, dropstones, manganese crust
01.08.2004	A10	core	55° 23,878	167° 13,382	1400	Pieces of pumice, dropstones, sand
01.08.2004	A11	dredge	55° 22,64 55° 22,99*	167° 15,56 167° 16,14*	568 500*	Fragments of pumice, dropstones, sand
01.08.2004	A12	core	55° 23,984	167° 13,56	1251	Detritus of gray pumice
01.08.2004	A13	core	55° 27,43	167° 18,70	2096	Detritus of andesite

* coordinates and depth at the finish of the dredging operation.

The samples of magmatic rocks collected during the RUSALCA expedition are similar to previously collected samples from the submarine Piip volcano. The large fragments of fresh andesites (Fig. 1A) and dacites were dredged on the North Peak of the volcano. In some cases thin crusts of manganese oxides covered the samples. A large quantity of samples was dredged from the south peak of the Piip Volcano. They were primarily dacite pumice (Fig. 1B). Most of these samples were covered by manganese crust. In some cases hydrothermally altered authigenic clays accumulated in pumice pores and were spread along the surface. Two samples of carbonate-siliceous concretions and sulfide-cemented crust were also dredged from the south peak of the Piip Volcano (Fig. 1C).

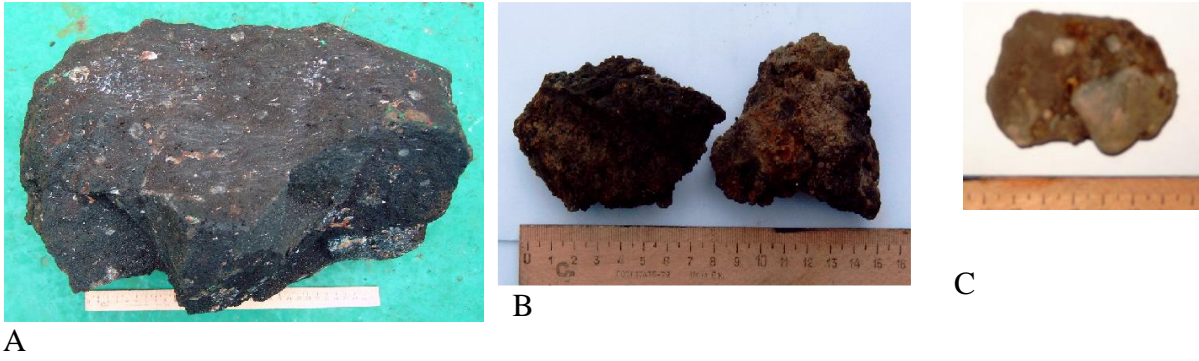


Figure 1. Sample of dredged rocks: A – fresh andesite fragment, station A02; B – altered pumice with manganese crust, station A07; C – sulfide cemented crust with ice rafted pebble, station A09.

Sediments were sampled by cores and a bottom grab only at station A08 from a depth of 1,890 m. The samples were a mixture of diatom ooze and sand (0-22 cm) and clayey silt interspersed with volcanic ash layers (109-113 and 173-175 cm).