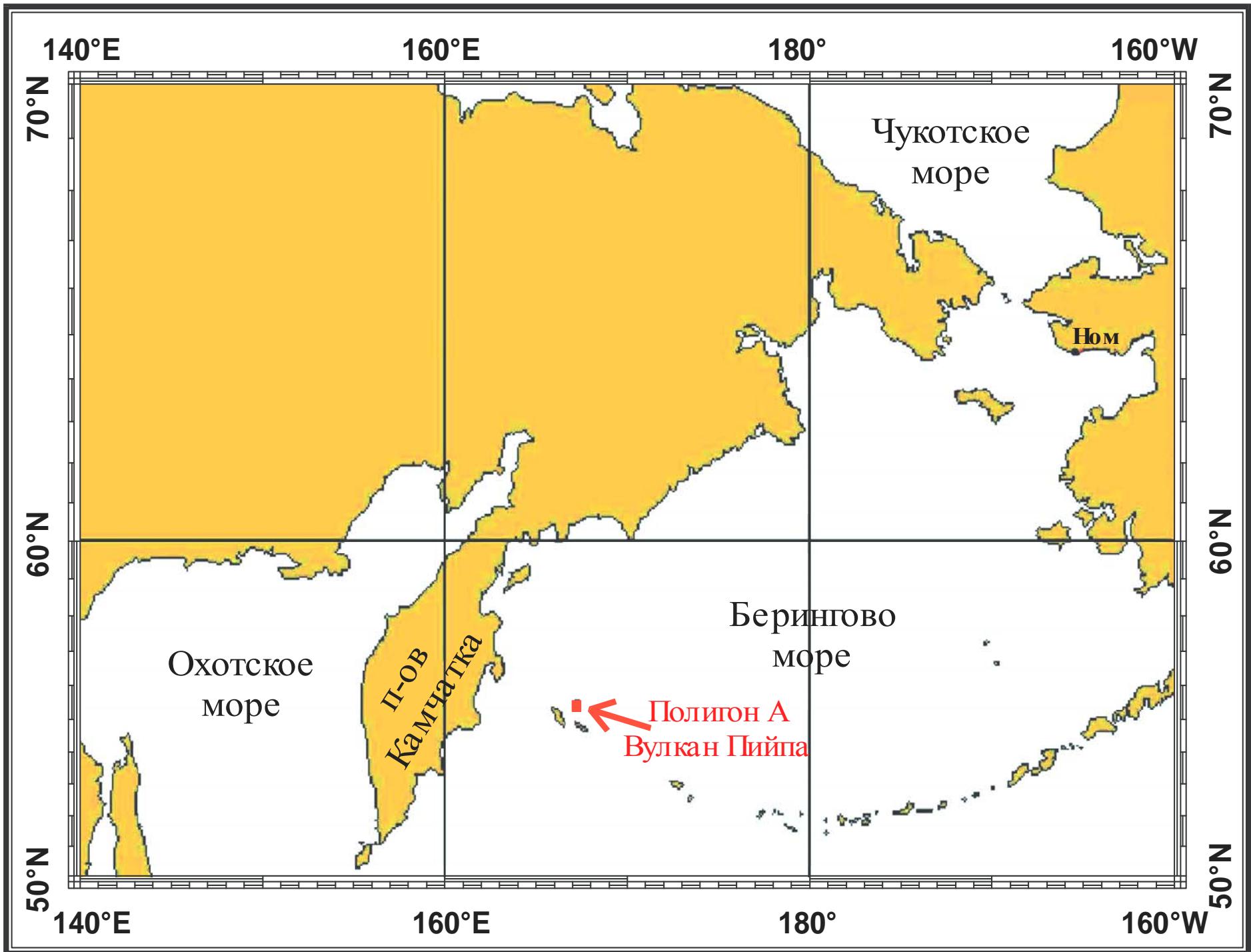
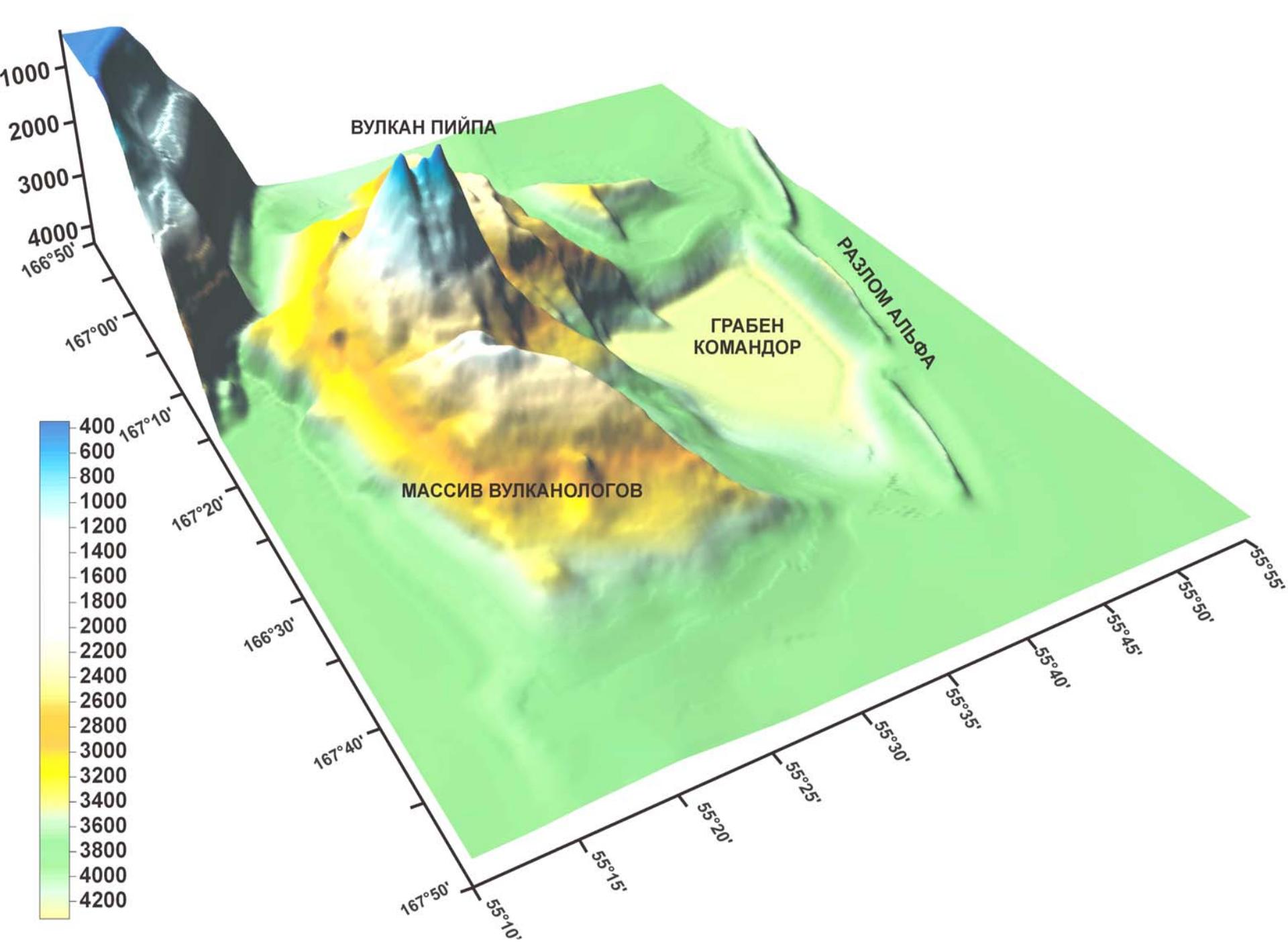


Geological investigations of Piip submarine volcano

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VNIloceangeologiya
Russian Ministry of Natural Resources

and geological team

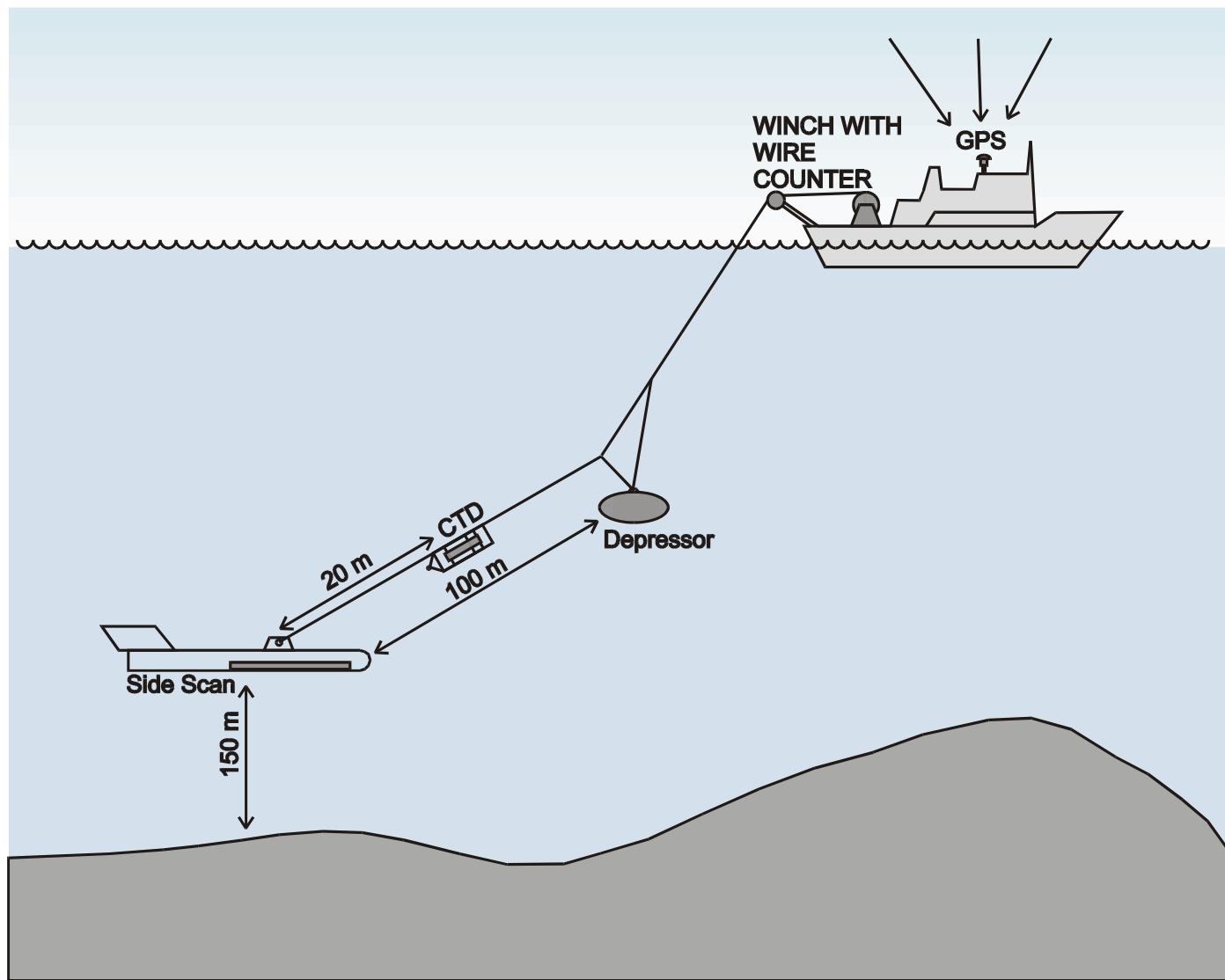




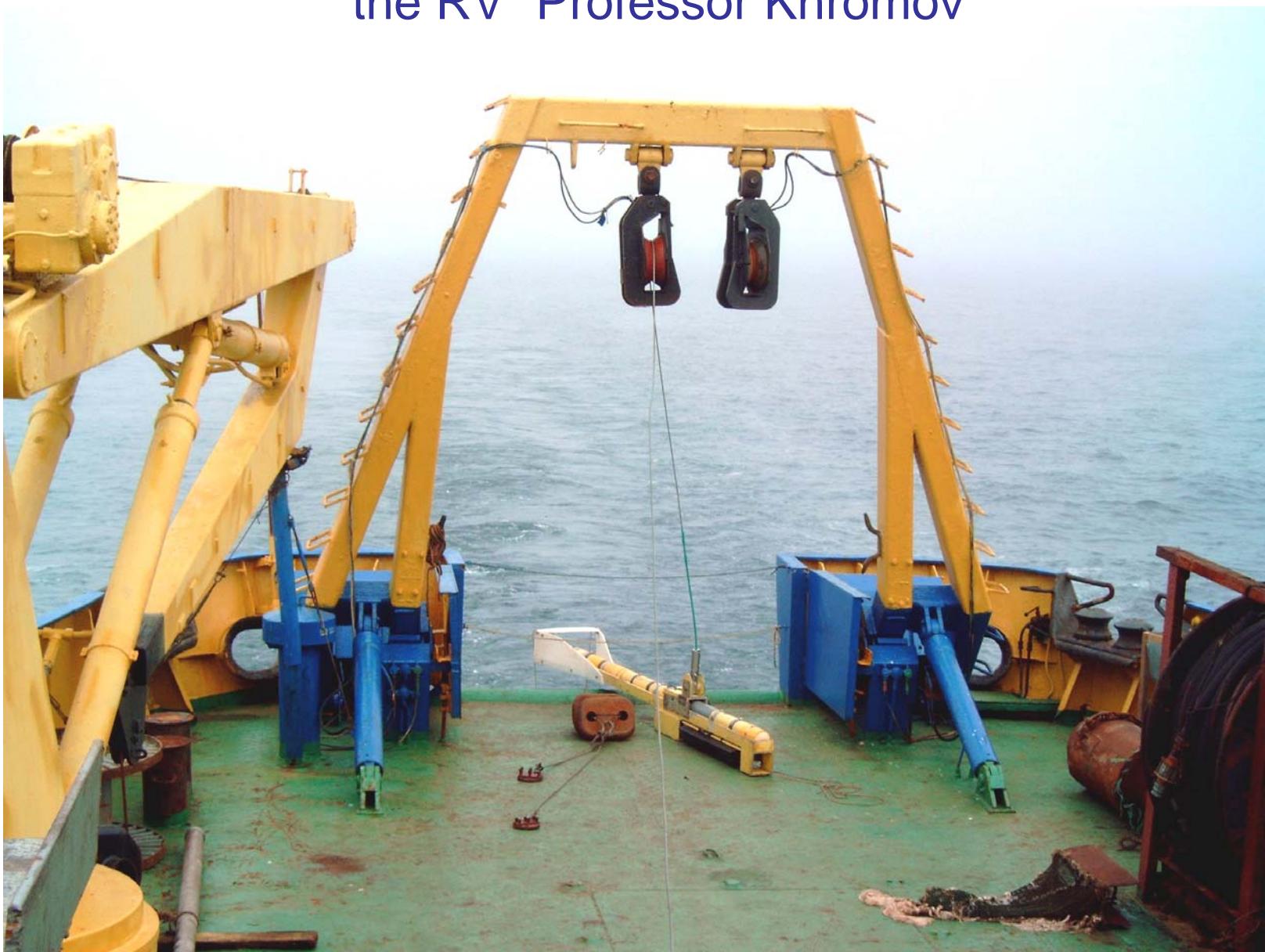
Methods

- side scan, geoacoustic profilograph, STD and methane zond – 3 profiles;
- acoustic sounding of bottom and water column (9 profiles);
- determination of mercury in the air (9 profiles) and water (any stations);
- sampling rocks and sediments by drag, grab and cores (11 stations).

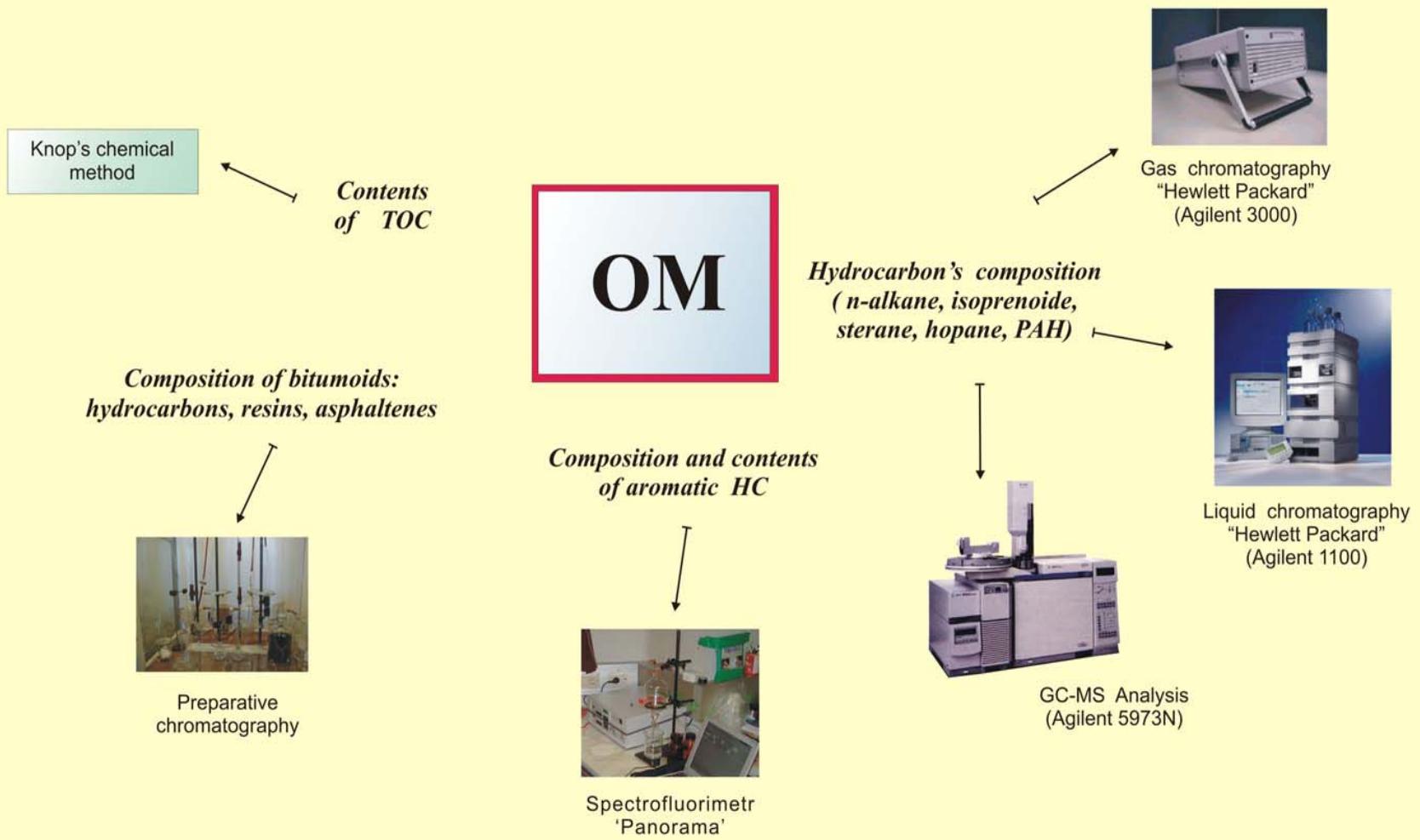
Scheme of side-scan profiling



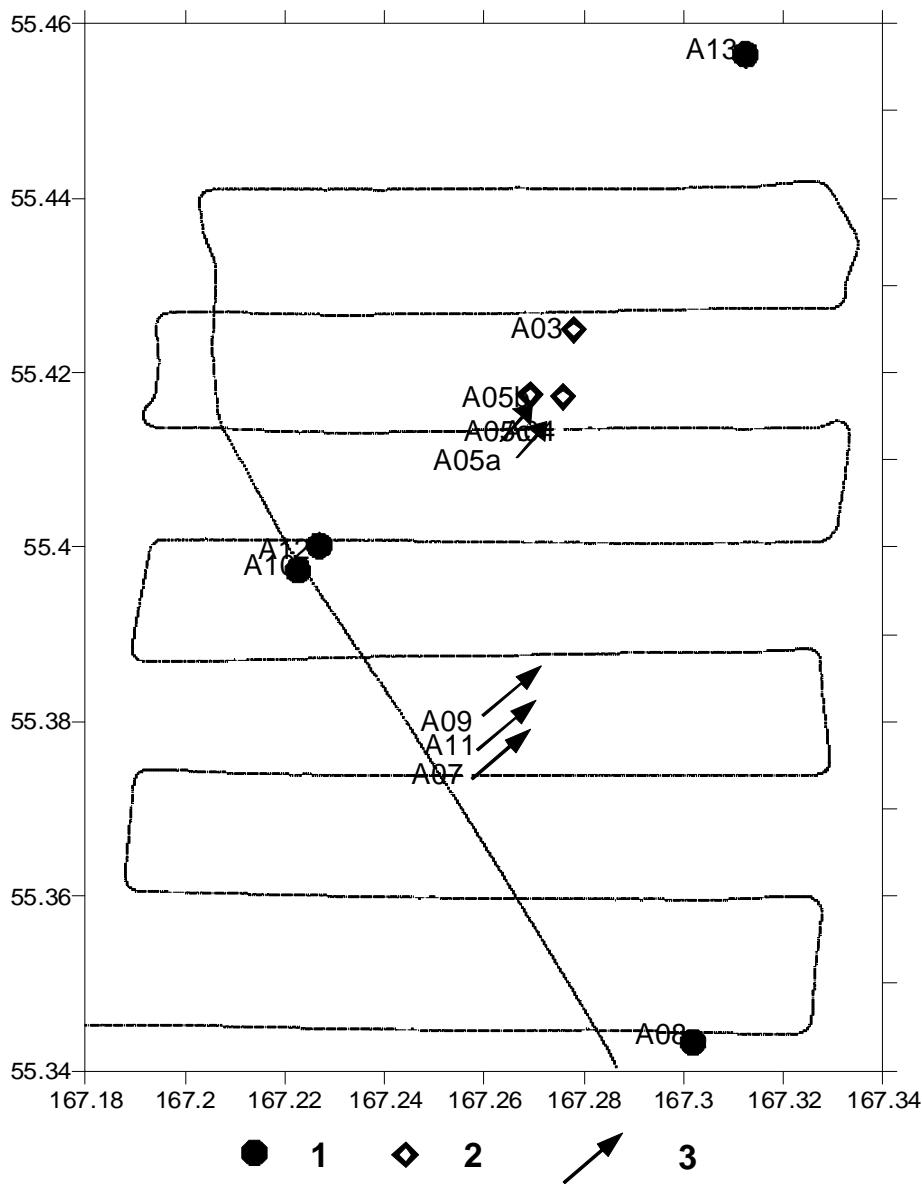
Side scan and depressor on the deck of
the RV “Professor Khromov”



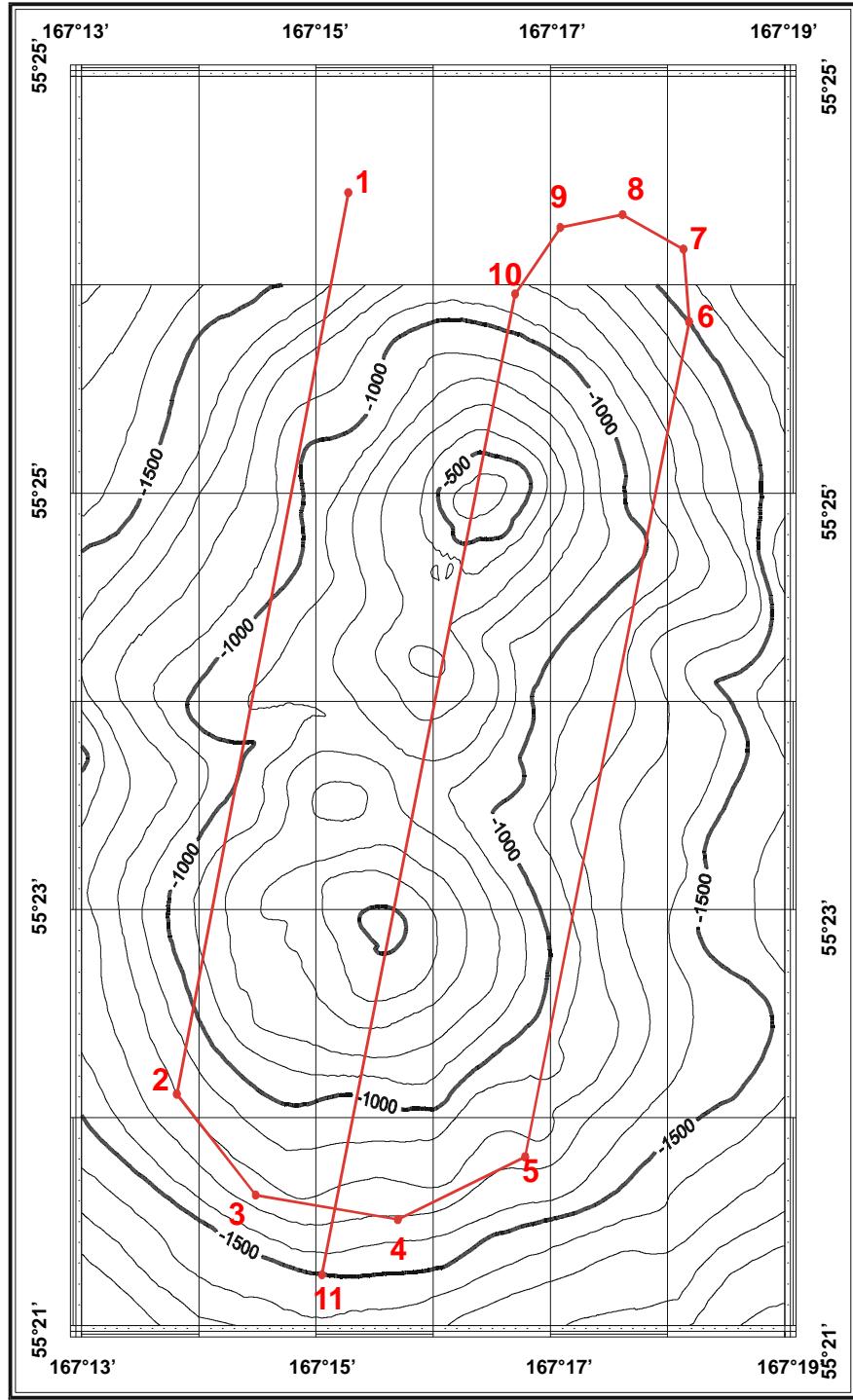
Scheme of organic matter of sediment samples investigation



Location of rock and sediment sampling stations

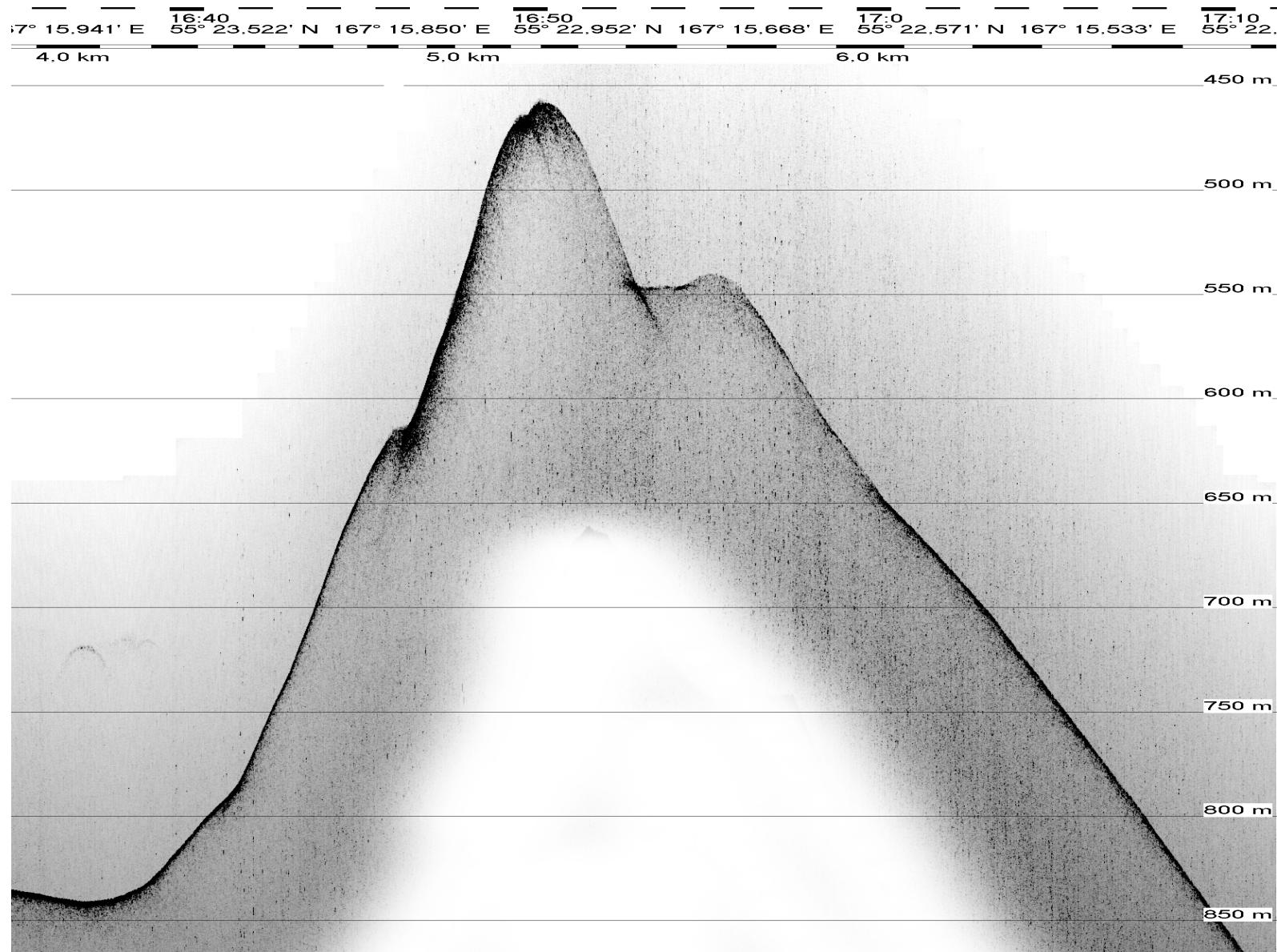


- 1 - sediment cores
- 2 – CTD stations
- 3 – drag sampling

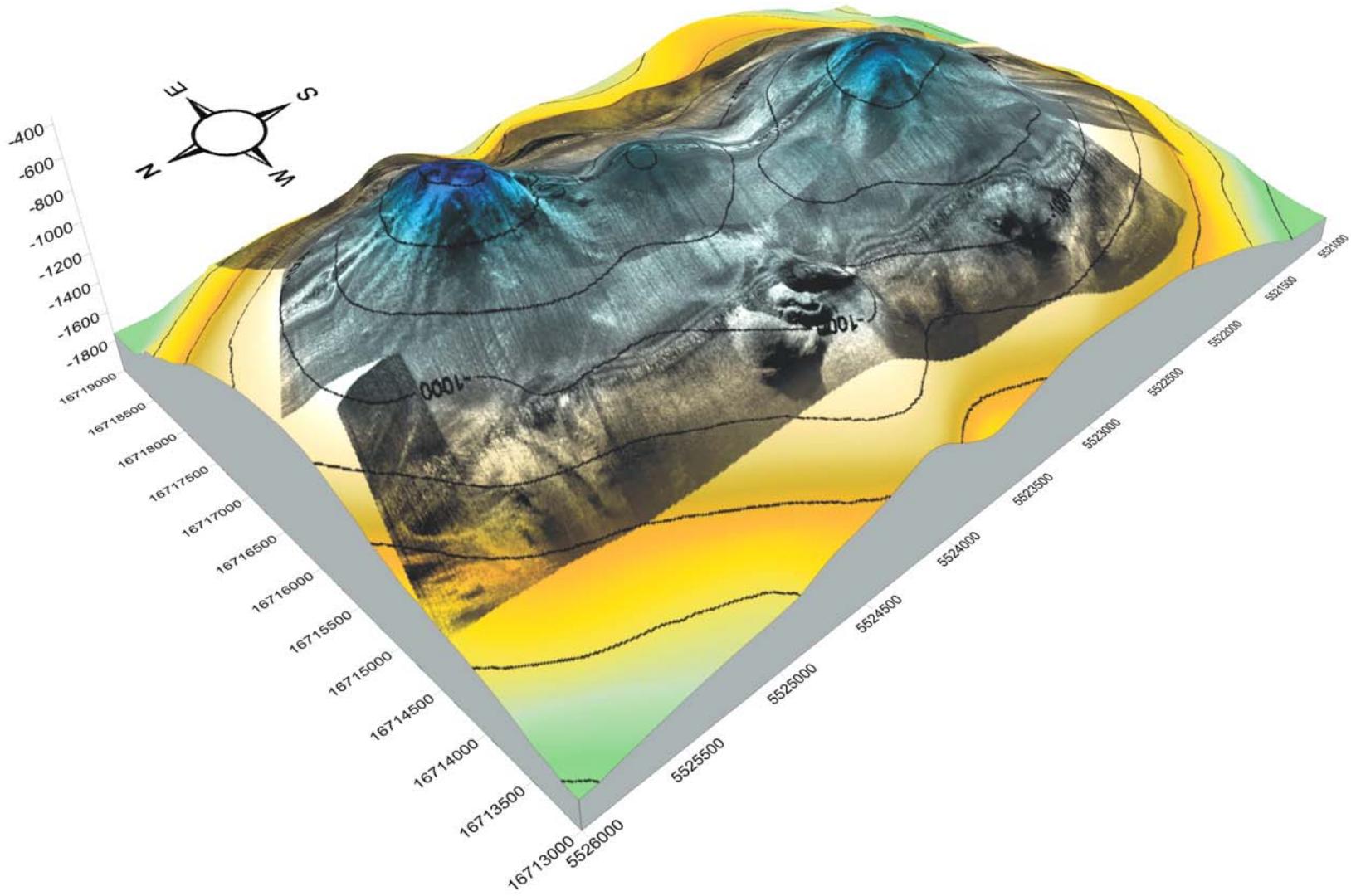


Side-scan profiles

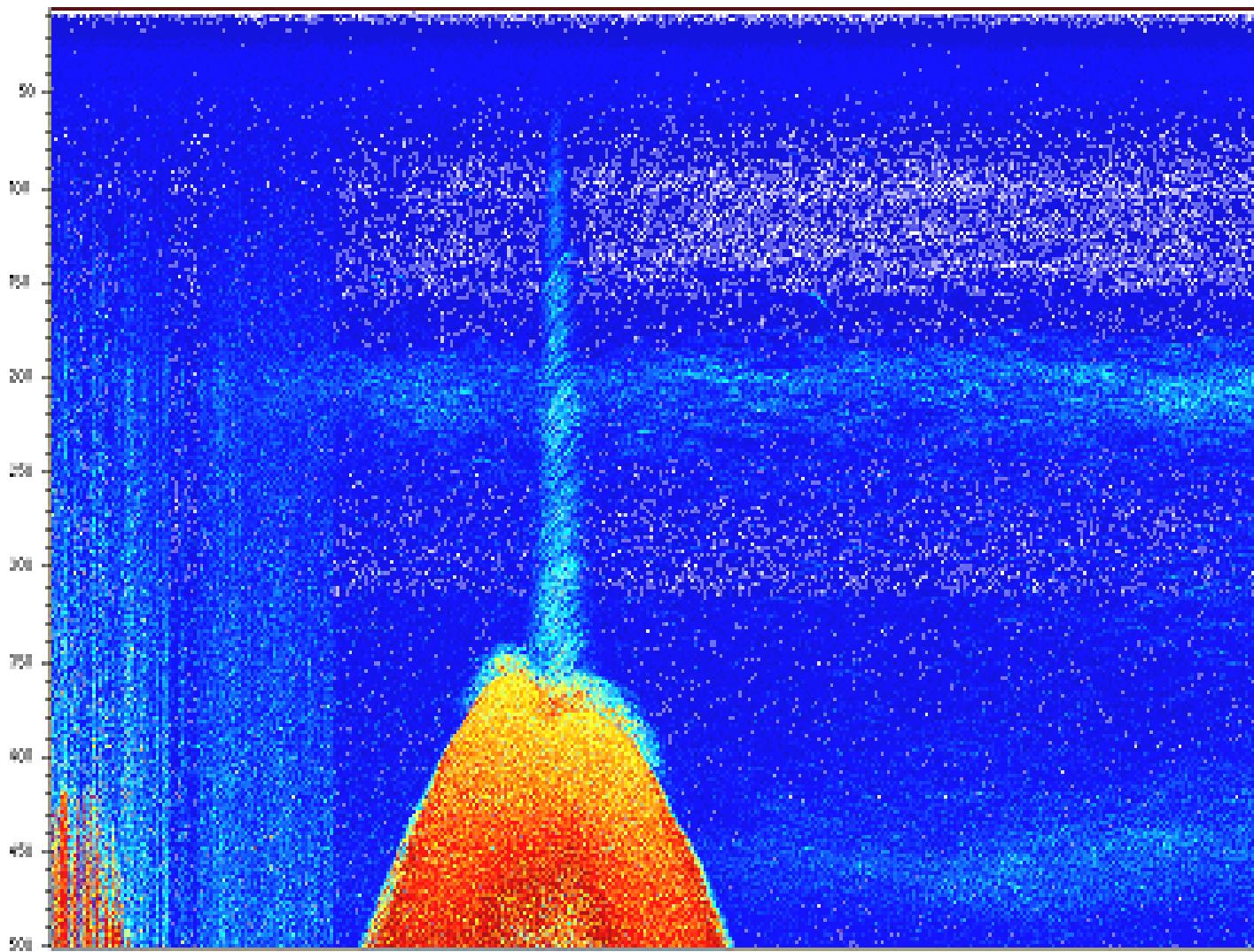
Profile through north pike of volcano by high frequency geoacoustic profilograph



Side-scan images of volcano surface



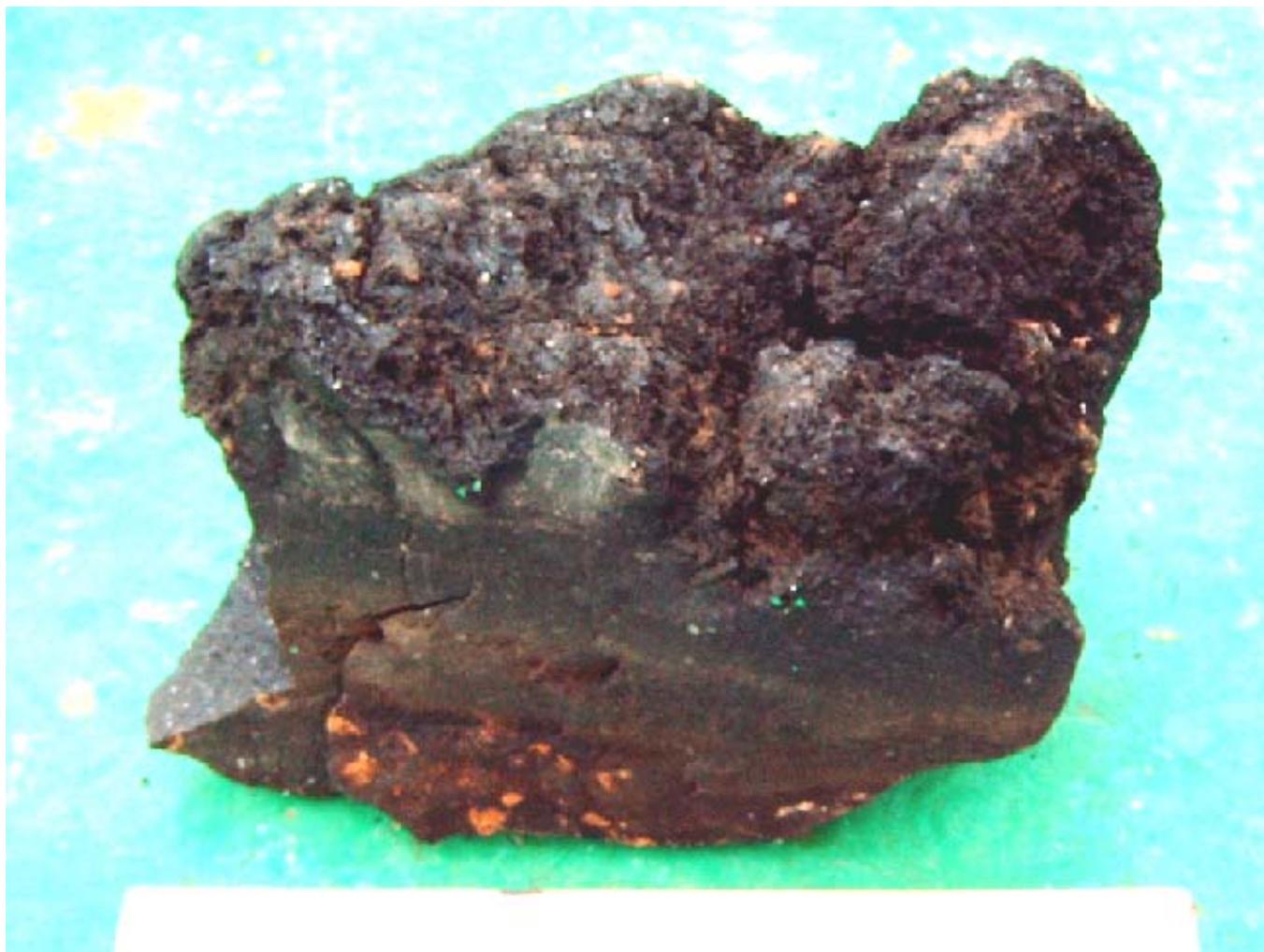
Hydroacoustic images of water column and gas flare above hydrothermal vent of North Pike of Piip Submarine Volcano



Sample of dredged rocks: fresh andesite fragment



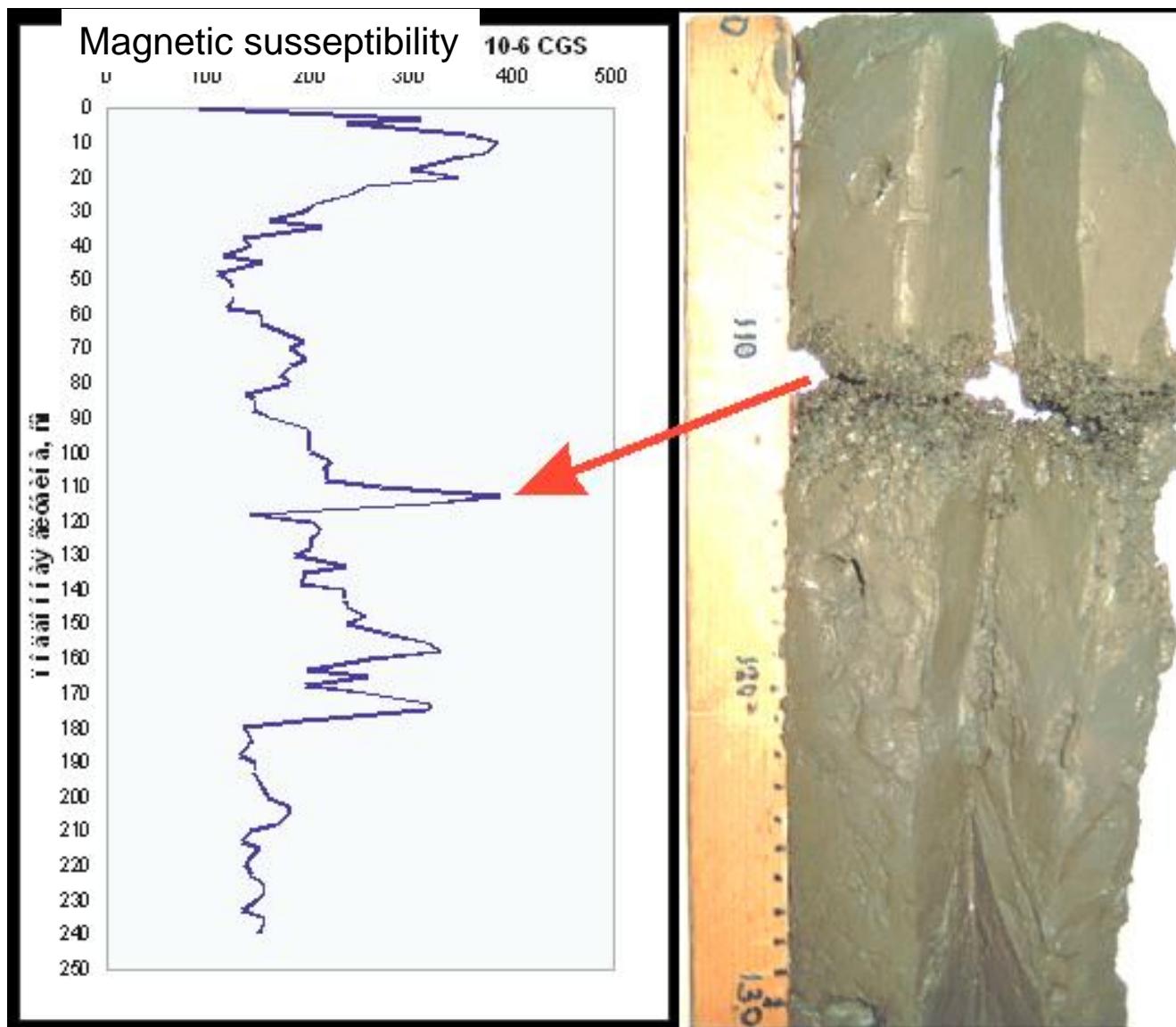
Fragment of black andesite (A05b)



Fragment of dacite pumice (A11)



View and magnetic susceptibility of core A08



Red arrow –
location of
volcanic
ash layer

A02



Chemical composition of some rock and mineral samples

A07



A09

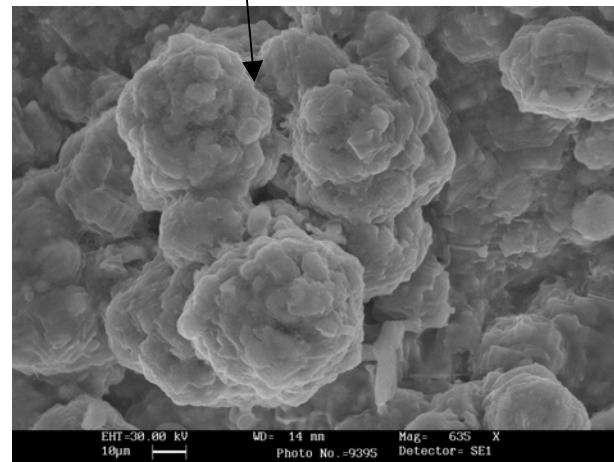
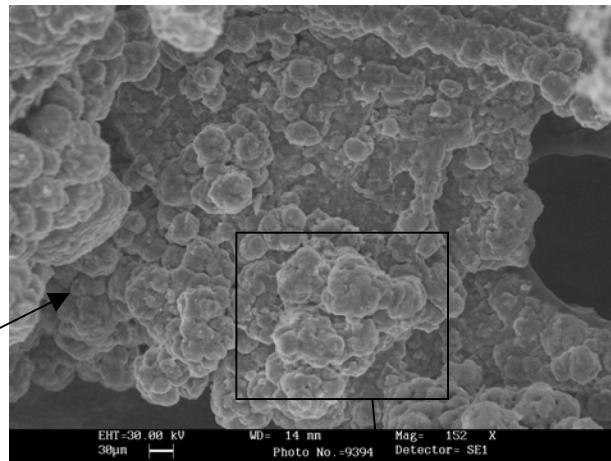
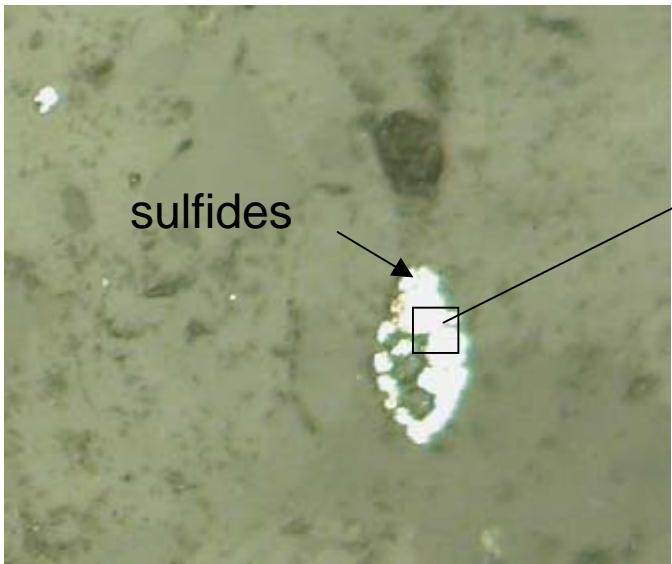


062B



Sea	Station	Sample	Al, %	Ca, %	Fe, %	Mn, %	Co	Cu	Mo	Ni	Pt	V	Zn
Submarine Pip Volcano	A02	pumice	4,36	1,88	2,14	0,13	26	71	2	33	0,26	65	67
	A07/1	calcareous concretion	4,25	23,62	3,39	0,11	11	119	6	29		244	95
	A09	Hydrothermally changed andesite	7,38	3,78	7,39	0,11	23	859		24		476	147
Chukchi Sea	065B	Fe-Mn nodules	2,37	2,18	17,07	14,35	302	25	179	142	1,46	382	342

Electron microscope (SEM) images of sulfide minerals from calcareous concretion (A07 station)



Thank you