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Title: *Submarine landforms of Recherche Fjord (Bellsund, Svalbard) and characteristics of the bottom sediments for example of the Verster Bay*

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The study included recognition the submarine landforms of the Recherche Fjord an area of 35 km² (Bellsund, Svalbard). The data to draw up of bathymetric map of the bottom fjord was made by two methods:

- profiling with the use of Multibeam Echo Sounder Seabeam 1000, installed on the ship MS Horyzont II; the work covered the central part of the fjord,

- profiling with the use of Multi-Frequency Echo Sounder Bathy-500 MF; more than 180 profiles were made, the area of study directly adjacent shallower margin of the fjord (offshore), the lagoon in front of the Recherche Glacier, the Vester Bay with its extension to the fjord and area of the Joseph Bay.

Received data were processed digitally using GIS software (ArcMap 9.3). The obtained image of the bottom of the Recherche Fjord points at existence of either elements of structural relief (bedrock outcrops, edges of tectonic fault) or, first of all, submarine landforms, resulting in oscillation (surges) of the front of the Recherche Glacier (moraine ridge, annual moraine ridges, glacial lineation, glacial debris flow).

The development of the studies of the Recherche Fjord was sampling of bottom sediments with the use of Van Veen Sampler from areas of various subenvironments of depositions. They were:

- (1) Vester Bay and its extension to the fjord (57 samples) - the source material is the Chamberlin Valley catchment (17% glaciated), its lower part is tidal flat; characterised by a slow deposition throughout the whole Holocene with help of proglacial rivers;

- (2) Joseph Bay (50 samples) - the source material is the Renard Glacier catchment (75% glaciated), which lower part is closed by ridges of a few dozen of metres of the pushed moraine that limits Joseph Bay (Josephbukta); characterised by a forming a typical submarine landform in front of tidewater glacier in period of post-Little Ice Age (20th century);



(3) lagoon in front of the Recharche Glacier (58 samples), the source material is the Recherche Glacier catchment (over 90% glaciated). Marginal zone is more than 3 km ice cliff ending into the lagoon (lagoon area 3.4 km²), separated from the fjord water by outwash plains zone; characterised by a fast and intensive material deposition (recent about 40/30 years).

Nowadays, all the samples are under multispectral laboratory analyses. This study shows results of grain-size distribution analysis and contents of carbon (total organic carbon) and nitrogen of samples from the Vester Bay area.

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