

Investigation of rock clasts collected by dredging of mega-blocks in the Central Barents Sea

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During cruise HH-12 rock samples were collected by dredging. The main objective of the dredging was investigation of mega blocks in the central part of the Barents Sea. Samples were analysed by lithological and petrophysical methods.

The main investigation methods were macro description, which was carried out onboard. With this method, the main rocks characteristics, such as color, structure and texture were described. Another method, a more detailed micro description was carried out also. It was performed in the university after the thin sections were prepared. Using this method permits exactly to define the composition of the rocks, evaluate the percent volume of the components and give characterization of the grains. Resolution of the method is 0.2 mm. The last used method was X-ray computer tomography (CT), which is a non-destructive technique. It reveals the internal structure of objects, determined by variations in density and atomic composition. Large number of parallel 2D sections can be obtained, which allows 3D imaging of selected features. Also this technique allows calculating porosity and fluid flow characterizations. The resolution of that method is about 1 μm . This method was carried out on sandstones with zircon content. The zircon was separated, than analysed. Due to the grain morphotype of the zircon (Pupin, 1980, Belusova *et al.*, 2006), we supposed the genesis of the sandstone blocks.

The dredge was taken to collect samples of the rocks, which form the ice-rafted mega blocks mapped in the Bjornoyrenna (Fig.1).

The main material which was collected during dredging was sandstone. Nearly 80% of all selected rocks were sandstone clasts. The composition of sandstones based on the micro description is pretty same. The volume of quartz grains vary between 60 and 80%, feldspar ~10-30% and rock fragments ~5-15%. One of three studied

samples had a special feature: heavy minerals occurred in parallel structures in the rock.

Besides sandstones, a dolostone sample was also investigated. From CT data, some low x-ray density patches were found, which can be clay or organic material, but it is difficult to say what exactly it is. This unknown phase forms also parallel structures in the rock. Silty-sandy claystone was also analysed. The main features of this sample were the abundant fractures, which were filled with different material, such as heavy minerals and calcite. And the last sample was weathering crust, very oxidized and fragile.

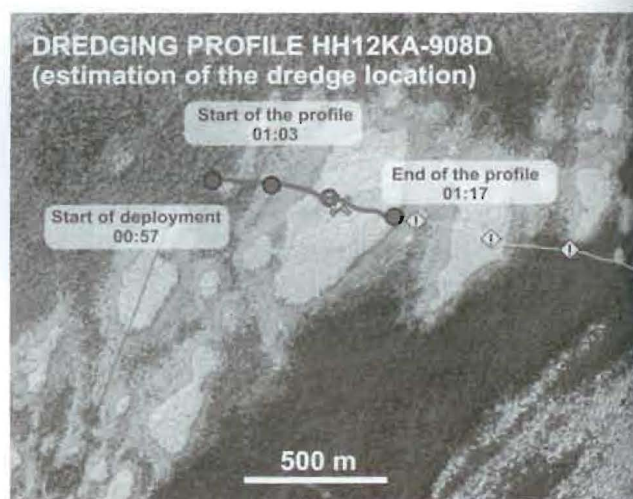


Figure 1. Dredging profile

Belusova E.A., Griffin W.L., O'Reily S.Y. (2006): *J Petrol*, 47/2: 329–353.

Pupin J. P. (1980): *Contrib Mineral Petrol*, 73: 207-220.