Geochemical approach to revealing of the fine structure in the Polar Formation (the Lomonosov Ridge, central Arctic Ocean)

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Recently the study of Quaternary sediments from Lomonosov Ridge revealed two parts of cross-section [1]. Upper part consists of contrast interlayering of glacial and interglacial sediments (MIS 1 – MIS 6), and lower part – from uniform older sediments. We called them as the Lomonosov Formation and the Polar Formation, respectively [2]. Our XRF data from the Polar Formation [2] have been undergone to cluster analysis. We could prove the fine structure of the formation due to interlayering of sediments from glacial, stadial and interglacial paleoenvironments. To do that we used the idea from [1] about mean sedimentation rate of the Polar Formation equal to 1 cm/kyr and age model of Martinson et al. (1987). For sure, our data later should be connected with XRF-scanner data.

Recently our Swedish colleagues got the same results about fine structure of the Polar Formation based on grain-size analysis, for example, data about sortable silt and some other parameters. We checked this conclusion by means of correlation analysis of $Al2O_3/SiO_2$ ratio and ratio (sand +silt)/clay in our data base for the Polar Formation. Coefficient of correlation is 0.688. It means the possibility to reveal the fine structure of the Polar Formation by the both methods, the geochemical and the grain-size ones.

[1] O'Regan *et al*. (2008) *Paleoceanography* **23.** PA1S19, doi:10.1029/2007PA001551. [2] Levitan *et al*. (2010). Structure and the history of lithosphere development (Ed. Yu.G. Leonov). M.-Spb.: Paulsen Edition, 464-490.