



## **Earth's crust construction of Mendeleev Ridge in the Arctic Ocean**

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Several hypotheses were recently popular in relation to Mendeleev Ridge origin and evolution. Hypothesis considering Mendeleev Ridge as trace of Mesozoic hot spot has to be mentioned together with hypothesis of Mesozoic spreading origin or oceanic basalt plateau. Wide range of data interpretation versions in this region was conditioned by absence of deep borehole and small number of deep sounding seismic profiles.

2000 and 2005 expeditions of VNIIOkeangeologia executed two deep seismic sounding (DSS) lines crossing Mendeleev Ridge: the first – at about 82° N, and the second – along ridge's axis in its southern part (plateau Arlis). DSS were accompanied by gravity measurements and by detailed aeromagnetic surveys. Our interpretation is relied on the calculated 3D petrophysical model of Earth's crust based on the gathered geophysical data.

Earth's crust of the Mendeleev Ridge belongs to continental type, its maximal thickness along axis alternate from 24 to 32 km. Low crust characterizing by velocities between 6,6 and 7,0 km/s has the increased thickness in comparison with averages world parameters. Geophysical and petrophysical characteristics of the ridge's upper crust let us to consider it as similar to Ellesmerian folded sequence of Early Cretaceous age of consolidation.

Thickness of cover sediments (Brookian sequence?) in the ridge is mostly about 1-2,5 km. To south from Arlis Plateau, - in western part of the North Chuckchi depression, depth of basement increases to 12-13 km.

Paleomagnetic investigation of sediment cores showed very low (about 1 mm/1000 years) and constant sedimentation rate during last 4 my.