

Sedimentary Cover of the Central Arctic

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Partial revised Submission of the Russian Federation for establishment of the OLCS (outer limit of the continental shelf) in the Arctic Ocean is made to include in the extended continental shelf of the Russian Federation, in accordance with article 76 of the Convention, the seabed and its subsoil in the central Arctic Ocean which is natural prolongation of the Russian land territory. To submit partial revised Submission in 2016, in 2005 – 2014 the Russian organizations carried out a wide range of geophysical studies, so that today over 23000 km of MCS lines, over hundreds of wide-angle reflection/refraction seismic sonobuoy soundings and 4000 km of deep seismic sounding are accomplished.

All of these MCS and seismic soundings data were used to establish the seismic stratigraphy model of the Arctic region. Stratigraphy model of the sedimentary cover was successively determined for the Cenozoic and pre-Cenozoic parts of the section and was based on correlation of the Russian MCS data and seismic data documented by existing boreholes. Interpretation of the Cenozoic part of the sedimentary cover was based on correlation of the Russian MCS data and AWI91090 section calibrated by ACEX-2004 boreholes on the Lomonosov Ridge for Amerasia basin and by correlation of onlap contacts onto oceanic crust with defined magnetic anomalies for Eurasia basin, while interpretation of the Pre-Cenozoic part of the sedimentary cover was based on correlation with MCS and boreholes data from Chukchi sea shelf.

Six main unconformities were traced: regional unconformity (RU), Eocene unconformity (EoU) (for Eurasia basin only), post-Campanian unconformity (pCU), Brookian (BU – base of the Lower Brookian unit), Lower Cretaceous (LCU) and Jurassic (JU – top of the Upper Ellesmerian unit). The final step in our research was to estimate the total thickness of the sedimentary cover of the Arctic Ocean and adjacent Eurasian shelf using top of acoustic basement correlation data and bathymetry data. Structural prolongation of the shallow shelf into deep-water could be observed on this sedimentary map.