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Title: *Geochemistry sedimentation in the Chukchi-Alaskan sector of the Arctic ocean: application to analyses of past climate changes*

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Marginal seas of the East Siberian sector of Arctic Basin are characterized by the environmental changes maximal rates during the last decades, which are expressed in the rapid ice melting. The evidence of such local ice-sheet changes reasons and duration is not clear yet. As the factors responsible for these changes the increased water and heat exchange via the Bering Strait, the strengthened air heat transfer in the northern direction, the upwelling of relatively warm intermediate Atlantic waters, which penetrate into the East Arctic Ocean along Eurasia, and the activated geological processes are proposed.

The chemical composition of the Chukchi Sea and borderland surface sediments are determined by two main factors: the mineral composition of sediments and oxic-unoxic conditions. By high content of Si it is well contoured the area of distribution of sandy sediments composed by clastic substance with background content of the quartz. In enrichment of sediments by Al and, in part, by Mg and Fe it is revealed dependence on the content of clay material in sediments. With this, enrichment of sediments in the Canadian Basin by Al reflects, probably, known distinctions in the structure of clay minerals supplied from the land. In distribution of Ca and, in part, Mg it is manifested the enrichment of sediments of the Chukchi Plateau and Northwind Ridge by biogenic carbonates. Oxidizing conditions exist in deep sea areas (high Mn, V, Zn content), anoxic and euxinic (high content of Mo, Ag, Corg.) - on the inner shelf. This pattern is complicated by the active neotectonic structures of the Graben-Rift system, where the sediments enriched with organic carbon, opal and many metals are accumulated.

The stratification of the deep sea Quaternary sediments is based on change oxic-unoxic conditions during the glacial/interglacial sediment layers as well. This can be seen most clearly by the Mo/Mn value, which is proposed for reconstructions of ice sheet. In cores of the Chukchi Platou the variations of Mo/Mn revealed three sediments layers within each glacial/interglacial circles: of oxic, suboxic and euxinic (H₂S) conditions. Rapid changes of the bottom waters chemistry from oxic to euxinic on the borders of cycles is probably the result of permanent ice sheet forming and sea level downloading in the transition from interglacial to glacial periods.



This study is executed within the framework of the Russian-American Project RUSALCA and at partial financial support of the RFBR (grant 12-05-91167)